A MODEL FOR A HUMANIZED WORK CLIMATE, AND THE EFFECTS
OF OCCUPATION CHOICE AND EDUCATION LEVEL ON
STUDENTS' ATTITUDES TOWARD AN OPERATIONAL
DEFINITION OF SUCH A CLIMATE

DISSERTATION

Presented to the Graduate Council of the
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By

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This investigation determines students' attitudes toward a "humanized" work climate. The possibility that attitudes developed before entering the labor force contribute to the lack of such environments is the basis of the research design.

A review of motivation theories, relevant research and experiences of some "humanized" firms precedes the development of a model for a humanized climate. The three main elements of the model--team activity, the product, and the self-concept--are interconnected by elements such as self-control, job performance, autonomy, goal definition, and learning. The research questionnaire, a thirty-one-statement, Likert-type instrument, elicits attitudes about the time-task aspect of Kahn's "Work-Module." A Cronbach Alpha Coefficient of 0.74 indicates an acceptable reliability.

The subjects, all male, were seventy senior business students at North Texas State University, fifty-six high school senior academic students from the Richardson, Texas
ISD, thirty-two high school vocational students from the Garland, Texas ISD, and twenty-nine college vocational students from the El Centro Branch of the Dallas County Community College System. A 2 x 2 analysis of variance revealed a significant difference ($P = 0.0038$) between attitudes of vocational and non-vocational students. Vocational students apparently value an autonomous work situation. They prefer a job which permits them to develop and use four or five work skills, because that type of job appeals to their self-concept and promises economic and vocational security. However, students in academic programs consider their economic and job security best protected by structured and specialized jobs. Individuals who aspire to own their own business also prefer the structured climate; others prefer the autonomous environment.

The difference in attitude between the two education levels was significant at $P < 0.20$. The education process appears to be associated with preference for a more structured work climate, in the case of both academic and vocational students. Education also appears to reduce the difference of opinion between academic and vocational students.

The study concludes that the two major elements of the human resource begin their work lives with perceptual differences learned from experiences outside the work
environment. Organization-change activities are impeded, and to some extent controlled, by these differences. The relationship of the attitudes, given the traditional manager-employee relationship, can contribute to the scarcity of "humanized" firms.
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INTRODUCTION

In an effort to improve the contribution of the human resource to the production process, various techniques for modifying the work climate have been implemented. Job enlargement, participative decision-making, management by objective, sensitivity training, job rotation, flex-time, and job enrichment are examples of these efforts. The synthesis of the objectives and ideas encompassing these efforts is the concept "humanization of the work environment."

Most of the preceding techniques have attained only a modicum of success (17, p. 71). Major "human" modifications of the work climate have been successfully accomplished by an extremely small number of companies. Examples of successful implementation, tantamount to Taylor's "Mental Revolution," are:

a. Donnelly Mirror Corporation, where employees make salary decisions.

b. Motorola Corporation, where in several plants, the "assembly-line" has been removed in favor of the "assembly-team."
c. General Foods' Gaines Dog Food plant, which was constructed, and staffed, utilizing avante-guarde organization theories (2, p. 234).

One explanation for the success of these few efforts is the long-range commitment on the part of top management. That is, the change in organizational climate is a learning process. Individuals "educated" in the traditional work environment develop perceptions and behavioral patterns which must be "unlearned," and new perceptions and behavioral patterns must be substituted. This is a time-consuming process.

Another thesis is that just by chance these few companies were staffed with individuals whose unique personalities were collectively compatible with the participative work environment.

But, whatever the reason, in those companies where "humanization" efforts have been successfully implemented, the results have been astounding. For example, one company has reduced the price of its product 25 percent in the last twenty years (5, p. 51). Another sells its product at the same price they sold it in 1934 (7, p. A1). This has been accomplished in spite of rising labor and material costs.

The president of one of the more successful humanized companies said, "We moved into participative management for one reason: to maximize profits, because that's what we're
in business for" (11, p. 16). Based on this perception and the economic performance of the other humanized companies, the argument that "humanization of the work environment is incompatible with the profit motive" is apparently indefensible. Could there be a general reluctance to take the risks or innovation? Perhaps the things that are in the enlightened self-interest of the society as a whole are not necessarily perceived as being in the competitive self-interest of a particular company or union. Maybe the sparsity of humanized firms results from inadequate understanding of the potential of the human resource. The different perceptions of the work environment existing in the minds of labor and management, demonstrated by Weaver (17, p. 8), may result in pseudo-problems that cloud the real issues. Possibly, as Gurstenfeld suggests, "to the working man management is substantially the same whether it is made up of profit seekers, idealists, technicians, or bureaucrats" (8, p. 51). Perchance "non-cooperation" is built into the actors, contexts, rules, or ideologies of the industrial relations system (6, p. 7). A "Disagreement" group pathology may be the reason for the inability of labor and management to cooperate in the production process. Blake and Mouton argue that such disagreement can develop when two parties to a situation have a "two-valued orientation" (3, pp. 70-71).
If a "two-valued orientation" separating management and labor were a social norm, the business process structured on the basis of the norms would tend to maintain them. In such a case, the possibility exists that conceptual differences have been internalized before individuals become active participants in the industrial production process.

Purpose

Most efforts to understand the complexities of the work environment have their locus, quite properly, in that environment. However, an open system is influenced by external factors also. Are Weaver's "differences" attributable only to forces in the work environment? Or, are they also functions of pre-work development? Super suggests the latter possibility (15, p. 133). He argues that people who have certain values are likely to see more opportunity to achieve them in some fields of work than in others.

Perhaps some insight into the apparent inability of labor and management to structure and maintain cooperative efforts in the work environment can be developed by investigating attitudes concerning "autonomous job structures" which exist prior to entry into the production system.

This study is an examination of such pre-work job expectancies. It is limited to examining attitudes toward the work environment as they are associated with vocational choice and the education process. Specifically, do job
expectations, defined in a time-task context, of vocationally
oriented students differ from those of academically oriented
students? And, are the attitudes associated with two stages
in the education process?

If the data developed in this study can add to the
understanding of work behavior, the knowledge may contribute
to more successful humanization efforts. Minimally, the
questions raised will stimulate others to perceive and
pursue ideas as yet undefined.

Hypotheses

Beginning with the assumption that the "work module"
is representative of the "humanization" concept, the
research investigates two specific questions.

First, Kahn argues that managers express more job
satisfaction than labor because of their greater freedom to
control time-task aspects of their work life (10, p. 37).
From this, and the argument by Super, job autonomy could be
a part of the value-satisfying opportunities perceived by
individuals in the work environment. A reasonable question
then is, Are the individual's time-task expectancies
associated with the selection of a work environment or the
training preparatory to entering the work environment?

Second, based on the assumption that attitudes
concerning the work environment are developmental, the
effect of the education process undertaken is a relevant
factor. The question arises as to its association with the time-task attitudes. That is, "Are expectations or attitudes altered during the education (experience) process?"

Answers to these questions are sought via the investigation of four hypotheses.

Hypothesis I: Academic students have a greater affinity for an autonomous work environment than do vocational students.

Hypothesis II: College academic students have a greater affinity for an autonomous work environment than do high school academic students.

Hypothesis III: College vocational students have less affinity for an autonomous work environment than do high school vocational students.

Hypothesis IV: The difference in attitudes, concerning an autonomous work environment, between college academic students and vocational college students is greater than the difference between high school academic students and high school vocational students.

The criterion for acceptance or rejection of all hypotheses is the 0.05 level of significance.

Significance of the Research

The Forty-third American Assembly argues that the "Blue-Collar-Blues" are real, not a strawman, and are not
limited to any collar color, occupation, industry, or hierarchial level (1, p. 4). The younger workers are apparently the most active in resisting the "blues-associated" work environments. Their higher-education level and changing-value systems result in expectations and attitudes which differ from those of the older generation. They are apparently more innovative and creative than their predecessors. Creativity, however, can be demonstrated in ways other than those which contribute to production efficiency. Understanding the relationship between the expectations of these workers and the work environment, is a factor in the quality as well as the quantity of the product.

If, as suggested by Neff (10, p. 3), adult ability to work is the product of a long series of individual experiences, events, and circumstances, analysis of these hypotheses will provide some additional insight into the dilemma faced by management when efforts are made to develop a more human work environment.

With respect to the study of organizational climate or job design, support of these hypotheses could indicate that job attitudes are not random variables, but are related to environmental-developmental factors. Given the traditional work behaviors and the argument that the relatively homogeneous society in the United States is becoming stratified into job- or work-related classes, the study of
job design would be similar to regression analysis in that expectations or attitudes would be mathematical rather than random variables.

Non-support of the hypotheses could indicate that expectations concerning an autonomous work climate are randomly distributed throughout the population. If such is the case, the lag in "white-collar" reaction to traditional organization structure is understandable (4, p. C5). Since there is an increasing element of autonomy in jobs as one moves up the hierarchy, an increasing level of job-autonomy expectancy would reach the resistance point for managers later than for labor employees, and perhaps their behavior would be quite similar to that demonstrated by labor.

A unique feature of this research is the definition of the dependent variable. It is based on the premise that a theory of organization behavior requires an inductive structure. Organization climate is defined in multipartite rather than monolithic constructs. That is, the concept investigated is defined in specific work activities. The attitudes measures are concerned with specific actions rather than an ambiguous "work situation." The work-module provides a clearly defined work-environment model. It is a two-element, time-and-task autonomy concept. The research questionnaire measures attitudes only for the time-task construct (see Methodology).
If significantly different work-climate expectations do exist in the industrial culture, this technique provides options for developing profiles of expectations, or subjective values, for any number of work behaviors. The most efficient job structures would be more accurately determined in that they would be made consistent with expectations. If a change in the organization's production process is desired, it can be accomplished in increments tolerable to the rate of change in value systems.

Since the procedure provides means for developing attitudes for any combination of tasks, it provides the basis for developing an inductive-work-structure theory.

Methodology

This research was a two-part operation. First, an instrument was developed to measure attitudes concerning the work-module. Second, relevant data were collected from primary and secondary sources and analyzed.

Measuring Instrument Development

Research Instrument.--The assumption that the work-module is a multipartite rather than a monolithic construct requires that the measuring instrument denote a pattern of interrelationships among a set of variables which can be empirically differentiated from other patterns of variables. Therefore, item-total correlation, although used to
complement the factor analysis, was not considered sufficient for selection of the questionnaire items.

Though counter to the generally practiced methods of measuring instrument design, the principal axis, with varimax rotation, method of factor analysis was used. First, eight concepts thought to be constituent elements of the work-module construct were selected from motivation theories, self-concept research, and discussions by Kahn, Neff, and Walton. Each element was then defined by a number of statements.

Four iterations of the factor analysis were performed. After each, irrelevant statements were removed, modified, or new statements were added. Factor loadings confirmed five elements. They are:

a. Subjective value of multiple skill.
b. Objective value of multiple skill.
c. Capability.
d. Job analysis.
e. Variation in work behavior.

The resulting thirty-one item questionnaire (Appendix I) employs a Likert-type response scale. The lower the score, the more the respondent's attitudes conform to the behavioral conditions of the work-module.

The reliability of the final instrument was determined by an analysis of homogeneity. A Cronbach Alpha Reliability
coefficient of 0.69 was obtained. When five statements thought to identify a "perceptions of management" concept were eliminated, the coefficient increased to 0.74. The elimination of the five items resulted in a "modified work-module" score. These alpha-coefficient values are acceptable for a research instrument (13, p. 226).

Control Data Questionnaire.--Because this is an attempt to measure perceptions with respect to a specific definition of the work environment using particularly defined subject classes, it is necessary that the effect of relevant modifiers be accounted for. Career-development theories provide relevant variables.

For example, Roe developed a six-stage ranking (levels) of occupations with respect to psychological experience (14, p. 216). Items nine, ten, and eleven on the questionnaire are quantifications of Roe's model. Parental occupation and education may contribute to an environment which interacts with genetic factors and contributes to the individual's work attitudes.

Super (15, p. 134) suggests that mental ability, opportunities such as club activity, part-time work, and self-concepts are factors which contribute to vocational maturity. As such, they could contribute to attitudes concerning the work-module. Items three, four, five, and eight measure these variables. Super's crystallization
and specification concepts are measured by items six and seven. Item twelve, though not part of a career-development theory, is included in an effort to differentiate entre-preneurial attitudes.

With the exception of age, the variables on the control-data questionnaire were scored so that lower scores indicated higher activity or achievement. For example, an A+ grade was given a score of one. A D- was given a score of twelve. The number of organizations listed in items four and five was subtracted from nine. The "Yes" in items six and seven was scored four. The "Pretty Much" was scored two. The "No" was scored one. The sum was subtracted from nine.

In paragraph eight the values assigned are in parentheses preceding the items. Possible combinations of scores are (1) and (2) or (1) and (3). The scores were subtracted from five for high school students and from nine for college students. (Note: The sums were subtracted from nine and five rather than eight and four because of the computer program.)

In paragraph nine a graduate degree was scored one. Less than a high school diploma was graded five.

The occupations listed in items ten and eleven were subjectively placed into one of Roe's six classification levels. They are:
Secondary Data

A survey of the literature concerning the humanization of the work environment was made. The sources included books, periodicals, newspapers, professional journals, and reports of other research. Additional information was collected via personal interviews and telephone conversations with labor and management officials.

Subjects

Primary data came from four classes of subjects. Vocational high school students were from the Garland, Texas ISD. Academic high school students were from the Richardson, Texas ISD. College vocational subjects were students at the El Centro Branch of the Dallas County Junior College System. Academic college subjects were senior students in the College of Business Administration at North Texas State University.
Procedure

Two factors influenced the definition of the subject classes. First, if there are internalized mores which influence an individual's selection of an occupation, they are probably confounded with a large number of other intellectual and emotional elements. Their detection is facilitated by selecting subjects from widely differing climates, assuming, of course, that the subject classes are associated with the mores under investigation.

Second, the more reliable an instrument is, the more sensitive it is in detecting variations in the quality it measures. Since the maximum possible validity of the "Research Questionnaire" is 0.86, the best research design was one which maximized differences, if any were present.

The high school vocational students, juniors and seniors, were selected from the Garland ISD because the population in that district consists largely of families headed by skilled and semi-skilled fathers. The research was discussed at a meeting with the vocational teachers. The teachers administered the questionnaires during a convenient class period. Eighty questionnaires were administered and sixty useful responses were obtained.

The academic subjects were chosen from the Richardson ISD because families of the relevant population are headed, for the most part, by professional and managerial fathers.
The research was discussed with the high school Principal. Instructions were given to the Principal in writing. The questionnaires were administered to senior students during study hall. One-hundred-fifty-nine questionnaires were administered. One-hundred-six useful responses were obtained.

The El Centro Junior College vocational students were administered the questionnaire during a scheduled class period. Two instructors required the researcher to administer the questionnaires. One professor administered the questionnaires himself after receiving oral instructions. Sixty-nine questionnaires were completed. Forty-four useful responses were obtained.

The college academic subjects were all senior Business Administration students at North Texas State University. The researcher administered approximately one-half the questionnaires during a regular class period. A professor administered the other half during a regular class period. Ninety-five instruments were administered and seventy useful responses were obtained.

Questionnaire answer sheets were determined "not useful" if any one answer was omitted. Control data responses eliminated the subject if an answer was irrelevant.

**Statistical Treatment**

The hypotheses suggest a 2 x 2 research design (Figure 1).
Because the four classes of subjects were not randomly selected but chosen in a premeditated way, the condition of a fixed model exists. That is, the subject classes were selected in an effort to maximize the differences in background and environment. The unweighted-means technique of analysis of variance was used to evaluate the hypotheses.

The "perceptions of management" response scores, items six, fourteen, twenty-two, twenty-seven, and thirty were subtracted from the total score and the 2 x 2 analysis of variance was repeated using the resultant, "modified work-module," score.

Two subconcepts showed high-factor strength and high-item-total correlations. The 2 x 2 analysis of variance was repeated for the "objective value of multiple-skill," items two, ten, eighteen, and twenty-five, and for "subjective value of multiple-skill," items eleven, nineteen, twenty, twenty-six, and twenty-nine.

The subject classifications were based on the assumption that environmental factors influence work climate attitudes. That is, the variables measured by the control-data questionnaire should, singularly or in some combination, be
associated with a significant amount of the variance of the dependent variable. This determination is made by means of a step-wise multiple-regression analysis.

A study of the characteristics of the extreme scores in each subject class was developed via t-test analysis of the top and bottom quartiles. The Fisher t-test was also used to differentiate between responses grouped according to parental occupation and according to entrepreneurial aspirations.

Definition of Terms

**Vocational Students**

Students enrolled in programs designed to provide skills or knowledge applicable to a specific trade or occupation. For the high school students, the term means junior and senior students enrolled in programs defined by the Vocational Training Act of 1963. Examples of these programs are Health Occupation Training, Trade Occupation Training such as automobile mechanics and drafting, and Office Skills Occupation Training. For college students, the term means students enrolled in tract programs in the "Community College" or the "Academic College" at the Junior College level. In this research the term means students enrolled in:
a. Food service programs.
b. Refrigeration and air conditioning programs.
c. Medical technology programs.

**Academic Students**

At the high school level this term means any senior student not enrolled in a vocational program.

At the college level the term means seniors in the College of Business Administration.

**Work Environment**

This term is defined as a specific time-task combination, the work-module. This concept was developed by R. L. Kahn at the University of Michigan (10, p. 35). He suggests non-salaried employees should be allowed to participate in the design of their individual jobs to the extent that they pick the tasks they perform and the length of time they spend performing each task. The only constraints are the capability to perform the task and operational requirements of the production process. The research questionnaire is an operational definition of the work-module. The terms "work milieu," "organization climate," and "work climate" are used synonymously with the term "work environment."

**Delimitations**

The samples of students in this research were not a statistically determined proportion of the entire student
population in their particular classes. The subjects were not randomly selected nor were the conditions for questionnaire response uniform (see Procedure, page 14).

The bias developed by the first two restrictions was an intentional part of the research design. The non-uniform response condition bias was a function of the requirements of the individual education systems.

In addition:

a. Students attending post high school private trade or vocational schools are excluded.

b. The sample of academic college students is restricted to North Texas State University.

c. There are several high school districts in the area with larger vocational training programs than the Garland ISD.

d. All subjects are male.

There is no reason to assume, however, that the subjects are not representative of others in the same classification.

Preview

Although this dissertation is an investigation of only a small segment of the "humanization of the work climate" concept, a review and analysis of the total construct is necessary. The next two chapters structure a conceptual context within which the thesis question is analyzed. They
provide the parameters and bases for the development, analysis, and interpretation of the primary research data.

Paragraph one, page 1, gives a very ambiguous definition of "humanization." The problem with investigating a specific aspect of "humanization" is that there is no model or construct for the term. In order to investigate pre-work attitudes concerning the work-module, an assumed representation of the "humanized work climate," an operational definition of "humanized work climate" must be developed. The next two chapters are devoted to developing such a model.

Various concepts concerning some of the activities listed on page 1 are reviewed. Reports of behavior and operational results in humanized companies are analyzed. Theories and research thought to be relevant to the concept are reviewed. A working definition of "humanized" is presented in a synthesis at the end of Chapter II.

In Chapter III the development of the model is completed. Principles of evolution theory are used as a skeleton for the data generated in Chapter II. The significant elements and their relationships are discussed in some detail. The model serves as the standard for interpreting the "work-module" attitudes in Chapter IV.

Results of the primary research are presented and discussed in Chapter IV. In addition to the specific hypotheses, some attention is given to the control data.
The study is summarized in Chapter V. The significance of the research is discussed and recommendations for further study is presented.
CHAPTER BIBLIOGRAPHY


CHAPTER II

ELEMENTS OF HUMANIZATION

Questioning the current practices of management usually is countered by pointing to the high standard of living, by comparing this standard with other national systems, and by stating in magnificent, righteous indignation, "We must be doing something right." Nonetheless, the "Economies of Scale" model of elementary economics presents the possibility of limitations to a given system. The long-range average cost curve decreases for larger outputs until at some point the diseconomies become greater than the economies of scale (39, pp. 141-148). The economies and diseconomies are usually defined in terms of specialization, technology, and managerial skills. Perhaps the definition could be expanded to include other factors. For example, involvement as well as economic motives are related to the most effective and efficient application of an organization's resources. The two factors are mutuals. The Scanlon Plan provides opportunities for involvement in the pursuit of economic rewards. The attaining of some minimum economic level, manifest in current economic conditions, provides opportunities for the pursuit of involvement rewards. The maintenance of a climate erected
in the image of economic pursuits only is a magnification of a diseconomy.

Organization Climate

It is quite difficult to understand those who argue on the one hand that employees are less conscientious than they were a generation ago (12, p. 73), and on the other argue that specialization is the only way to achieve greater production. The pride of the craftsman is just not consistent with non-involved behavior.

Because of an apparent cognitive astigmatism on the part of "management" the "human resource" is cloaked in the generality of "allness" (37, p. 379). That is, all people are perceived as being motivated by self-interest (money) or fear. A necessary corollary to this view of work and the worker is that work is not to be liked, but is something to be "got-on-with." Whatever enjoyment in life the individual receives is reserved for leisure time. From these concepts flow the sustenance of the "carrot-and-stick" approach to employee control and the "specialization" approach to job structure. That to be creative in leisure and mindless and passive in work requires a schizoid attitude (49, p. xxxvi) is apparently overlooked. Apparently, as the awareness level of the labor force rises, expectations concerning the work environment come in conflict with non-involved work tasks designed by management (6, p. 4).
The labor-management interface is an interesting paradox. The two groups are elements of, and are for survival mutually dependent on, the same organizational process. However, one appears to act as if it is a mirror image of the other. That is, when one moves its right hand, the other moves its left. When one or both recognize this situation, the reaction appears to be: "Place one hand against the other and push as hard as you can."

One explanation for the situation is given by Weaver. When a communicator uses a symbol to convey to a communicatee a meaning which he has in his own mind, he can only evoke in the mind of his listener the concept which has been developed there through the listener's own past experience with objects and processes which he has considered, consciously or not, to be related to that symbol (55, p. 1).

It would follow that the symbol "humanization of the work environment" may well mean one thing to management and another to labor, particularly if their developmental histories have originated in different loci.

Management's Perception of Participation

According to Greiner, managers have a pretty-good operational concept of the behavioral characteristics associated with the abstraction "participative management," and there is general agreement among them. Though not as great as the agreement on the operation definition, there
is a surprising consensus among managers concerning the
effectiveness of participative management (27, p. 111).

For example, managers perceive (a) giving employees a
share in decision-making, (b) keeping subordinates informed,
(c) being in contact with and maintaining a positive organi-
zation climate, (d) counseling, training, and developing
employees, (e) effective communications, and (f) a willing-
ness to change or adapt ways of doing things as being
characteristic of both participation and effective leadership
(27, p. 114).

At the same time they view (a) being approachable,
(b) thoughtfulness and consideration, and (c) willingness to
support subordinates even when they make mistakes as being
characteristics of participation but not of effective
leadership. Activities thought to be characteristic of
effective leadership but not participation are (a) letting
members of the organization know where they stand, (b)
setting high standards of performance, and (c) knowing
subordinates and their capabilities (27, p. 115).

Some of the inconsistency between participation and
effectiveness may be semantic. Self-concept research and
peer-group studies suggest the development of high standards
is an effective tool and is desired by employees. This
argument is also supported by research at Sandia Corporation.
There the employees value managers who (a) set and maintain
high performance standards, (b) try to know subordinates better so their development can be directed, and (c) give credit where it is due (47, p. 405).

With respect to supporting employees, Jennings differs in degree with the findings of Greiner when he argues that most top managers make objective, results-dependent judgments concerning failures. Their question is more likely to be "What went wrong?" than it is to be "Who did it?" Such decisions are consistent with "humanization" (31, p. 101).

The lack of complete correlation between the two concepts is not surprising in two respects. First, managers at adjacent levels in business hierarchies do not hold identical views concerning the potential, abilities, or even the duties of subordinates or superiors (50, p. 524). Second, differing functional areas and different industries vary in their compatibility with participative practices.

Part of the variation may be due to the ages of the managers, or, at least, the differing expectations of younger managers. The turnover rate of the young executives is increasing each year. Contrary to the arguments for a loss-of-work ethic, these young men really enjoy working as long as it is challenging, and they can perceive that they are affectors in the direction and the accomplishments of the organization. Security, in return for life-long loyalty, does not motivate these men (42, p. 34).
Young executives, in the large traditional organizations, stress the proactive: (a) work priorities, (b) technical competence, and (c) backing subordinates. The middle-age manager is concerned with (a) personalized interactions and (b) making group decisions. The older managers, perhaps because they wish to leave behind some of their own personal attributes and wisdom, are concerned with counseling, training, and communicating with subordinates (27, p. 116).

If we define the organization in terms of these three behavioral patterns, it seems that the organization climate would be conducive to young managers remaining with a large firm. Could it be that something about the structure prevents them from engaging in the activities they believe are important to their "self?"

Organized Labor and Humanization

Organized labor is also presented something of a dilemma by the "humanization" concepts. First, the union exists primarily because of worker alienation. To assist in the removal of the causes of this alienation would be a bitter pill to swallow, at least from a short-term point of view. Second, the job-involvement programs could give a competitive advantage to non-union companies (43, p. 38).
The same distrust of being changed evident in most managers is also present in most union officials. Their opposition is usually verbalized in arguments such as, "Job enrichment is just a stop-watch in a new cover." Labor, as policy, opposes any change in law or collective-bargaining agreements that allow work days of over eight hours without over-time pay (29, p. 4).

Some union officials are aware of the problem. The late Walter Reuther observed that the prospect of tightening up bolts every two minutes for eight hours a day for thirty years doesn't fit the human spirit (25, p. 112). The President of a UAW local at Cadillac states, "Every single, unskilled young worker wants out of there" (25, p. 116). The fathers of these young men would not have perceived an alternative, possibly because there was none. The economic system's success has provided alternatives and the young workers are aware of them. Woodcock's statement, "If any of the companies suddenly said to us, 'O.K., we agree; we want to humanize the work place; you do it,' we wouldn't know how to begin" (56, p. 43), probably best illustrates labor's problem at the operational level.

Being organized (union) does not in itself seem to deter the successful implementation of "humanization" plans. In the organized companies the amount of direct involvement appears to be more a function of management prerogative than
union resistance. For example, American Velvet invites the President of the local union to sit in on management meetings. The company has negotiated job extension activities, primarily to increase employee productivity, so the company could compete with southern and foreign producers. Initially one employee ran two weaving machines, now one employee controls eight machines. The company is now implementing a personnel procedure whereby a committee of employees will do the selecting of new workers (2, p. A-1d).

The Worker and Involvement

The worker apparently would like a job to challenge him, in the sense that he is involved in, contributes to, and grows with the job. The desire seems to be for active rather than passive work behavior (9; 1, p. 116; 8). This argument is supported by members of at least one international labor union. Ninety percent of the respondents to a questionnaire published in the union newspaper report increased opportunity to do interesting work is important to improving their jobs. While 28 percent reported they were satisfied with their jobs most of the time, only 17 percent reported a great deal of variety in their work, 18 percent reported being satisfied with their opportunities to do interesting and enjoyable work, and only 16 percent reported that management emphasizes quality in their work (1, p. 6).
It appears that involvement is a viable concept in the work environment. Perhaps those who have successfully "humanized" their firms have provided an opportunity for this capacity to grow and develop.

There is, however, some conflicting evidence. A survey of previous job satisfaction research, spanning the past two decades, resulted in the conclusion that there has been no appreciable change in attitudes toward jobs over that period (10, p. 4-C). The inference drawn from the study was that "worker alienation" is a facade.

The United States' culture is work-oriented. The rewards from work provide cultural status symbols. The individual learns early in life that his value is a function of his occupation and his relative expertise therein (45, p. 10). The work culture is not isolated, it is an integral part of the total culture. The fact is that the world of work is in dynamic interaction with life styles (23, p. 34).

Since the individual's self-concept is inseparable from his work behavior, dysfunctional behavior in the work environment could be a symptom of cognitive dissonance. In the only way he knows, or in the only way available to him, the alienated worker may be saying, "Use me well. Let my life mean something" (23, p. 35). If such is the case, the motivation of the work force is a desire to be involved, to
participate, to be a contributing factor in the production process. It is the process of becoming.

Perhaps a climate which encourages the individual to select his task and to determine when it will be performed can contribute to "motivated" behavior; not because it is associated with an organization goal, but because it is associated with building a "self" through attaining an organization goal.

Despite the fact that management believes workers are less conscientious than they were a generation ago, joint experimental efforts now underway suggest both management and labor are aware of the "internal" aspects of human work and are making some objective efforts to identify and operationalize them. One example is experimentation carried out by management and labor in the automobile industry. A small experimental team of assembly-line employees reduced the assembly time of a truck from twenty-three hours to two hours (56, p. 44). Some progress is being made.

A look at the activities in firms which have made major humanization efforts could provide information concerning the real potential of the human resource.

Operational Humanization Activities

Humanization of the work environment is a complex concept. It consists of, at least, elements of organization
climate, motivation, and time; and it assumes the employee to be an underdeveloped source of productive potential.

Gooding states

American factory workers have a message for any manufacturer who will listen; they can do more, and do it better, and contribute a flood of valuable ideas, if management will take steps to create the right, stimulating kind of work setting. They know their jobs better than anyone else—they spend forty hours a week doing nothing else—and hardly any of their suggestions for improving methods are impractical (26, p. 133).

His argument seems to be supported by those companies who have successfully structured humanized work environments.

In Chapter I "humanization of the work environment" is defined as a conceptual synthesis of a number of efforts to increase production efficiency. Its motive is said to be profit. The potential-capability of the human resource is emphasized. In spite of the benefits derived by firms who have successfully implemented the concept, only about 10,000 workers in a labor force of approximately 85 million are employed in such environments.

The question "Why?" led to the hypotheses concerning behavioral expectancies and occupational choice. Perhaps an analysis of empirical data will further clarify the behavioral preference-occupational choice construct.

The operational efforts to humanize the work environment can be dichotomized. One approach is profit sharing. The most successful of these techniques seems to be the Scanlon
Plan. The other approach, possibly, can best be termed "job involvement."

**The Scanlon Plan**

This approach is used by at least eight of the more avant-garde companies (see Table I under Profit Sharing). The Scanlon Plan is concerned with increasing productivity by reducing manual labor. That is, "work smarter," not harder.

It involves two major elements. First is the definition of the bonus ratio, which is usually defined as a ratio of expenses to sales. However, it may incorporate labor expenses only, or it may involve a labor and material structure. Second, the development of Production and Screening Committees involve the employees in production problems and decision-making. These activities convert their knowledge and skills into lower costs or greater income. Either way, profits are increased, and labor and management share the increase (14, p. 52).

This plan is based on three assumptions. First, everyone employed by the firm is, in effect, managing the resources. Second, the organization should be structured so the "management" abilities can be developed and utilized. Third, efficient "management" should be rewarded accordingly.
It should be noted that this approach provides for total involvement by the employees. They are encouraged to provide mental (decision-making) as well as manual contributions. They participate in the management process in their areas of expertise.

**Job Involvement**

Except for the absence of monetary incentives and a lack of formal structure, job-involvement programs elicit employee behavior quite similar to that developed by the Scanlon Plan. They do, however, appear to place more emphasis on individual autonomy. Employees are encouraged to actively participate in job design and decision-making processes. Individual self-control rather than external control devices seem to be the norm.

The involvement processes assume two forms: job autonomy and time.

**Job autonomy.**--This approach is based on a hierarchy-of-needs concept. As the level of economic affluence increases, the lower level needs become relatively satisfied. (Note: When the Scanlon Plan was first developed, the affluence of the labor force was considerably below its present level.) When this occurs, the higher-level esteem and actualization needs become active, and the individual's
creative and innovative characteristics can dominate his behavior.

The job autonomy approach is to structure the work environment so that these needs can be manifest in behavior compatible with that needed to accomplish the organization's goals. Job-involvement activities allow the individual to enhance his self-concept by reaching the limit of his ability and growing from there. For example, job rotation and job enlargement permit him to develop and experience new productive skills. The participation in decision-making processes contribute to his psychological and intellectual growth. These activities provide for a self-confident, independent, capable, more productive person.

Almost all the firms provide some type of job autonomy. Monsanto permits employees to rotate from one job to another each day, if they so desire. Motorola and Corning Glass provide the employee with total production responsibility. The assembly lines have been removed and the workers organized into teams. These teams determine many of the plant rules and the actual production methods used. Each team may use a unique production process. Donnelly Mirror and General Foods permit employees to design and modify the job structure as they see fit, even to the point of humanizing automated processes. Table I, page 38, is a list of
### TABLE I

**SUMMARY OF HUMANIZATION ACTIVITIES IN A SMALL SAMPLE OF COMPANIES***

<table>
<thead>
<tr>
<th>Company</th>
<th>Teams</th>
<th>Job Rotation</th>
<th>Job Enrichment</th>
<th>Profit Sharing</th>
<th>Decision-Making</th>
<th>Quality Control</th>
<th>Job Design</th>
<th>Set Wages</th>
<th>No Time Clock</th>
<th>Union</th>
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<td>American Velvet</td>
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<td>Donnelly Mirror Corporation</td>
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<td>Marriott Corporation**</td>
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<td>McDonald Corporation</td>
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<td>Monsanto Textile</td>
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<td>Non-Linear Systems</td>
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<td>Procter and Gamble</td>
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<td>R. G. Barry Corporation</td>
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<td>Travelers Insurance Co.**</td>
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<td>Weldon Co.</td>
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*Source: Data were compiled from numerous documents.

**Service Organizations.
a small sample of humanized companies and some of the techniques used.

All the firms encourage the development of multi-skilled employees. Not only may they develop a variety of manual skills, but are encouraged by some firms to develop management skills (43, p. 41).

Time.--Traditionally, the industrial construct "time" has been rather simplistic. It is dichotomized into "work-time" and "leisure-time." From a labor point of view, the former is "bad" and must be reduced, and the latter is "good" and must be increased. Management generally accepts this point of view. (Acceptance is manifest by assuming a diametrical position.) Scheduled start-time, break-time, clean-up-time, and stop-time are examples of the norm. In some high-traffic-congestion areas a "staggered-time" has evolved. In this time structure, work begins at regular intervals: 7:00, 7:30, 8:00, etc.

Newer innovations are the four-day, ten-hour-day, or the three-day, twelve-hour-day work week, proposed mostly by management for efficiency reasons. They are, however, only minor modifications of the traditional concepts, based also on the premise that work is performed only for money and should be disposed of as expeditiously as possible (29, p. 5). As such, the shorter work week is an incomplete solution to motivation and behavioral problems (53, p. 12).
That is, it does not deal with the central issue of autonomous distribution of one's own time (19, p. 18).

Although the total hours worked each week have decreased steadily to the present forty hours, and the number of weeks worked each year are continuing to decrease as more holidays and longer vacations become the norm, alienated behavior (43; 54, p. 38; 73) on the part of labor, as well as management, remains and appears to be increasing. It may be a reaction to the traditional structures brought about by some maturation process. That is, people may not want more leisure time, they may want their work lives to be more meaningful, less a cognitive-dissonance. The question then becomes whether there are alternatives to the rigidity of the traditional or shorter work week which better serve the interest of the business organization and the individual.

It appears that flexibility in time behavior is, in fact, achieved through absenteeism, tardiness, and job mobility. Perhaps the current work environment fails to allow for the intuitive-time character of the work force.

The flexible approach, in contrast to the traditional approach, is based on the premise that work is, from an individual point of view, a natural and desirable activity. People are encouraged to structure their jobs, not from a task standpoint, but in the context of time. The flex-time structure allows employees to come to work and to leave at
any time they choose. The only requirement being that they must be present during a specified "core" period (19; 29, p. 20; 5).

Variable-time techniques permit the employee to work whenever he wishes. There is no "core" period. The requirement is only that a specified number of hours, plus or minus some number, be worked each accounting period.

Two conditions result from the use of either of these time structures. One, the employee usually carries over an average of three and one-half unpaid hours each pay period (19, p. 20). Two, the employees usually structure for themselves as efficient an environment as management develops when implementing an involved climate. For example, one company gives all its employees a key to the plant. The employees have learned all jobs on the assembly line. Any one of them can, and does, come in, start the line, and work whenever he wishes. (In three years this plant's productivity increased 400 percent (19, p. 19).)

The best interests of the business and the individual would seem to be served by a work-time structure compatible with the changing human and organizational needs. Flex-time and variable time appear to be such structures.

One other aspect of time is relevant to involvement. It concerns a seeming contradiction in efforts to humanize the work environment.
Development of job structures which enhance involvement of the employees sometimes has an immediate effect on work effectiveness. For example, experiments at an electronics assembly plant brought immediate decreases (within one week) in specific defects (6.5/1000 to 2.8/1000), and in general, defects (424 to 238) (51, p. 45). Also, in a clothing manufacturing firm, the effect of involvement was demonstrated to be immediate and persistent (22, p. 363). These results suggest the effects of involvement are immediate and permanent, which is inconsistent with the large number of unsuccessful, impermanent modification efforts, and the length of time needed for successful implementation (41, p. 70). Perhaps the immediate results are manifestations of the "Hawthorne Effect."

Management in the successfully "humanized" firms state that one advantage has been a new ability to fail without feelings of guilt. Perhaps the program's success is a function of the differences in persistence of feelings following short-run successes or failures. For example, high feelings following "motivation" involvement outlast low feelings following failure in the "maintenance" area (11, p. 67).

The longer persistence of "self-enhancing" activities provide the time element which permits growth from the infantile to the mature. That is, it provides time for the
relearning process. The behavioral effect seems to be much the same as that produced by variable ratio reinforcement.

Decision-Making

Involvement entails more than the mere development of a multiplicity of skills which are learned and performed at the command of a superior. It includes control over and positive contributions to the production process. Only after a person contributes to something can he be a part of it. Neither management nor labor can be involved if they are only takers.

The successfully "humanized" business firms provide for and encourage decision-making in at least one of the following areas.

a. Several firms provide that employees will design the jobs. That is, they determine the structure and relationship of the tasks. Further, they decide who performs the job.

b. Several firms provide for employee participation in the design and selection of new production equipment.

c. Several firms provide for employee participation in policy formulation.

d. Several firms provide for employee participation in customer-relations problems.
e. In some companies employees determine the speed of the production line. (It is interesting to note that when employees set the speed, it is faster than when management sets it.)

f. In several firms the employees provide the selection, placement, and training function.

g. In at least one firm employees are permitted to set salary levels and determine salary increases.

The decision-making aspect is probably the most difficult for traditional management to accept, but it cannot be "puffery." The policy covering the areas of decision-making authority must be succinct, but flexible, and the authority must be complete. There must be a mutual trust.

The Use of Teams

It is difficult for individuals, sometimes, to grasp the association of their efforts with the organization's goals. If they are to perceive themselves as influential members of the firm, this association is necessary. The use of small teams, with team-defined goals and objectives, appears to provide a solution to this problem. The individuals can become involved with the group definition and solution of production problems.

All "humanized" firms utilize, in some form, the team approach to involvement (see Table I, page 38). Corning
Glass uses assembly teams for the larger and more sophisticated of its equipment. General Motors has experimented with the team-assembly concept. The Marriott Corporation uses task-force like teams to open new facilities. The Gaines Dog Food plant was constructed and staffed with the team structure in mind.

Evidence of Success

Monetary.—Success in our capitalistic system is usually defined in monetary terms. The ability of the labor employee to make substantial, intelligent contributions to the profit of the firm has been adequately substantiated. There are several outstanding examples available.

American Velvet has shared over $8 million of increased profits with its employees (32, p. 16). Since 1967 Donnelly Mirror employees have earned over $800,000 in bonuses. Other companies usually pay bonuses ranging from 5 to 25 percent of payroll.

The General Foods plant in Topeka, Kansas, has produced a greater volume of a superior quality product at $600,000 per year less in controllable costs than comparable plants in the same corporation (54, p. 77). Steinberg's Limited, a Canadian food chain, developed a productivity increase of approximately $2 in sales per man-hour (44, p. 95). Donnelly Mirror has produced an annual profit increase of
approximately 20 percent for the past eight years (32, p. 16). In addition, Donnelly Mirror has reduced the price of its products 25 percent since 1952.

All the "humanized" firms report increases in productivity. Increases range from 40 percent to, at American Velvet, 400 percent. Firms also report decreases in maintenance personnel.

Some additional returns were reported by Donnelly Mirror and Polaroid Corporations. In the former, employees developed and built a $290 machine to replace a $900 one. In the latter, a fourteen-year-old-summer employee developed a process for polishing glasses which reduced the cost 50 percent.

Quality.—Reduction in quality rejects has been phenomenal. General Foods has experienced 92 percent fewer quality rejects, and there are no quality control inspectors employed (54, p. 75). Precision Parts reduced their rejects from 24 percent to 7 percent in five years (26, p. 135). Barry Corporation reduced quality-control inspectors from twenty to five and cut rejects 50 percent during the same time period. Corning Glass reduced inspectors from ten to seven and reduced rejects 50 percent (26, p. 167). At Motorola the assemblers perform all quality checks. The customer complaints have dropped to almost zero (3, p. 232).
At Donnelly Mirror the percent of returned goods decreased from 3 percent to 0.2 percent in two years (26, p. 167).

Behavioral Change.--The Gaines Dog Food plant has less than 1 percent absenteeism. The industry norm is 10 percent. In the last eighteen months, only four employees have left their jobs (16, p. 53). Motorola, Monsanto, Marriott, Donnelly Mirror, Precision Products, and many others report substantial (as high as 87 percent) (16, p. 51) decreases in absenteeism, turnover, and grievances.

"A lot of the time when something went wrong, I'd say, 'Let the engineer fix it.' Now, I look for the cause"--Monsanto employee (16, p. 52).

"We couldn't have an elite and second-class citizenship and expect participative management to work"--Donnelly executive (15, p. 51).

"If we don't like something here, we're expected to speak up. We always do"--General Foods employee (30, p. 16).

"Best of all, the dogs seem to like it"--Gaines Dog Food employee (32, p. 16).

The four preceding quotations are subjective indications of motivated behavior.

Problems

Were man immediately adaptable to new behavior patterns, the world of the innovator would be bliss, but then man
would probably not possess the characteristics necessary to successful innovation. Some of the problems that have been encountered in humanization efforts are:

a. Expectations of a small percent of employees are inconsistent with the participative job demands. They apparently can't develop the high level of interpersonal behavior required by the environment.

b. Some managers have difficulty not behaving in the traditional authoritative patterns, and some employees try to elicit and reinforce the more traditional supervisory patterns.

c. Sometimes excessive peer group pressure is developed.

d. Sending employees to problem-solving situations at customers and vendors, or to association meetings, causes some external problems.

e. When compensation is based on the ability to contribute, problems of equity are aroused. The compensation problem still exists (54; 41, p. 77; 69).

One interesting response occurred in Puerto Rico. When management implemented participative techniques, the employees quit. Their reasoning was that if management was so stupid they had to ask the employees how to run the
plant, the firm could not survive; so they left their jobs (41, p. 70).

Research Contributions to the "Humanization" Concept

The results of "in plant" humanization activities indicate that the firm's employees possess a greater capacity for involved contribution to the production process than is permitted by current organization climates. When management permits the proper climate, the propensity to expand involvement results in productivity improvements.

The result of the efforts of Seashore and Barnowe to isolate the "blue-collar-blues" syndrome is consistent with the operational activities of "humanized" firms. They found that "alienated behavior" is not a function of the worker, "but is most probably in the job and the job setting and in the limitations that the job and the job setting put on the worker's self-actualization" (48, p. 53).

Authority

Sometimes the statement of the problem tends to "cloud the minds of men." For example, Bachman investigated the relationship between organization effectiveness and social control, in particular, the bases for the control. The problem was defined in terms of power. The conclusions reached were that "successful" managers were those who exhibited high levels of personal performance, high levels
of interpersonal activity, and who relied on expert and referent power (4, p. 135).

What happens to the "image" of the world if the suggestion is made that because of their "exposed" positions and high quality of personal performance, these managers are perceived by subordinates as knowledgeable about the organization's

a. Objectives--Positive action implies knowledge of direction.

b. Policy--It also suggests awareness of parameters.

c. Technology--Such information is needed for correct production behavior.

Could this situation be described as one in which the "successful" managers provide an "organization climate," though somewhat capsulated, conducive to maximum involvement by subordinates? The answer is definitely "Yes." It is consistent with the activities in humanized firms. It also provides a clear view of why individual expertise is necessary, and how it interacts with organizational efficiency and competence.

Another area of investigation which bears reinterpretation is that concerning peer evaluations. For example, Evans (20, p. 436) reports that the level of turnover is negatively associated with the level of peer group interaction and Dickens (13, p. 597) reports that the most
effective predictor of job success is peer leadership ratings. House (30, p. 28) in his argument that groups with high cohesiveness are more productive and more satisfied because the individual members feel they are part of the group, identified (a) good internal communication, (b) shared ideology, (c) informal group leadership that crystallizes group goals, and (d) activities that permit sharing of experiences and customs among the forces which make for group cohesiveness. The argument that the Scanlon Plan is an attempt to get people at different levels to accept the same goals and respond to the same symbols is consistent with these findings (52, p. 15).

A synthesis of these results could be interpreted as meaning that individuals, whose actions develop climates conducive to shared common goals, are recognized by others as sources of some need, perhaps a non-dissonant self-concept. It is interesting to note that preventing "involvement" results in escape behavior.

Bonney (8, p. 78) presents data and arguments which support this interpretation. He argues that individuals who contribute to "climates," which require the involvement of others in a manner which enhance their self-concept, are social "stars."

Interpreted in this context the "peer" investigations and the "power" investigations are complementary. Further,
the common inference becomes that a climate conducive to involvement is a necessary context for job design. In other words, the arrangement or coordination of the tasks necessary to the accomplishment of organizational objectives, so as to most effectively utilize the available resources, is one which provides for variety, autonomy, task identity, and feedback (28, p. 259).

**Motivation**

The theories of differential (trait) psychology, which are confounded in the selection and placement activities of the personnel function, assume man's personality to be static. The proper matching of job characteristics with individual characteristics is assumed to trigger some internal quality which produces directed, sustained behavior, thus maximizing an organization and an individual efficiency ratio.

The difficulties encountered with this construct (both theoretical and operational) result from erroneously assigning a static nature to the organization and the individual. Marketing theory recognizes the life cycle of a product. Organization theory has a model for the life cycle of business firms. Psychologically, people have a life cycle, and, in addition, "People are busy leading their lives into the future" (2, p. 51).
Allport argues that this process of becoming is largely a matter of organizing transitory impulses into a pattern of striving and interest in which the elements of self-awareness play a large part (2, p. 29). That is, beginning with an unsocialized, insistent, demanding, and dependent infant, the human grows and develops a "proprium." The process makes possible an independent mature person. The "economic man-specialization of labor" work environment, in effect, makes workers "little children" in that it inhibits all but the first three elements of the proprium.

The "becoming" argument suggests that rather than drive reduction, the individual grows through the process of risk-taking and variation. That is, "salvation comes only to him who ceaselessly bestirs himself in the pursuit of objectives that in the end are not fully attained" (2, p. 67). This propriate behavior is self-directed and self-induced in that it does not wait for favorable circumstances, but forges its own. (In the next chapter "self-directed" and "self-induced" are defined in terms of a genetically-programmed life cycle.)

It this argument is valid, research should demonstrate a positive interaction of "becoming" behavior and successful work behavior, and it does. Individuals will choose that occupation which they perceive requires their high abilities (33, p. 65). Reinforcement stemming from successful job
performance increases that individual's self-esteem (38, p. 512) and results in more frequent and consistent interaction in the work environment (5, p. 363). In addition, a positive self-concept is associated with measures of satisfaction in successful work activities (34, p. 533). Further, individuals who forge their own circumstances are less deterred in their propriate behavior by environmental ambiguity and failure than are the less-mature individuals (35, p. 339).

These research summaries seem to suggest that "becoming" behavior is associated with expectations of self-concept enhancement. Further, it seems continued activity in a career choice should reinforce the original expectation.

If the "new worker" is real, what makes him run? Apparently the "economic" and "security" theories are inadequate explanations. The "human relations" approach, an enlightened psychological despotism, suggested he was motivated by fear of psychological alienation, and the incentive of security (17, p. 87). This means of psychological manipulation is inadequate because psychological welts (alienation and mental insecurity) are effectively little different from the physical ones.

There are four notable weaknesses in the satisfaction approach to worker motivation. First, a satisfied need does
not motivate. Second, the employee is viewed as actively striving to reach a state of "no-need," a condition consistent with religious dogma but inconsistent with observable human behavior. Third, the opportunity to become satisfied is provided via some manipulative action of management, an argument defensible for only a few managers, and then qualified so. Connotations of external control are present in this third situation. They are important because cognitions of the job by management and perceptions of the self by the worker are influenced. And fourth, satisfaction is an effect, not a cause. Satisfied people do not produce; productive people are satisfied. If this is so, satisfaction would have to be a heightened drive, not a reduced one.

Pay, in our culture, may be a partial exception. It is the means to satisfaction of physiological needs. If available in sufficient quantity and quality, it may be the means to relief of security needs, and for the neurotic, may satisfy the belonging needs.

Through an interaction of general and local economic factors and social status norms, it may contribute to the ego-extension stage of the proprium. It is a means to getting "things" which are "mine." It may also serve to enhance the self-concept by being viewed as a measure of success. In the latter stages of life, money permits
actualization in that it helps develop abstract ideas such as knowledge--library and tuition grants.

Since the "self," in terms of where in the socio-economic stratum it belongs, is a socially-confounded function, the money threshold is probably a normally-distributed random variable. Thus at some point, money also becomes a hygienic factor.

The economic-man argument seems to emphasize the ego-enhancement stage of the proprium, an infantile, narcissistic stage of development; an idea consistent with external control. What then are the implications of the heightened psychological and physiological sensations that are aroused by action and deadened by inactivity? Perhaps work is specifically human and a pleasurable-ego reaction results from work achievement (46, p. 93). Perhaps the education process transforms the pleasure of activity to pleasure in achievement (46, p. 93), and, perhaps they are a result of reduction of cognitive dissonance concerning the individual's self-concept. Whatever they are, they appear to be an indication of maturation.

One manager stated, "Absenteeism occurs not because the jobs are dull, but because of the nation's economic abundance and the high degree of security and the many social benefits the industry provides" (25, p. 71). He is half right, and even though he is a vice-president of one of
the world's largest firms, he is a confused and frustrated man. He was imprinted on the "economic-man" and "carrot-and-stick" concepts of human nature. Union power and economic conditions have effectively negated both concepts, yet he still believes.

"Half-rights" have been known to confound issues. Perhaps the "dull" argument is a consequence of confounding the concepts "dull" and "involvement." Is there anything more dull or repetitious than completing a jig-saw puzzle? Is the tenacity required maintained only for an anticipated fleeting sensation of drive reduction when the last piece is put in place? It is not. The motivation is all the little self-determined trials of testing each part, all the little self-determined successes, and self-determined failures that are experienced during the process of completing the task. The activity is maintained because of an "intuitive-time" perception which permits the worker to associate what he is doing with what he can be. The visceral sensations of the assembler are not because of a completed puzzle. They are because "I am completing" the puzzle. There is no drive reduction; there is an enhanced self-concept.

Several theories are congruous in their explanations of human work behavior. Maslow's physiological and security needs are of the same species as Herzberg's hygienic factors. They operate on a drive-reduction principle. The elements
of these models are peripherally instigated activities associated with the first three stages of the proprium--bodily sense, self-identity, and ego-enhancement (2, p. 48). The "drives" are major influences of behavior only as long as they are above some threshold level. They are, through some process, associated with visceral sensations, and as long as the concern is with "animal" behavior, the arguments are sufficient.

When the individual "becomes" to the upper stages of the proprium, to the motivators, or higher-level needs, the visceral opportunistic adjustments are no longer teleological behavior impellers. They serve only to "dissatisfy," to magnify diseconomies. Myers argues that they detract from the attainment of organization goals when the opportunity to pursue higher-level needs are absent from the work environment (44, p. 12).

**Time**

"Tell me what you think of time and I shall know what to think of you," said J. T. Fraser (40, p. 76). This quotation illustrates the importance of the time function, not only to the work-module, but to the entire humanization concept. Mann and others argue that men experience the world through four modes--sensation, feeling, thinking, and intuition. The interaction of these modes with "time perceptions" develop unique behavior tendencies.
The model assumes that individuals are capable of behaving in either mode (40, p. 76). Their preference, or most dominant mode of behavior, may be a function of (a) that permitted by the work environment, (b) their self-esteem or self-evaluation, which is the extent to which they see themselves as competent, need-satisfying individuals, or (c) their self-perceived competence, which is conceived of as concerning a particular task or job at hand (36, p. 33).

The feeling mode is concerned with emotional response to the past (40, p. 79). To some extent it may be associated with the behavior of management and labor today. Because they do not believe that getting a job done may be a motive in itself, they suspect each other of sinister motives.

For the thinking type, time flows from the historical past. The result is a model-building behavior characterized by attention to process, love of planning, and respect for principles. It requires that events be placed in historical order so that hypotheses can be developed, conclusions drawn, and predictions made. Logic is its tool. "Time is serious, real, and demanding. The 'thinkers' can be very upset by having to change a schedule" (40, p. 80).

The traditional eight-to-five work day, the staggered, and the abbreviated work schedules, because of their
structured, predictable orientation, are compatible with these two conflicting time perceptions.

"For the sensation type time is now, and the only appropriate response is action" (40, p. 76). He has neither a past nor a future, and, therefore, finds it difficult to detach himself from the stimulus of the moment. "Leaders" are usually strong in this characteristic.

The intuitive is the precognitive, concerned with the possible. Persons of this disposition tend to skip about rapidly from one activity to another, impatient with those that are unsufficiently exciting (40, p. 84). What can be is their forte.

The authority to begin work when they choose, stop work at convenient times, and feel free to handle personal problems, which could interfere with work schedules, is manifest in the flexible-variable work schedules. They seem compatible with these two conflicting modes.

Mann's "Time" model has this relationship to humanization. It is another piece of evidence arguing against the one motive for behavior, which is a basis for the monolithic-work concept. For example, a variable work schedule makes maximum use of the output of the intuitive's imaginative skills in conjunction with the thinker's ability to make it operational reality. Further, the suspicions of the feelers can be alleviated because each is permitted and rewarded
for doing his own thing. The point is this, a production process can be arranged in a manner consistent with the strengths of many people rather than settling for an average level of performance.

A Synthesis of Humanization

The development of a work environment, which facilitates the "optimum effort" from employees, has been accomplished by a relatively small number of firms. Initially, the effort was based on an economic concept of motivation. The current "involvement" programs are very similar in technique to those used to facilitate the accomplishment of the monetary rewards in the profit-sharing systems.

The reasonable inference, then, is that neither economic nor involvement motives are sufficient. Rather, as Maslow and Herzberg suggest, they are complementary. The involvement concept is, however, associated with higher order needs such as esteem, actualization, and autonomy. (Developing the esteem and actualization behavior apparently is associated with some minimum level of autonomy.) The autonomy need seems to include both the what and the when.

There is no necessary conflict between involvement and the profit motive. The evidence points to involvements associated with significant increases in economic effectiveness (otherwise, the Scanlon Plan would not work).
It is difficult to abstract any specific "motivation" activities of management. Apparently the motivation is supplied by the employees themselves when the work climate facilitates growth, development, and contribution. The "team" structure seems to enhance the development of such a climate.

The parameters of this climate are defined by stimulating work activities. In the companies listed in Table I, page 38, an employee can develop as many skills as he wants, including management skills. He can pick the job he wants, and he can change jobs whenever he wishes. If he thinks it can be done a better way, he may even change the job. He doesn't have to clock in or out; he can determine his salary and the size of the raise he gets; and he shares in the profits of the company.

He participates in defining production goals in his area of expertise, and is active in developing rules, procedures, and methods for increasing productivity and decreasing costs. He assumes an ever-increasing responsibility for the organization, and is accountable for his actions. The employee is not loyal to the firm, the employee and the firm are a "synaesthesis."

A work environment, which encourages individuals to develop themselves through involvement in a production process, is a reasonable definition of "humanized." It
is an environment (a) where all personnel may make, in their areas of expertise, their best effort, (b) which provides an opportunity to improve that expertise, and (c) which helps people to work together rather than in solitary competition, and to work together at more rewarding jobs . . . encourages participation rather than rote learning, replaces ritual obedience with a sense of self-control . . . (44, p. 168).

It is not a utopian pipe-dream, it is an operational reality.

The climate is associated with man's interface with time, which structures his behavioral capability. Over-emphasis with the past and present can result in impetuous emotional behavior. Time as a continuum permits planned, reasoned hope. It allows for failure and enhances success. The variable work schedules are consistent with the time continuum. How people autonomously handle their work time, as well as tasks, really does tell us something about their productive potential.

The climate is associated with man's self-concept. Man may live in fine linen, his repose may be "softer than down," and he may surround himself with great beauty, but most of all, he lives with himself. And, if permitted, his work behavior is motivated by the need for a "comfortable" self. (Perhaps the idea of a self-made man is valid, just distorted.) This "self" is developed through involvement. "Perhaps a revised perception of one's 'role' is an
organization—rather than job satisfaction—is the vehicle for performance improvement" (51, p. 48).

The climate is associated with management philosophy. Traditional authoritarian management is in conflict with the basic characteristics of human-personality development. The blocking of individual growth and self-development by imposing externally defined goals and means leads to apathy, atrophy, and dysfunctional behavior. It creates "children" as it does not allow growth to independence (2, p. 25).

The problems encountered seem to indicate some variance in job expectancy for labor as well as management. Apparently some people, more than others, expect a structured control of their work behavior. This "set" is so strong that adapting to the autonomous work environment is difficult, if not impossible.

With the exception of the reports by successfully humanized companies, the available data are cross-sectional views of employees obtained after they are members of a firm. Little or no information is available concerning expectations of a humanized work climate from individuals prior to their entering the labor force. What are the characteristics of the inputs to the human resource segment of the industrial system?

Since employees do accept responsibility for their behavior in their areas of expertise, and do expand their
work activities to the limits set by management, there is reason to believe they have capabilities and expectations, which are inhibited by the traditional organization structure. Perhaps further analysis can define some of the characteristics and parameters of this capability. A model provides the best means of studying elements and relationships. Such a model is developed in the next chapter.
CHAPTER BIBLIOGRAPHY


40. Mann, H. and others, "Four Types of Personality and Four Ways of Perceiving Time," Psychology Today, VI (December, 1972), 76-84.


43. Myers, M. S., "Overcoming Union Opposition to Job Enrichment," HBR, LI (May-June, 1971), 37-49.


54. __________, "How to Counter Alienation in the Plant," HBR, L (November-December, 1972), 70-81.

In Chapter II empirical, experimental, and theoretical data were examined in the context of "humanized" work climates. Firms making radical changes in their production processes, particularly with respect to the human element, were singled out and analyzed. Experimental results were reinterpreted in terms of "involvement." Theories of motivation and human personality were cited as explanations for the observed behavior.

It was implied that "managers" could modify the factors of production (money-capital, material-land, men-labor) in such a manner as to increase the total system efficiency. A great deal of this increase was attributed to the release of an inhibited capacity of the human element. How the human element interacts was not made clear. In order for the hypotheses of this dissertation to be justified and interpreted, a formal definition of relationships is needed. Such a model is developed in this chapter.

First, the characteristics of the human element are examined. Particular emphasis is placed on the biological and psychic character, in a cultural context. Next, a longitudinal model of the interaction of the factors of
production and their effect on productivity in a specialized environment is developed. Third, the results of changing from a specialized to a humanized environment is illustrated in graphic form. Finally, a model of a "humanized" environment is developed.

The Human Element

In the preceding chapter a question was asked: "What makes him run?" Here the question is: "What is he?"

First, he is a mammal, a member of the homosapiens species, and has existed as several identifiable biological types (12, p. 186). Second,

Man is quite a typical mammal, unusual only in the size of his brain. He is not the largest or the smallest mammal, nor is he highly specialized, when compared to the whale, for example. In fact, he is a rather mediocre mammal, being poorly endowed with organs of offense and defense. . . . He has, however, one crucial organ that accounts for most of his success, his well-developed brain. This organ, by its intricate disposition of nerve impulses, has made it possible for man to compensate for all his physical deficiencies. . . . (6, p. 365, 366).

That is, from a survival standpoint, man's physical or motor skills are not his strongest points. He survives because of his psychic ability. He is

. . . neither particularly strong in body nor particularly agile in movement. If it were not for his brain he would be a rather pitiable misfit in most environments, and would have probably become extinct long before now. It is his capacity to acquire and to accumulate experience and knowledge that made him an unprecedented biological success (3, p. 104).
Thus man is possessed of two major characteristics, biological and psychic, the former being a determinant of the latter. The human inherits (process of self-reproduction) a constellation of genes containing a program which channels the physiological process in the developing body in such a manner that development follows a certain course, producing a body belonging to the human species (3, pp. 16-17).

The ability to think, to use and manipulate abstract symbols, and to communicate with others have biological bases. The larger brain and the larynx are biologically determined. What an individual thinks, and what language he speaks is a matter of culture. The ability to think and to speak are, however, a function of the human genotype. Variations in physique, strength, sex, temperament, etc., are constitutional factors which permit variance within the species.

The development of the organism, as a whole, as well as its various stages, is governed by a complex of genes, the genotype. At any particular moment, however, development is a function of interaction with environment and culture (3, p. 15).
**Phenotype**

The appearance and functional state which the body has at a given moment, resulting from environmental and cultural interactions, is its phenotype (3, p. 19). All human traits and qualities are determined by the genotype and life history, the interaction of heredity, and the environment in the process of living (3, p. 22).

The phenotype then, is what the environment, the culture, the constitutional factors, and the individual will make of the biological potential. It changes as a function of experience; a behavior consistent with a "humanized" work climate.

**The Human Ability**

The characteristic that appears to set man most clearly apart from other species is his great potential for flexibility in behavior, for responding appropriately to new situations (2, p. 47). This flexibility exists because of man's psychic ability.

Some species appear to have the same cultural abilities as man. The ant, for example, has a highly developed group culture, each ant performing his necessary function with great regularity and consistency. However, the ant's actions are pure, genetically-controlled behavior. Should the environment change, the ant cannot adapt. He continues to perform his programmed behavior right to the extinction
of the colony (3, p. 88). This type of behavior is suitable only in an invariant environment.

Man, on the other hand, demonstrates two types of adaptive behavior. One, he can adapt, within physiological limits (constitutional restraints such as sensitivity, temperament, and energy level are constituents of physiological limits) to new environments. Two, he can change his current environment. That is, he can make the environment compatible with that needed to sustain his biological being. Either way permits propagation and survival of the species.

Both of these behaviors are present in industrial cultures. Technology is a result of man's psychic ability applied to modifying the environment. Automation appears to be an effort to rid the culture of man's physiological limitations.

On the other hand, specialization of labor, applied without considering the total man, appears to be an attempt to force man to specialize his physiological characteristics as do other species in order to survive. That is, specialization excludes man's strongest survival tool and emphasizes his weakest.

The Argument for Change

Dobzhansky argues that cultural evolution is to biological evolution as biological evolution is to cosmic
evolution (3, p. 26). Cultural evolution is a congruous consequence of a biological potential to learn. However, the quality of "humanity" consonant with culture is not a natural consequence. Children separated from other humans grow up with a physical resemblance to humans, but their minds, their feelings, their behavior is not human (3, p. 29). Cultural environments exist then which are counter-evolutionary; that is, they can be, or more properly, become self-destructive.

A culture which restricts the use of the major survival ability, in fact emphasizing something else, would be, in the long run, such an environment. The non-productive and destructive behavior of individuals in highly specialized work climates is consistent with this argument.

The contention is also supported by experimental evidence. People confined to environments which limit their contact with other people and with normal environmental stimuli, prohibit cultural interaction, often display bizarre stress and anxiety behavior. The evidence also suggests that physiological changes occur in the nervous system (a major element of the human genotype) which persist for sometime after the individual returns to a normal environment (2, p. 152). What are the long-run consequences of a work environment that imposes these conditions?
If evolution is a natural condition and if man, either by mutation, gene recombination, or selection, has developed a unique genotype, it would appear that the evolution must continue and man's cultural environment must be supportive of the biological programmed life cycle. That is, he must learn and apply this learning to better adaptive behaviors and conditions.

Part of the research in Chapter II developed an association between a "self-concept" and the work environment. Allport (1, p. 27, 61) argues that the self is a continuing consequence of the individual adapting his behavior to his environment. In this sense Allport's proprium parallels the life cycle postulated by the theory of genetically-determined life cycles. The behavior of the young executive in leaving the large structured firm and going to the small evolving one is consistent with appropriate, genetic programming. A basis of the research hypotheses would exist in their behavior. If the individual is a cycle in the evolutionary process, he would desire an environment which maximizes the species' survival behavior, thus continuing the evolutionary process.

The argument for a humanized work environment would be a little impractical if one had to wait for some genetic evolutionary event to occur before it became effective. That the behavioral potential actually exists, waiting only
for some cultural trigger, must be demonstrated. The result of decreased costs alone in the firms listed in Table I is very convincing proof.

Instances of individual behavior in non-humanized firms is also supportive. For example:

a. A machine operator in a can manufacturing firm is a student of ancient-oriental history.

b. A technician for a radio station manages the mission program for his church; exhibiting perceptual planning ability reaching four years into the future.

c. Another student is an avid student of the stock market.

In other words, the potential is present, opportunity is lacking. (The three examples above are from the work experience of the author.)

The term "involvement" has been used several times, usually implying some type of interaction. A more exact definition is needed before the model building begins. Therefore, "involvement" is manual or psychic activity, which complements the human genotype. When the environment is synchronized with the genetically defined life cycle, a positive self-concept results. When this condition exists, the positive self-concept enhances the maximum exploitation of the environment.
Since the individual phenotype changes as a function of the genetic-life cycle and a dynamic cultural environment, a work climate must allow for changing behavioral patterns. A "humanized" work structure permits involvement.

**Specialized Involvement**

"Specialization" is almost a paradoxical concept. At the leading edge of knowledge it connotes possession or gleaning of unique data or information. In the applied area of knowledge it is associated with standardization and routinization. (Perhaps an underlying question of this discourse is concerned with spanning the gap.) In this section the concern is for the latter.

Applied specialization finds its strongest advocates in the industrialized areas of the world. Its basic premise is "the most perfect whole is an assemblage of the most perfect parts." In this context perfection seems to be positively associated with increasing segmentation. The consequence is a series, or a set of adjacent converging series, of habitual or mechanical performances of established, standardized procedures.

At one end of the "specialization" continuum all the essential elements of the product are known, all the relationships are known, and it is technologically and economically feasible to "automate" the process. In such a situation, except for some control and maintenance
functions, the human element is excluded. All the physical activities are performed by machines. An example of this type process is the petroleum refinery.

Once a machine is procured its "behavior" is limited to design specifications. If variation is required, or if technology or economic conditions do not permit the automated process, the human element is integrated into the system. The adaptability of the non-specialized human is used to perform routine productive acts, which are not otherwise possible. The automobile assembly line is an example of a high degree of human interaction. As is observable in these processes, the "segmentation directive" results in minuscule job behaviors for the human element.

The maximum productivity of a human-machine system can be limited by the behavior of the human component. Two characteristics of the human, discussed in the preceding section and reviewed here, are determinants of the productivity limitations. First, in biological context, the human is a non-specialized being. There is no exploitable strength, speed, or endurance. Second, homo sapiens possess a wide range of possible behaviors and can emphasize any one of them.

Examples of relatively specialized work behaviors are the typist, the baseball pitcher, and the machine operator, each emphasizing a narrow range of human capability. An
expansion of these same areas, the secretary, the decathlon competitor, and the tool-and-die maker, illustrates the range within each behavioral classification.

In the specialization construct, labor is viewed in a purely mechanical light. The only involvement permitted is muscular. Labor is replaced with machines as soon as it is technologically and economically possible. Until it is replaced, labor is expected to emphasize the development of an extremely restricted range of its biological capability, and ignore complete its psychic character.

The reduction in human muscular involvement in the production process can result from three conditions. One, machines are developed which link the various operations in the production system, thus removing need for human interaction altogether. Second, machine elements of a process have been developed, but their interconnections are not adequately attainable. The segmentation principle is applied to the integrating activities, resulting in minuscule human job tasks. Third, relationships between production elements are known, but it is economically expedient to use human labor. Since the human is a generalist, efficiency is maintained by "minusculing" the individual human contribution.

The consequences of specialization are illustrated in Figure 2, page 82. If dollar, mechanical, and human
1. Financial Involvement
2. Mechanical Involvement
3. Human Involvement

Fig. 2--The effect of a specialized work structure on involvement and productivity.
involvement are transformed to standard measures, a study of relative contributions, given any production process, is facilitated. With a longitudinal model long-range consequences of a particular process can be developed.

As a production process develops, the involvement mix of the constituents change in the direction of most efficiency. Three cross-sections of the evolution of involvement are illustrated in Figure 2.

The concept illustrated borrows from two models of basic economics. The apex of the quantity-quality curve is related to the low point of the average cost curve of the "Cost of Production" model (11, p. 126-151). The effect on productivity of the change in the involvement mix is similar to the supply-demand model of market price (11, pp. 30-32). At some "mix" productivity is maximum.

The model illustrated in Figure 2 identifies decreasing human involvement as a diseconomy contributing to reductions in quantity and quality of output. It does not argue that increasing financial and mechanical involvement are not economies. In an empirical situation the diseconomy is manifest in non-productive, even destructive, behavior.

An environment which under-utilizes the human genotype, particularly the psychic characteristic, results in rather interesting adaptive behavior. The human normally reacts to a new environment in one of two ways. One, the human
produces an acceptable phenotype (3, p. 24). Two, if the environmental demands approach the limits of specific development patterns determined by the hereditary constellation of genes, the human, unlike other species, attempts to modify the environment. If the environment becomes less and less compatible with the genotype, as it will if the environment does not keep pace with the gene-programmed life cycle, the adaptive behavior becomes less and less consistent with human potential and more and more like lower life forms. However, a human can no more develop the phenotype on an ape than can an ape develop the human phenotype (3, p. 25). When this condition exists, man develops myths or psychological defense mechanisms to ease his frustration. Sometimes, as in the case of slashed upholstery on new cars, even these defenses break down. In Figure 2 a decreasing productive efficiency is a symptom of the genotype-environment incompatibility, non-involved behavior.

If the premise of the specialization model is carried to its logical end, human muscular involvement would eventually cease to be part of the production process. If the inputs, the production process, or the output were invariant perhaps the argument would be valid. Invariance in these factors, however, is not an observable phenomenon.
The increase in financial involvement (see (1), Figure 2, page 82) is a consequence of paying more and more for machines produced by people who are paid more and more for doing less and less. Not because doing less and less is their desire, but because it is required by the organization structure.

The experiences, experiments, and theories discussed in Chapter II purport to alleviate the symptoms illustrated in Figure 2. An illustration of involvement in a "humanized" environment is presented in Figure 3, page 86.

**Humanized Involvement**

The "level of decision-making" element of Sisk's Theory "Z" (16, p. 309) proposes decision-making be decentralized to the point where interactions in the production process maximize the efficacy of the decision. The releasing of the intellectual energies of the production employee produces such a condition. It permits generation of entirely new dimensions in organization climate.

The genesis of an involvement climate results in several observable changes in the organization. In Figure 3, page 86, the humanized environment is developed as a continuation of a specialized one. The changes in the involvement characteristics are graphically illustrated.
1. Financial Involvement
2. Mechanical Involvement
3. Human Involvement
3a. Labor Manual Involvement
4. Managerial Involvement
5. Psychic Labor Involvement
6. Interaction of Managerial and Labor Involvement

Fig. 3--The effect of work structure on involvement and productivity
First, the decline in productivity is reversed. The slope of the productivity line becomes positive again. Empirical examples are:

a. American Velvet is able to compete successfully (profitably) with foreign and southern mills in spite of higher labor costs.

b. Donnelly Mirror adds 20 percent to profit annually.

c. R. G. Barry Corporation increased volume from $12,500,000 to $25,500,000.

Second, the decline in the manual involvement of the human resource reverses.

a. The "specialized" work environment restricted the use of the human capability to a very narrow range of muscular behavior. Involvement permits the use and development of a much greater range. This argument explains why job extension (4, p. 42), defined as doing more of the same task, is not as effective as job enrichment, which includes new behaviors (13, p. 63).

b. Absenteeism, tardiness, turnover, trips to the dispensary, the rest room, the tool room, and the break area decrease. More of the employee's "in plant" time is spent in productive activity (14; 15, p. 79; pp. 20-25).
c. There is more effective use of human motor behavior in production activities. When a production process is designed, the quantity of the human contribution is integrated into the system. The amount of effort, a severely restricted performance repertoire, is limited to that required by the conceptualized system. For example, originally a worker at American Velvet controlled two machines, now each worker controls eight machines, and not at four times the income or one-fourth the efficiency.

Third, there is more efficient use of financial resources. Fewer dollars are required for greater production. One example is the Gaines Dog Food plant where a higher quality product is produced at $600,000 per year less in controllable costs than other comparable firms.

Fourth, there is an increasing and more efficient use of machinery. New, less expensive machines are built and more efficient processes are developed (7, p. A-1d). The Scanlon Plan encourages the use of machine over human power. In some instances process design, engaged in by production employees, eliminates human work (7, p. A-1d).

The most significant aspect of involvement is the releasing of the intellectual energies of a large number of
the organization's human resources. In the specialized system little psychic involvement is permitted.

New dimensions of organization climate concurrent with these changes are also illustrated in Figure 3. The third dimension, (4), illustrates managerial psychic involvement. In the specialized structure a great deal of the manager's energy is relegated to control and personnel activities. In the humanized structure these activities are accomplished, in large part, by production employees. In the new dimension management energy is expended in systems analysis and design, in planning, and in organization activities (5, p. 19).

A fourth dimension is the psychic involvement of production employees, illustrated at (5). This is an extension of labor's contribution at no additional expense to the firm.

One organization difficulty encountered in the specialized structure is that management is partially isolated from the production process by perceptual and communication distortions. As a result their efforts are not maximally efficient. This structural defect is minimized via management interaction, both physical and psychic, with production employees in authoritative committees and teams. This concept is illustrated at (6) in Figure 3.
The humanized work environment offers an obvious alternative to price increases as a solution to decreasing system efficiency--increase the system efficiency via use of available "talents." When one of the "talents" is an ability to adapt the others to maximize their efficiency, the productivity curve should exhibit a long uninterrupted rise. That is, the optimum scale of plant may be defined in terms of relative involvement potential.

This idea is older than Allport's "becoming" or even Darwin's "evolution." In the New Testament, verses fourteen through thirty, chapter twenty-five of the book of St. Matthew, the use and development of "talents" is an exhorted means of achievement or growth, and just as significant, the failure to use them results in their total loss.

The concept developed to this point is somewhat abstract. If individual attitude concerning job involvement is worthy of investigation, involvement must be defined in terms of its interface with a humanized work climate. Figure 4, page 93, is a model of this relationship.

A Humanized Work Climate

If a work climate is to support the behavior described in the preceding section, it should support the following conditions.

a. It should permit the use of the individual's most significant talent.
b. It should permit development of as many skills as the individual's genotype permits.

c. It should provide for physical development consistent with biological survival, and to the extent that psychic activity is dependent on biological condition, consistent with psychic development.

d. It must provide for maximum development of the human's major survival equipment, the mind.

e. It must allow for the learning and developmental nature of the biological life cycle.

Analysis of organizations with humanized work environments reveals behavior consistent with concepts developed in the research questionnaire (see Appendix I). There is multiple-skill behavior exemplified in the job rotation at Monsanto and the team work groups at Gaines Dog Food. There are provisions for employee selection of time-task combinations. For example, there are no time clocks at Donnelly Mirror, and the employees may stop the assembly line whenever they wish. Interactional learning processes are employed at every humanized firm. Team and committee action synthesize the diverse knowledge and skills of labor and management into a synergistic organizational process. Job analysis if manifest in employee modification of machines,
procedures, or even the elimination of steps in the production process.

A model of a humanized climate is presented in Figure 4, page 93. Before describing the elements of the model, there are features that should be noted. First, there are no devices for satisfying, comforting, or otherwise cajoling the human element. In other words, there are no non-production related inducements. Second is the "aura" surrounding team activities labeled "TRUST." Executives of humanized firms frequently use this term to describe a necessary condition to successful climate modification. The term is difficult to define operationally, but probably is a consequence of informed cooperative successful behavior. It is probably a result and not a cause. It may also be associated with experience and communality of purpose.

Major Elements

The humanized work environment appears to be an integration of three major elements. They are the product, the self-concept, and team or committee activities.

Product.--Contrary to the traditionalist's pronouncements, the output (product, profit, etc.) is of significant and vital concern to all members of a humanized firm. Increased opportunities for employees to express psychological success does not mean a completely people-centered
Fig. 4--Humanized work climate diagram
organization. This pseudo-argument is propounded by those imprinted with economic-man, self-interest concepts. For indeed the "economic-man" is a people (individual) rather than an organization-centered concept. Psychological success means achieving challenging goals. Self-esteem is intimately related to responsibility for something or someone outside one's self.

In a "humanized" firm the "product" performs several functions.

a. The product is in contact with the external environment. The acceptance or rejection of the firm's output by its defined market is an indication of the validity of goals and objectives.

b. The product is the long-range source of the firm's financial energy. Finances provide necessary raw material, production machinery, and human resources. For the latter, money serves two functions.

   (1) Pay provides for the sustenance of the person's biological needs.

   (2) Pay provides the cultural status symbols.

c. The preceding functions are common to all business organizations. In the humanized firm the product serves an additional purpose. The product is the quid pro quo of the comfortable-self. This is a
new perception of the product, and a little difficult to comprehend. But understanding it is essential to understanding the success of the humanized firms.

A look at the companies listed in Table I, page 38, reveals a wide range of industries and products. Humanization is as applicable to the highly automated industries as it is to the production of unique castings by Precision Products. The simplicity, complexity, or any characteristic of the production process, or the product itself, is not a necessity to humanization. Walton states that if the product is socially acceptable, it is compatible with humanization (17, p. 77).

The product is not a goal or an objective to be achieved because in the finished state it satisfied some need. The only requirement is that it be there.

Previously the situation of a child maturing physiologically without human companionship was mentioned. It was noted that the "being" would not be human. Apparently association with others (culturization) adds something to the biological potential. The ability to speak is biological, the speech pattern is a cultural consequence. Note the inference of regenerative feedback. Language makes possible human culture, culture provides means of developing and sophisticating language.
In the same way that language contributes to cultural evolution, in an industrial culture, the product contributes to intellectual evolution. Except that it is modified by the process, it serves as a catalyst. As genetic recombination provides uniqueness to the genotype, the product is the cultural means of providing uniqueness in the work phenotype. The specificity of the product is associated with the character of the culture.

This cultural character of the product is to the material-economic organization as the psychic character of the human is to the physiological character of the cell. The biological and economic characteristics are necessary, not because they are ends in themselves, but because they are preconditions to higher forms of behavior. This significance of the product is not normally recognized in a firm with a specialized structure.

It should be noted that there are no internal operations associated with determining what the product should be. Management is still responsible for defining organization goals and objectives, the markets, and quantities of production. They are still accountable for the success or failure of the business.

Self-concept.--The second major factor is the self-concept. From the standpoint of the individual's motivation (motivation is used here in the sense of biological
propensity which can be inhibited, supported, or directed by cultural forces), self-concept is the important consequence of participation.

Self-esteem was described in Chapter II as being a self-evaluation based on self-perceived competence in a particular task or job. This definition suggests an ideal or standard, and here is a significant departure from the normal concept of "standard." The standard is the optimum phenotype. The optimum phenotype is the best possible relationship between the life cycle of the human (recognizing that each cycle is a constituent of evolving physiological and psychological man) and a dynamic-evolving culture, (the industrial process, in this case). The standard is relative and dynamic.

An apparent example of this standard was illustrated by research described in Chapter II. As management "cycles" through the organization, the behavior of management changes. The younger manager is concerned with learning and doing, with work priorities and technical competence. As he grows into middle management, his optimum behavior is in terms of coordinating activities through personalized interactions and group decisions. As he approaches the end of his organization-life cycle, his phenotype assumes the cloak of counselor, trainer, and dispensor or wisdom. There was in Chapter II some suggestion that this particular
particular cycle was not in accord with the phenotype of the younger executives.

Jennings argues that successful managers view their jobs as learning processes (9, p. 11). In the evolutionary context, learning would be the process of developing an optimum phenotype. Perhaps the behaviors described in the preceding paragraph were imposed by the structure rather than learned.

Another implication of the self-concept is that the comparisons of what is, what can be, and what should be, are under the control of the individual. If such is the case, he must perform some decision-making under self-control. He must know what he wants to do. He must know what effect the action will have on the relationship between his behavior and the environment. He must, also, receive, store, and evaluate continuously the consequences of his acts. Note: an optimum phenotype (positive self-concept) occurs only when there is mutual *intra-action* of the person and the environment. Lawler, Porter, and Tannenbaum demonstrated that people were more favorably disposed toward production activities if the activities were self-initiated (10, p. 432).

The self-concept occurs as a learning process. In a production system the variations in product quality and quantity provide the environmental input (illustrated in
Figure 4 as experience and knowledge). The product also provides the hygienic factors which can become inhibitors of the self-concept process.

An indication that the phenotype (self-concept) are influenced by relevant environments was demonstrated using the EPPS. Male employees in a work climate exhibited a low autonomy need and a high introspection need. This particular combination could be interpreted as a learning phenotype. In the home environment the same individuals exhibited a complete reversal of these two needs. The change was significant at 0.01 (8, p. 14).

The self-concept, illustrated in Figure 4, page 93, is also a contact point with the external environment. Super and Korman argue for a relationship between self-perceptions and perceptions and choice of a work environment. This window into the concept of "humanization" is exploited in the research analyzed in Chapter IV.

For example, individuals who choose occupations normally associated with relatively restricted behavior patterns should have expectations which differ from those who expect the work environment to demand a great deal of variation in behavior. Further, the influence of the pre-labor-force education should give some indication of the possibility of a learning environment altering the self-concept of the human resource.
Team Activities.--The third major element is the team or committee concept. It is probably the key to success in humanized organizations. It provides the means for psychic interaction. The exchange of "mind" stimulates mental activity thus developing the uniquely human character.

The team, or committee, is the actualization of the cultural evolution. As sexual intercourse provides for more survival-prone biological systems, the intellectual intercourse provides for more survival-prone business systems. It utilizes the dominant intellectual characteristic of all its members. This latter statement is significant for two reasons. First, as there are different physical capabilities, so are there different mental propensities. Good engineers are not necessarily good managers. There is no implication of one being "better" than the other, simply that one requires mental activities which are different from the other, and there are varying degrees of capability within each area. Second, within the behavioral parameters of each production process each individual is permitted to use and develop his particular ability. Further, as the individual matures and his interests and abilities change, the team process maintains his contributive capacity.

In team activities members of the firm begin to understand the perceptions and abilities of the other members.
The cross-hatched diagonal in Figure 4, page 93, indicates common perceptions. Initially small, this area tends to expand as the human climate unfolds. The process minimizes conflict due to ignorance, misunderstanding, and misconceptions in the minds of labor and management.

The team defines objectives and structures jobs consistent with their being attained. This decision-making process draws from the knowledge, experience, and ideas of all members of the firm. The result is that each member has an understanding of what is being done, including the interdependency of each action, why it is being done, and how he is to contribute. This understanding exists because each member has an input into defining the goals and jobs. It is difficult for one to resist that which is his creation. The group-intellectual activity is consistent with the evolutionary phenotype in that it emphasizes the psychic survival tool.

Management receives at least three benefits from the team process. First, some of the perceptual distortions that existed because of inadequacies in the communication system are gradually reduced. The problems and activities in the production function are more clearly understood because of the direct communications with the production personnel. This reduction occurs not only between labor and management, but between the various levels and functional
areas of the management structure also. Second, it relieves management of the bulk of routine control and personnel problems which had occupied much of their time. They are able to engage in more significant managerial activities. For example, in Figure 4, management performs systems-analysis activities which parallel the shorter-term goal definition, job design, job performance activities. One interesting aspect of Figure 4 is that activities of either labor or management fit the operational paths. For example, systems analysis and design could just as easily have been illustrated as goal definition, job design, skills, autonomy, and job performance. Third, it provides management the same self-concept involvement it does labor.

Interconnecting sub-process.--The three major aspects of the humanized work climate are interconnected by several sub-processes.

a. Weaver (18, p. 1) argues that response to communication is a function of past experience. A message, concerning work, sent to an individual with no experience with the symbol used is effectively the same as no message in that the intended meaning is not conveyed. In other words, the receiver is in a state of sensory deprivation. Research reveals abnormal behavior under such conditions. In such a situation continuity and consistency in the production process can be maintained only with external
controls. Team activities provide common meaning to symbols and as such is the genesis of self-control.

Production goals are defined by team activities. The common experience permits mutual understanding of stimuli received from the production process, because the individual understands he is able to respond without being told how to respond. In fact, each member depends on the other doing just that.

This social basis to self-control is an important aspect of a humanized industrial system. The group activities provide the common knowledge necessary to act independently. Control in this context is defined as informed development. The individual "controls" his own behavior in that he complies with his own development plan.

Other aspects of self-control are decision-making and the self-concept. Decision-making, as part of the group decision or as an independent response to production stimuli, is the operational manifestation of autonomy which permits the self a perception of competence.

b. Decisions made in the humanized climate fall into at least three categories.

(1) Initially, because of the uncertainty concerning the consequences, decisions will tend to be defensive. The self-concept will be defended. If the
individual is just entering the work environment, the
decisions will be determined by pre-existing values and
perceptions.

(2) As part of the on-going humanization process,
decisions will be directed to adapting individual and
process behavior to conform to standards, in this case the
goal definitions.

(3) As the humanized system progresses, the
more "learned" self requires decisions to continue the
development of an optimum phenotype.

c. Autonomy, or flexibility, in work behavior is an
interesting aspect of the operation of humanized climates.
It interacts in two ways.

(1) First, autonomy does not mean lack of
structure, nor does it mean complete individual choice.
Flexibility must be built-in by job design. For example,
in a variable time structure, the work should be sequen-
tially dependent. If it is, every employee must be
capable of performing every task.

(2) Autonomy is also an element of the self-
concept. The exercise of control over work behavior is
sustenance to the phenotype much the same as food sustains
the genotype. Autonomy contributes to the perceptions of
competence. It is, however, modified by the reality
function of the self-concept, in conjunction with information
received from the product via the learning experience. Consequently, autonomy in a humanized climate is manifest in work behavior which supports successful accomplishment and a positive self-concept. Operationally, this behavior is manifest in defining goals and designing jobs consistent with skills and potentials.

Autonomy, job performance, and skills are constituents of a capability perception. Capability acts as a modifier of team-job design and goal-definition activities.

d. The skills element of the humanized work climate is active in two areas. Both the objective and the subjective aspects are illustrated in Figure 4.

(1) Subjective aspects of multiple skills are influenced through three processes of the humanized climate. The number of skills demonstrated in performing the production processes feed through the learning activities directly influencing the self-concept. The product consequences of job performance also affect learning and the self-concept. Third, feedback through job design to autonomy to the self-concept contributes to the subjective value of skills. The self-concept research discussed on pages 53 and 54 suggest the result will be more active participation in the humanized production process.
(2) Objective value of multiple-skill influences individual behavior by means of compensation for job performance derived from market acceptance of the product. e. Job performance is the most direct influence on the quality and quantity of the product. Its significance is indicated by the number of "other elements" interactions. Perceptions of variation in work behavior have their locus in this area.

Relevance to Primary Research

To this point two necessary tasks have been performed. One, an operational construct of "humanized work climate" has been developed. Two, an instrument capable of measuring attitudes concerning one segment of the model has been developed. Conditions for evaluating the research hypotheses are now present.

The model pictured in Figure 4 presents two interactions with the external environment. The market acceptance of the product is a measure of management efficiency and a source of monetary inputs. The other environmental interface is the self-concept. The self-concept provides the window for this investigation of the humanized climate.

The individual brings to the work environment attitudes and values learned during pre-work development. Possible explanations for the scarcity of humanized firms could be:
a. The attitudes or values of labor and management are incompatible with the behavior required in a "humanized" environment.

b. The attitudes or values of labor or management are incompatible with the behavior required in a "humanized" environment.

In the case of "a" the team activities would not exist as defined in Figure 4. Labor's interaction would be directly from the self-concept to job performance. This is illustrated in Figure 4 by a broken line. All planning, job design, and decision-making would be accomplished by management. Control would all be external.

Suppose labor's attitudes were inconsistent with the required behavior. For example, a few Gaines Dog Food employees wanted a structured environment and tried to maneuver management into giving them one. Also, the reaction of the employees at Harwood's plant in Puerto Rico suggests external environments can be associated with difficulty when "humanizing" the work environment. In this case, "b," management's efforts to include employees in team decision-making activities would be resisted.

In the next chapter the attitudes of prospective management employees and prospective labor employees concerning an autonomous work climate are analyzed to determine if:
a. Significant differences exist between their attitudes before entering the work environment.

b. Significant changes in their attitudes are associated with the learning process.
CHAPTER BIBLIOGRAPHY


CHAPTER IV

ANALYSIS OF PRIMARY DATA

The research questionnaire elicits Likert-scale responses concerning the "work-module" construct. The questionnaire is made up of statements about:

a. Subjective value of multiple-skill, the individual's values or preferences for autonomous job behavior.

b. Objective value of multiple-skill, the relationship to getting or keeping a job and to the amount of monetary compensation.

c. Capacity, the ability of the subject, and others, to learn and perform more than one job.

d. Job analysis, the individual's concept of the tasks and structure of the formal work climate.

e. Variation in work behavior, the individual's ideas concerning changing tasks during the work process.

f. A general class consisting of questions associated with the work-module construct but not associated with any specific factor.

The questionnaire was constructed so that lower total scores indicate agreement with the work-module construct.
A lower score indicates a more positive attitude. For example, a score of fifty, compared to a score of ninety, indicated an attitude relatively more consistent with the behavioral requirements of an autonomous work climate.

Each hypothesis was evaluated with four measures of the work-module construct (see "Statistical Treatment," pages 15 and 16). Similar results were obtained for work-module scores, modified work-module scores, and subjective value of multiple-skill scores. The objective value of multiple-skill scores yielded a somewhat different pattern.

Hypothesis Analysis

Hypothesis I

The hypothesis that academic students have a greater affinity for an autonomous work environment than do vocational students was not supported by the data. Academic students did not score lower on the work-module questionnaire than vocational students. The vocational students scored significantly lower.

Work-module and modified work-module scores.--The problem was to test at a level of 0.05 to determine if there was a significant difference in the average work-module attitudes of the academic subject class and the vocational subject class. An ANOVA developed a F ratio of 8.586,
P = 0.0038, for the work-module scores and a F ratio of 5.160, P = 0.0243, for the modified work-module scores (see Tables II through V). The relationships are illustrated graphically in Figures 5 and 6. A significant column effect does exist.

Apparently the two occupational classes have different group attitude norms with respect to the work-module concept. The vocational subjects prefer an autonomous work climate while the academic subjects prefer relatively more structured environments.

These results are not in agreement with Kahn's assertion that managers are more satisfied because of greater time-task autonomy (4, p. 37). They are inconsistent with the results of research by Paine (7, p. 248) and Ghiselli (1, p. 542). Paine demonstrated a positive relationship between independent thought and action and job satisfaction. Ghiselli found significant differences in initiative and self-assurance between management and labor, the former being higher, suggesting a managerial preference for more autonomous work environments.

Compared to vocational subjects, these data suggest non-vocational entrants into the labor force will not prefer self-initiated interaction with the work environment as Lawler and others suggest managers do (5, p. 432). The results, however, are consistent with Lawler's description
TABLE II

MEAN, STANDARD DEVIATION, AND N FOR WORK-MODULE SCORES*

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*Source: Questionnaire submitted to subjects in February, 1974.

TABLE III

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*Source: Questionnaire submitted to subjects in February, 1974.
TABLE IV

MEAN, STANDARD DEVIATION, AND N FOR MODIFIED WORK-MODULE SCORES*

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<td>$\bar{X} = 63.205$</td>
</tr>
<tr>
<td></td>
<td>$S = 12.804$</td>
<td>$S = 13.719$</td>
<td>$S = 13.519$</td>
</tr>
<tr>
<td></td>
<td>$N = 32$</td>
<td>$N = 56$</td>
<td>$N = 88$</td>
</tr>
<tr>
<td>High School</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$\bar{X} = 61.689$</td>
<td>$\bar{X} = 66.341$</td>
<td>$\bar{X} = 64.824$</td>
</tr>
<tr>
<td></td>
<td>$S = 12.817$</td>
<td>$S = 12.326$</td>
<td>$S = 12.644$</td>
</tr>
<tr>
<td></td>
<td>$N = 61$</td>
<td>$N = 126$</td>
<td>$N = 187$</td>
</tr>
<tr>
<td>Column Totals</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.

TABLE V

ANALYSIS OF VARIANCE OF MODIFIED WORK-MODULE SCORES*

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
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<td>3</td>
<td>381.52243</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Rows</td>
<td>335.89747</td>
<td>1</td>
<td>335.89747</td>
<td>2.15733</td>
<td>0.1436</td>
</tr>
<tr>
<td>Cols</td>
<td>803.48532</td>
<td>1</td>
<td>803.48532</td>
<td>5.16044</td>
<td>0.0243</td>
</tr>
<tr>
<td>Row-Column</td>
<td>5.18451</td>
<td>1</td>
<td>5.18451</td>
<td>0.03330</td>
<td>0.8554</td>
</tr>
<tr>
<td>Within</td>
<td>28493.25705</td>
<td>183</td>
<td>155.70086</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Total</td>
<td>29637.82435</td>
<td>186</td>
<td>159.34314</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.
Fig. 5--Illustration of work-module scores for subject classes.
Fig. 6--Illustration of modified work-module scores for subject classes.
of hierarchial interpersonal activity in traditionally structured organizations. A more structured perception of the work environment results in attaching less significance to subordinate contributions than those of superiors. The consequence is a built-in inhibition to "involved" behavior at the lower levels of the organization.

The relationship of attitudes developed in this study is inconsistent with the "team" aspect of the "humanization" model (see Figure 4, page 93). The vocational subjects would likely be prepared to engage in "team" functions. Management, relatively speaking, would prefer more structure in the production process. Autonomous behavior on the part of labor, which would be expected from these findings, would result, regardless of its productivity consequence, in the application of more external controls by management. Neither parties' action would contribute to "trust."

The results contradict some actual humanization activities. For example, when Harwood management began organization changes at Waldon Manufacturing Company, the process was slowed by the necessity for re-educating the employees. Management stated:

Workers who have been treated like children do not, any more than children, grow to maturity in a day. Employees do not learn to work independently by being kept dependent. Only slow and careful re-education can change their habitual relations with their bosses and their work (6, p. 70).
In other successfully humanized firms this same "re-education" process has been characteristic. It is a time-consuming process.

The relationship between the pre-work scores of vocational and non-vocational students is exactly opposite to that found in similar studies in the work environment. If both results are valid, the work climate must severely modify the attitudes of the labor employee.

The results shed some light on management's erroneous perceptions of why labor is absent, tardy, and job mobile. They suggest why labor is in a state of unrest. If attitudes influence management's job design activities; labor employees likely find the work climate much more restrictive than they prefer.

The lower score of the vocational subjects is consistent with Gooding's argument that labor wants to make more contributions in the work process if only management will provide the necessary climate (2, p. 133). It supports the argument that labor's non-productive behaviors are frustrated reactions to a work structure which inhibits its desire and capability for more active involvement.

With respect to the question concerning why more humanized climates have not been developed, the data indicate management rather than labor may be the inhibiting force. This latter statement assumes, of course, the pre-work attitudes carry over into the work organization.
Subjective and objective value of multiple-skill.--The problem was to test at a level of 0.05 to determine if there was a significant difference in the "multiple-skill" attitudes of the academic subject class and the vocational subject class. An ANOVA developed a F ratio of 4.488, $P = 0.0355$, for subjective value scores (see Tables VI and VII) and a F ratio of 1.084, $P = 0.2991$, for objective value scores (see Tables VII and IX). The relationships are illustrated graphically in Figure 7 and 8. A significant column effect exists for the subjective value scores, but not for the objective value scores.

The subjective value of multiple-skill scores have the same academic-to-vocational relationship as the two work-module scores. The vocational students, compared to the academic students, prefer a work climate which permits the development and use of several (four or five) skills because it is important to their self-concept. The relationship holds for both high school and college subjects. The subjective scores indicate the vocational subjects are more compatible with a humanized climate than are the academic students. Their self-concept has a stronger connection with the autonomy, job performance, skill, job design cluster in the "humanized" model, page 93, than does the self-concept of the academic subjects.
### TABLE VI

**Mean, Standard Deviation, and N for Subjective Value of Multiple-Skill Scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Vocational</th>
<th>Academic</th>
<th>Row Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\bar{X} = 10.690$</td>
<td>$\bar{X} = 11.729$</td>
<td>$\bar{X} = 11.424$</td>
</tr>
<tr>
<td></td>
<td>$S = 3.920$</td>
<td>$S = 3.288$</td>
<td>$S = 3.497$</td>
</tr>
<tr>
<td>College</td>
<td>$N = 29$</td>
<td>$N = 70$</td>
<td>$N = 99$</td>
</tr>
<tr>
<td></td>
<td>$\bar{X} = 10.125$</td>
<td>$\bar{X} = 11.393$</td>
<td>$\bar{X} = 10.932$</td>
</tr>
<tr>
<td></td>
<td>$S = 3.190$</td>
<td>$S = 3.623$</td>
<td>$S = 3.513$</td>
</tr>
<tr>
<td>High School</td>
<td>$N = 32$</td>
<td>$N = 56$</td>
<td>$N = 88$</td>
</tr>
<tr>
<td></td>
<td>$\bar{X} = 10.393$</td>
<td>$\bar{X} = 11.579$</td>
<td>$\bar{X} = 11.193$</td>
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<td>$S = 3.537$</td>
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<td>$S = 3.504$</td>
</tr>
<tr>
<td>Column Totals</td>
<td>$N = 61$</td>
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<td>$N = 187$</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.

### TABLE VII

**Analysis of Variance for Subjective Value of Multiple-Skill Scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>$F$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
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<td>21.06171</td>
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</tr>
<tr>
<td>Rows</td>
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<td>8.28261</td>
<td>0.68371</td>
<td>0.4094</td>
</tr>
<tr>
<td>Column</td>
<td>54.36700</td>
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<td>54.36700</td>
<td>4.48786</td>
<td>0.0355</td>
</tr>
<tr>
<td>Row-Column</td>
<td>0.53552</td>
<td>1</td>
<td>0.53552</td>
<td>0.04421</td>
<td>0.8337</td>
</tr>
<tr>
<td>Within</td>
<td>2216.90690</td>
<td>183</td>
<td>12.11425</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2280.09202</td>
<td>186</td>
<td>12.25856</td>
<td></td>
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</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.*
## TABLE VIII

**MEAN, STANDARD DEVIATION, AND N FOR OBJECTIVE VALUE OF MULTIPLE-SKILL SCORES**

<table>
<thead>
<tr>
<th>Source</th>
<th>Vocational</th>
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<th>Row Totals</th>
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<td>$S = 3.590$</td>
</tr>
<tr>
<td>College</td>
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<td>$N = 70$</td>
<td>$N = 99$</td>
</tr>
<tr>
<td>High School</td>
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<td>$\bar{X} = 9.223$</td>
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<tr>
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<td>$S = 3.591$</td>
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<tr>
<td></td>
<td>$N = 32$</td>
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<td>$N = 88$</td>
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</tr>
<tr>
<td></td>
<td>$N = 61$</td>
<td>$N = 126$</td>
<td>$N = 187$</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.

## TABLE IX

**ANALYSIS OF VARIANCE FOR OBJECTIVE VALUE OF MULTIPLE-SKILL SCORES**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
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<td>17.78416</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
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<td>1</td>
<td>22.33066</td>
<td>1.73635</td>
<td>0.1892</td>
</tr>
<tr>
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<td>13.93934</td>
<td>1.08387</td>
<td>0.2991</td>
</tr>
<tr>
<td>Row-Column</td>
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<td>17.08247</td>
<td>1.32827</td>
<td>0.2505</td>
</tr>
<tr>
<td>Within</td>
<td>2353.51244</td>
<td>183</td>
<td>12.86073</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
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<td>2406.86491</td>
<td>186</td>
<td>12.94013</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.*
Fig. 7--Illustration of subjective value of multiple-skill scores for subject classes.
Fig. 8--Illustration of objective value of multiple-skill scores for subject classes.
The objective value of multiple-skill scores reveals a slightly different pattern of attitudes. This measure is the only one not showing a significant difference between the attitudes of the two subject classes. The "objective" sub-concept is concerned with the value of multiple-skill in getting and keeping a job and its relationship to monetary compensation. The attitudes of the two subject classes are essentially the same at the high school level. The similarity is possible because neither have needed to concern themselves with the concept. This explanation is consistent with the development argument.

The relatively rapid shift in attitude of the academic subjects from high school to college, compared to the relatively stable attitudes of the vocational subjects suggests some substantive contribution of the respective environment. Perhaps the compensation structures are more obvious in the vocational area. For example, wage rates are relatively well known, but salaries are usually kept secret. The relative demand and consequent job security is also probably more visible to the vocational student. The college academic subjects, on the other hand, have a more open-ended view of the reward and security aspect of work. Individual ability, a relatively tenuous standard, is likely to be the cultural norm for this academic group. The college academic subject expects greater rewards for specialized than for generalized work behavior.
The difference between objective and subjective values with respect to specific patterns of work behavior is interesting. It suggests individuals recognize and differentiate the two aspects of work environments. This differentiation, and its effect on behavior, is important to the success of humanization efforts. Without the ability to differentiate opportunities for involvement in the pursuit of economic rewards, or to recognize some minimum economic condition which permits the pursuit of involvement rewards, there could be no successful humanization efforts, nor could the executive's evaluation of the behavior of the younger members of the work force be even a "half-truth."

Further, it suggests the possibility that the differentiation of the relative degree of satisfaction of Maslow's hierarchy or Herzberg's hygienic-motivator elements are conscious phenomena. Differentiation between the two values is also required by Allport's "proprium." The "humanized work climate" model provides for it.

Hypothesis II

The hypothesis that college academic students have a greater affinity for an autonomous work environment than do high school academic students was not supported by the data. There was no significant difference between the attitudes of college academic students and high school academic students with respect to work-module scores.
(t = 0.98), modified work-module scores (t = 1.19), or
subjective value of multiple-skill scores (t = 0.56).
(see Tables II, IV, VI and VII and Figures 5 through 8
for numeric and graphic illustrations, respectively).

Hypothesis II assumed non-vocational students have a
less structured view of the work environment than do
vocational students, and that the education process would
intensify this attitude. Greenberg suggested this should
be the case (7, p. 81). He argued the education process
tends to be associated with more "democratic" perceptions.

In this study, in addition to the lack of significant
differences, the relationship of scores, college higher than
high school, was opposite to that hypothesized. The
conditions experienced between the time of being an academic
high school senior and the time of being an academic college
senior seem to result in a more structured perception of
the work environment. The direction of this change presents
some problems for humanization activities. The inference
can be made that the education process is a constituent of
the work environment. If the pre-work trend continues into
the work environment, the chances of more companies
utilizing a "humanized" production process are slim.

Objective value measures (see Figure 8, page 124)
suggest academic scores could be significantly different.
A test of significance between the means of two samples
where the population standard deviations are not known, resulted in a t-score of 2.46, significant at 0.02. College academic subjects, more so than high school academic subjects, believe their economic security is best achieved through more specialized work behavior. The compensation systems they develop will probably not include the "internal" aspects.

Hypothesis III

The hypothesis that college vocational students have less affinity for an autonomous work environment than do high school vocational students was not supported by the data (see Figures 5 through 8 and Tables II, IV, VI, and VIII). In each of the four measures the change in attitudes was in the direction hypothesized. The magnitude of the change, however, was not significant. Objective value of multiple-skill scores showed the least change \( (t = 0.10) \). T-values for the other measures were: work-module score \( (t = 1.01) \), modified work-module score \( (t = 1.03) \), subjective value of multiple-skill score \( (t = 0.65) \).

The thesis of the research assumed vocational subjects were more inclined toward a structured environment than were the academic subjects, and that the education process would intensify the attitudes. Only the latter half of the assumption is supported. However, since the academic subject scores shift in the same direction, the condition
is possibly not a function of the vocational education experience per se, but something common to both academic and vocational education.

In the context of a labor-culture norm, these results are consistent with the environment experienced in contemporary work situations. The direction of change could indicate the gradual internalization of the realities of the world of work. During this stage of the individual's life cycle, he is adapting his psychic behavior toward his optimum phenotype. That is, he is becoming prepared to survive in an environment which discourages multiple-skill behavior.

If the individual, after developing this phenotype, were suddenly exposed to a humanized climate, a relearning process would have to take place. It would necessitate the development of a new phenotype. In view of the research indicating changes in the nervous system during sensory deprivation, the longer the individual is in the structured environment, the more difficult would be the re-learning process.

**Hypothesis IV**

The hypothesis that the difference in attitudes, concerning an autonomous work environment, between college academic students and vocational college students is greater than the difference between academic high school
students and vocational high school students was not supported by the data. The ANOVA indicated no significant interaction between vocational choice and education level. Only for the objective value of multiple-skill measure did the analysis reveal an indication of interaction, and it was not significant (see Table IX, page 122 and Figure 8, page 124).

Apparently two different value systems exist and the education process, except for very long-range action, does nothing to bring about a consensus. Apparently the group norms are integrated into the education curriculum.

In the case of the objective value of multiple-skill, the best explanation for the similarity at the high school level and the significant difference at the college level \((t = 2.46, \text{ significant at } 0.02)\) seems to be a developmental argument. The culture, though contributing to subjective value systems, places no demands on the young members with respect to monetary or security values. This could be a rough-ranking scale for the internalization of values in an industrial culture.

**Synthesis of Hypotheses**

These hypotheses were based partly on an interpretation of the time required for labor to modify its role expectations during humanization programs and partly on research indicating management is more inclined toward autonomous
behavior. The indications were that labor preferred a more structured work climate.

The bases of the hypotheses were not in agreement with Seashore's conclusions (9, p. 54). He argued that "blue-collar-blues" were a function of the job structure, not of the worker. The bases were not consistent with non-productive behavior of younger members of the work force, nor did they agree with the expected consequence of a better educated work force.

The results of the ANOVA suggest:

a. The assumptions concerning the relationship of work-module attitudes were in error. Significant at 0.0038, vocational students, more than academic students, prefer an "involved" work climate.

b. The assumptions concerning the effect of education were in error. The level of education had no statistically significant effect on the work-module scores. The education process does have some association with the work-module attitudes, however, as three of the four F ratios were significant at 0.14, 0.15, and 0.18. The other was significant at 0.40.

The fact that attitudes of both occupational subject classes change in the same direction is in agreement with Seashore's argument. If job structure is a function of
more specialized perceptions of management, and if the work value norms of labor and management in the work sub-culture spill over into the larger industrial culture so that potential members of the respective groups internalize the group norms during their early life cycle, both would tend to adapt toward the realities of the world of work. Such an interpretation would mean managers of humanized firms are exceptions to the general class of managers.

The best interpretation of the pattern of values is:

a. Significant differences do exist in the attitudes of management and labor with respect to autonomy in work behavior. These work values overflow into the larger industrial culture, including the pre-work education process.

b. The work culture in the United States has a specialized orientation, accepted by both labor and management.

c. The "specialization" mentality is more associated with the management norms than with labor norms; thus the higher work-module scores indicating a lesser preference for autonomy by management.

d. Both values tend toward less autonomous attitudes because the evolutionary function of adapting toward the optimum phenotype. Both groups
recognize and adapt to the realities of the situation, thus, the common trend in values.

e. With respect to the objective value of multiple-skill scores, the vocational subjects have more empirical standards than do the academic students. For the former there is the "going wage" and the "unemployment levels." For the latter, there is the less well-defined concept, "individual ability."

Analysis of Control Data

The selection of subject classes was based on the assumption that attitudes are a function of environmental factors. Eight variables were selected from Career Development theories of Roe and Super. They are:

a. Age.
b. Academic grades.
c. Vocational grades.
d. Organization membership.
e. Occupational knowledge.
f. Work experience.
g. Father's education.
h. Mother's education.

In order to determine the degree of association of these variables with work-module attitudes, three analyses were performed.
Step-Wise Multiple Regression

A step-wise multiple regression was performed for each dependent measure in each subject class. The step-wise multiple regression selects first, the independent variable with the highest correlation with the dependent variable. Next, it selects the independent variable associated with the greatest amount of variation not associated with the previous selection(s), and so on, until the variables or the variance is all accounted for.

The results indicate the subject classes do differ with respect to variables associated with work-module attitude scores (see Tables XIII through XXVIII, Appendix III).

a. For the academic college subjects the most significant factors were academic grades, mother's education, and age. Fifteen of thirty multiple "Rs" were significant at 0.10 or less.

b. For the vocational college subjects the most significant factors were organization membership, father's education, and work experience. Fourteen of twenty-eight multiple "Rs" were significant at 0.10 or less.

c. For academic high school subjects the most significant factors were father's education, mother's education, and academic grades. Ten of twenty-seven multiple "Rs" were significant at 0.10 or less.
For vocational high school subjects the most significant factors were organization membership, age, and vocational grades. Eight of thirty-one multiple "Rs" were significant at 0.10 or less.

**Inter-Group Comparisons**

A one-way analysis of variance analyzed the differences between class control variables. The means and indications of significance are illustrated in Table X. F ratios significant at 0.0001 were found for all variables except organization membership. However, t-tests found no significant difference in twenty-one of forty-eight possible comparisons.

It appears the control variables differentiate the academic high school subjects from the other three subject classes better than they differentiate between the other three classes.

**Intra-Group Comparisons**

A top and bottom quartile comparison of criterion and control variable scores in each subject class indicates highly homogeneous classes with respect to control variables. Only six significant differences (at 0.05) were found in 144 comparisons.

Since the intra-class (top and bottom quartiles) differences in work-module values were significant at 0.02, they were probably not due to chance.
TABLE X

A COMPARISON OF CONTROL VARIABLE SCORES OF THE FOUR SUBJECT CLASSES***

<table>
<thead>
<tr>
<th></th>
<th>Vocational College</th>
<th>Vocational High School</th>
<th>Academic College</th>
<th>Academic High School</th>
</tr>
</thead>
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<tr>
<td>Age**</td>
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</tr>
<tr>
<td>Academic Grade**</td>
<td>23.45*</td>
<td>22.68*</td>
<td>20.39*</td>
<td>17.25</td>
</tr>
<tr>
<td>Vocational Grade**</td>
<td>4.23*</td>
<td>4.29*</td>
<td>4.16*</td>
<td>0.0</td>
</tr>
<tr>
<td>Organization Membership</td>
<td>6.41</td>
<td>6.34*</td>
<td>5.71*</td>
<td>5.89*</td>
</tr>
<tr>
<td>Occupational Knowledge**</td>
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<td>5.09*</td>
<td>4.93*</td>
<td>4.86*</td>
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<td>4.56*</td>
<td>4.00*</td>
<td>5.22</td>
</tr>
<tr>
<td>Father**</td>
<td>3.62*</td>
<td>4.25</td>
<td>3.63*</td>
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</tr>
<tr>
<td>Mother**</td>
<td>3.72*</td>
<td>4.22</td>
<td>3.74*</td>
<td>2.93</td>
</tr>
</tbody>
</table>

*In each row, data with asterisks are not significantly different from each other.

**One-way analysis of variance for the four classes indicates significance at 0.0001.

***Source: Questionnaire submitted to subjects in February, 1974.

These three analyses support the research design described in the procedures section on pages 13 and 14. The subject classes do differ with respect to control variable measures and the association of the control variables with the work-module scores.
Entrepreneurial Aspiration and Work-Module Scores

"Vocational high school students" was the only subject classification with significant differences in work-module scores between those who aspire to own their own business and those who do not ($P < 0.02$). Those who desire to own their own business have more structured perceptions of the work environment; that is, their work-module scores are higher. This relationship, though not significant, holds true for vocational college students and academic college students. Higher work-module scores for those who do not aspire to own their own business were found only in the high school academic group (see Figure 9, page 138 and Table XI, page 139).

The consistency of the response patterns seem to indicate a conceptual relationship between ownership and managership. The analysis of variance revealed significant differences between the attitudes of non-vocational students and vocational students with the former preferring the more structured work climate. The same relationship was found to exist between those who aspire and those who do not aspire to own a business. Those who desire to own a business have a relatively greater affinity for a structured work climate. Apparently, as suggested in the previous section, there are two social norms with respect to concepts of the nature of work behavior. Management, normally
Fig. 9--Illustration of the influence of entrepreneurial aspirations on work-module scores.
TABLE XI
WORK-MODULE SCORES AS A FUNCTION OF SUBJECT CLASS
AND ENTREPRENEURIAL ASPIRATIONS*

<table>
<thead>
<tr>
<th></th>
<th>Vocational</th>
<th>Academic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>College</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>$\bar{X} = 83.00$</td>
<td>$\bar{X} = 90.72$</td>
</tr>
<tr>
<td></td>
<td>$S = 9.51$</td>
<td>$S = 10.53$</td>
</tr>
<tr>
<td></td>
<td>$N = 6$</td>
<td>$N = 18$</td>
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<tr>
<td>No</td>
<td>$\bar{X} = 82.61$</td>
<td>$\bar{X} = 86.87$</td>
</tr>
<tr>
<td></td>
<td>$S = 15.47$</td>
<td>$S = 10.51$</td>
</tr>
<tr>
<td></td>
<td>$N = 23$</td>
<td>$N = 52$</td>
</tr>
<tr>
<td><strong>High School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>$\bar{X} = 86.00$</td>
<td>$\bar{X} = 83.93$</td>
</tr>
<tr>
<td></td>
<td>$S = 12.09$</td>
<td>$S = 12.40$</td>
</tr>
<tr>
<td></td>
<td>$N = 12$</td>
<td>$N = 15$</td>
</tr>
<tr>
<td>No</td>
<td>$\bar{X} = 75.55$</td>
<td>$\bar{X} = 86.17$</td>
</tr>
<tr>
<td></td>
<td>$S = 10.11$</td>
<td>$S = 13.82$</td>
</tr>
<tr>
<td></td>
<td>$N = 20$</td>
<td>$N = 41$</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.

Dealing with ambiguity, desires constant predictable behavior. The employee, on the other hand, living with the consequences of management's specialized job designs, aspires to more autonomous work behavior. This finding, and the social norm interpretation, is consistent with the argument that the United States population is becoming stratified with respect to occupational activity (8, p. 150).

Environmental Grouping

When the control variables are grouped into subclasses, some interesting profiles develop (see Table XII, page 140).
<table>
<thead>
<tr>
<th>Subclass</th>
<th>Vocational-High School</th>
<th>Vocational-College</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y1</td>
<td>Y2</td>
</tr>
<tr>
<td>Home</td>
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<tr>
<td>Education</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Social</td>
<td>3</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Subclass</th>
<th>Academic-High School</th>
<th>Academic-College</th>
</tr>
</thead>
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<td>Y1</td>
<td>Y2</td>
</tr>
<tr>
<td>Home</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Education</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Social</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*Source: Questionnaire submitted to subjects in February, 1974.

# Y1 = work-module score,
Y2 = modified work-module score,
Y3 = subjective value of multiple-skill,
Y4 = objective value of multiple-skill.

Academic and vocational grades are the education subclass. Occupational knowledge, organization membership, and work experience are the social subclass. Parental education level is the home subclass. The numbers in the "Y" columns indicate the number of times an element of the subclass was one of the first three variables selected by the step-wise multiple-regression analysis.
One finding was the lack of home influence and the high degree of social influence associated with the vocational high school subjects. Social factors were also associated with the work-module scores of vocational college subjects, and to a lesser degree in the academic high school group. The attitudes of the college academic subjects were associated with the education subclass, a reversal of the high school subjects. This could indicate that "specialization" is a function of learning rather than evolution.

The differences between subjective and objective values is again demonstrated. Objective values appear to be gleaned from all available sources. Subjective values, on the other hand, seem to be associated with the subject's relevant reference groups.

Consistent Correlations

Two control variables demonstrated very clear relationships to the work-module responses. With one exception, academic grades were negatively associated with work-module scores. The regression coefficients ranged from \(-0.025\) to \(-0.365\) (see Appendix III). The job behavior attitudes of the better students were less consistent with the autonomous environment of the work-module. The exception was the vocational college subject class. Grades were associated \((P < 0.10)\) with the attitude scores ten times.
The other consistent control variable was membership in organizations. The correlations, except for academic college subject measures of objective value of multiple-skill, were always positive. The greater the organization membership, the more the subjects valued an autonomous work climate. Organization membership was associated ($P < 0.10$) with the attitude scores nine times.

Parental Occupation

There was no significant difference in response to the work-module questionnaire based on the occupation of either the father or the mother.
CHAPTER BIBLIOGRAPHY


CHAPTER V

SUMMARY, ALTERNATE EXPLANATIONS, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was concerned with three major problems and two specific questions.

Major Problems

The first problem was the definition of a "humanized" work climate. The second problem was the development of an instrument to measure attitudes toward a specific work climate. The third problem was to determine and evaluate perceptions of several differentiated groups in the pre-work culture.

A humanized model.--Figure 4, page 93, is a graphic model of a humanized work climate. The major elements of the climate were determined to be the self-concept, the product, and team decision-making activities. Individual "involvement" in the total system is a necessary condition and a result of a work climate organized after the specified model. The self-concept and the product were identified as the system contacts with the external environment. Team activities were determined to be the key to internal
success. Activities engaged in by successfully humanized firms are compatible with current production and organization practices.

**A measuring instrument.**—Second, the time-task structure of Kahn's work-module was used as the model for developing a research questionnaire. A factor-analysis technique was used to determine five specific behavioral characteristics of the work-module construct.

The technique provides a means of defining employee-job compatibility in a more operational manner than current methods of selection. Values relative to a behavioral determinant, the self-concept, can be isolated for any possible combination of job tasks and climates. For example, this research instrument was able to differentiate between subjective (self-concept) values and objective (monetary and security) values of the condition of multiple-skill job behavior.

**Differentiated groups.**—Third, the problem of why more business firms have not implemented the "humanization" approach to human resource utilization led to the possibility of external factors. Specifically, "Were there culturally defined differences in perceptions or expectations developed prior to entry into the labor force?" A vocational-academic
and high school-college configuration developed a significant difference between academic and vocational subjects.

Specific Questions

Two specific questions were asked on page 6. First, "Are the individual's time-task expectancies associated with the selection of a work environment or the training preparatory to entering the work environment?" That is, are there social norms which separate management and labor? Two, "Are expectations or attitudes altered during the education process?" Both questions are answered in the affirmative.

Time-task expectancies.--Prior to entering the labor force, students have internalized attitudes and values which can contribute to the sparsity of "humanized" climates in business organizations. The vocational students scored lower on the work-module questionnaire suggesting a more favorable attitude, relatively, toward an autonomous job climate. Academic students scored higher than the vocational subjects, indicating a preference for a more structured work environment. The same relationship exists between those who desire to own their own business (a preference for structured work climates) and those without entreprenueural aspirations (a preference for autonomous work climates).
When the vocational subjects enter the labor force, quite likely, they will find the work climate more restrictive than they would prefer. Their more positive attitudes concerning an autonomous work climate include:

a. Preference for a work environment which permits the development and use of several (four or five) skills because it is important to their self-concept.

b. A belief that a multiple-skill job capacity is preferred by employers, and, therefore, is in their best interests from an economic- and job-security standpoint.

The relationship of values developed in this study is such that development of the management optimum phenotype is accomplished by inhibiting the labor optimum phenotype. For example, the executive believing non-productive behavior is a consequence of an affluent society while the union leaders argue that employees want out of structured work climates because they are inconsistent with the human spirit. Such a condition, in the long-run, will contribute to frustrated escape behavior on the part of employees.

The education process.--Education experiences are associated with changes in attitudes about the job environment. The relationship was not, however, statistically significant. One exception is academic subjects' views of
objective value of multiple-skill which was significant at 0.02. \( t = 2.46 \). The trend associated with education is, for all subject classes, toward a more structured job climate. Although there are significant differences in attitudes between vocational and non-vocational students, the education process does not necessarily strengthen the respective positions.

It appears, in the long-run, education acts to reduce the difference between the two groups. Consistent with the argument that common experience leads to more common perceptions, and the observations that management and organized labor are making efforts to understand and provide for "intrinsic" aspects of work, the trend is toward a convergence of views. The differences between the work-module scores of academic college and vocational college subjects is 15 percent (of the high school difference) less than at the high school level. The same is true for the modified work-module score and the subjective value of the multiple-skill scores, where the decrease is 16 and 17 percent, respectively; not statistically significant, but consistent.

The lack of interaction between vocational choice and education level suggests, as did Weaver, a definite norm for each group. "Two-value orientations" appear to originate outside the work culture.
Alternate Explanations

To this point results have been interpreted in the context of hypotheses and the assumption that the research instrument was measuring attitudes toward a specific work structure. The research instrument may be measuring an aspect of the phenotype. It is possible the relationship between the college scores and the high school scores exists because the responses are associated with knowledge, or awareness, of behavior associated with the work environment. If such were the case, low high school scores would indicate a lack of structure in the concepts of work. The subjects, having relatively little experience with work and because of the education norm of the social system (culture) no real need to know about the world of work, would have a hazy, ambiguous, or underdeveloped concept of what to expect of a job. In other words, the scores of the high school students are relatively low, not because the instrument is sampling concepts concerning the work-module job structure, but because the responses were made at a time in the life cycle of these subjects when their concepts of work behavior were immature. The larger standard deviation in academic high school responses compared to academic college subject responses supports this view. However, in the vocational subject classes only for the objective value measure was the standard
deviation of the high school student's larger than the college student's.

The scores are higher at the college level not because the subjects have developed a preference for less autonomy, but because the responses are an indication of more specific, more mature attitudes about work behavior. Having received training in a specific career area, the solidifying or developing of an individual work phenotype has been channeled into a relatively specific behavioral pattern. The higher scores are associated with the conceptual specificity of any career choice.

This interpretation of the responses also explains the similarity in responses of the academic and vocational high school subjects on the objective value of multiple-skill measures. To that point in their life cycle, neither class of subjects had experienced a cultural need for this type of information. It is interesting to note, and consistent with the argument, that objective value scores of vocational subjects were slightly higher than objective value scores of academic subjects (at the high school level), and they have slightly more work experience.

If concepts common to the traditional work structure have been incorporated into the mores of the larger industrial culture, the academic (managerial) responses are understandable. The education process instills in them
the specialization mentality. Consequently, they would have an increase in work-module scores, indicating a lessening in their desires for autonomy in the work climate. Their economic security would be associated with specialized skills.

The reason for stability in vocational subject objective value response is not so easily explained. Organized labor tends to develop restrictive work rules which parallel management's "specialization" concepts. The vocational education system has apparently not incorporated this concept from traditional labor. Perhaps the increasing technological complexity of the work climate has instilled in the vocational psyche an appreciation for a continuing learning behavior. Such a concept would be measured by the research instrument as objective values. And, if the idea is part of the vocational training structure, it would be detected at the high school level and remain relatively constant through advanced technical training. This explanation is consistent with the behavior of younger members of the work culture, with the phenotype concept of evolutionary theory, and with the "humanized climate" model.

The "life cycle" model does not explain the behavior of the younger managers. Why do they leave the larger bureaucratic structured organizations for the smaller firms where self-controlled behavior is necessary? If the
assumption is made that they leave for the same reason labor leaves, an inconsistency between the culture and the genotype, the values measured in this study are given a position in the cultural-evolution process. That is, if labor is reacting negatively because of conflict between their value system and management's, perhaps management's values have evolved so they are now becoming incompatible with the management subculture. Rather than regress their own behavior, and believing they cannot change the traditional structure, they move to a more compatible subculture.

If the cyclic nature of the individual genotype is expanded to encompass the culture, an explanation of the inconsistency between culture and genotype is possible. The United States industrial system has been very successful through the application of capital and machinery to the production of goods. In about thirty years the resulting affluence has supported an increase in the education level of the labor force. The increase has been from an average of about ten years to an average of about twelve years; or about 20 percent. A great deal of this increase is in the younger generations. In other words, the non-work culture dramatically increased pre-work development of the human's major survival tool, the mind. Evolution theory suggests the consequence will be to further increase its use by adaptation to more complex environments or by changing the
environment to require greater use of psychic ability. Given the traditional organization structure and climate, what would be the observable result?

If the argument of Kahn and others is valid, there is more opportunity for autonomy, participation, and self-control as one moves up the hierarchy in the organization. If an increase in the education level is associated with the development of an optimum phenotype, members of the lower levels of the production system should show signs of unrest first. Until recently, unrest has been most obvious in the lower levels of business firms.

A similar reaction did not occur simultaneously in the managerial area because of the greater autonomy allowed managers. This organizational artifact acted as a buffer and absorbed a great deal of management's increasing need for an optimum phenotype. However, as their awareness level increases, abnormal behavior, defined in the context of conformity to cultural norms, begins to appear in the ranks of management. Reports of managerial and professional "revolts" are appearing more and more frequently in business publications.
Conclusions

Humanized Climate

A humanized work climate is not a utopian dream. It is a practical, operational possibility. In fact, it may well be the next stage in the evolution of the industrial culture. The "specialized" climate utilizes only a part of the genotype potential, the ability to adapt to a condition in order to survive. The "humanized" climate utilizes this ability also, and, in addition, encourages the involvement of the psychic ability in the development of the production process. In the United States industrial culture the major deterrent to implementing the humanized climate appears to be the conceptual ability of managers and union officials.

Academic Versus Vocational Differences

Only one explanation for the relationship between the academic and vocational scores seems reasonable. The differences are real. The research instrument measures attitudes toward an autonomous work climate and the attitudes of academic students are significantly different from those of vocational students. Time-task expectations are associated with vocational choice.

The two major elements of the human resource begin their work life with perceptual differences learned from
experiences outside the work environment. Organization activities are impeded, and to some extent controlled, by conceptual differences existing prior to the entry of the human resource into the production system. The magnitude of the difference in perception is probably sufficient to cause frustration on the part of both labor and management. The relationship of the attitudes is such that it will probably contribute to further industrial unrest. A managerial concept of specialization and a labor expectancy of involvement can result in little else.

The relative magnitude is a function of the interaction of the cultural change and the traditional unchanging work structure. Resistance was evidenced in the labor area first. The vocational programs, intensified recently for quite a different reason, incorporated a new cultural phenotype. The result is a lower work-module score.

Because of the later reaction in the managerial area just beginning to appear, the academic management education systems have not reacted to the new cultural phenotype. They still dispense traditional "specialization" concepts. The consequence is a relatively high work-module score.

The higher scores of the academic subjects are best explained, at least within the parameters of this research, by a cultural lag in their significant others. For the high school subjects the significant "others" are parents
and peers. For the college subjects the significant "others" are college professors. The increase in the college vocational scores could be a consequence of the effect of instruction by tradition-oriented instructors.

This conclusion is consistent with the argument that the education process acts to minimize cultural discrepancies.

A Solution

The problem is not as insurmountable as it at first may appear. Apparently difficulty exists because of differences in perception of what people want to do and are capable of doing. The indications are that the human resource wants to contribute more and is capable of contributing more than present organization structures permit. A new supply of effective production energy, rather than a lack of or a faulty resource is the situation. The situation is similar to being told your property is on top of a large pool of oil. The problem is how to get it into use.

The "humanization" model suggests the tools are available. The learning element of the model, illustrated in Figure 4, page 93, provides the information feedback needed for self-control. The "humanized" organization learning element parallels the external learning process, both influencing the self-concept. The external process, however,
has some effect on what meaning the "self" will attach to the symbols coming from the product and job performance.

The external education process seems to have, in the long-run, a positive effect. As long as the difference between the two occupational groups is small, permitting the individual to adapt his behavior to the work culture, the major short-term effect is inefficient production. As the differences approach the limit of behavioral adaptability, either by change in the culture or by change in the individual, or both, contra-productive activities begin. The education process, in tending to decrease differences, is apparently culture's method of correcting contradictions in cultural evolution, in this case conflict between the efficiency of the specialized production process and the human genotype. The ability of the education processes to bring about a convergence of perceptions are their contribution to cultural survival.

**Recommendations**

This type of study usually results in two types of questions. One is the operational kind, which is subject to experimentation. The other is the value kind, which is subject to conjecture.
Operational Type

Entrepreneurial aspirations.--The question of entrepreneurial aspirations and involvement was not a major subject area of this investigation, but it did raise an interesting point. Low academic achievement and structured perceptions of the work environment associated with those who aspire to personally own a business can be interpreted in a control context. This interpretation is significant with respect to the evolutionary and humanized models developed in this study. A "control" mentality is inconsistent with both.

The possibility that "control" is the dominant stage in the management functions of planning, organizing, directing, and controlling is subject to verification. First, questionnaires used in past managerial research can be searched for questions associated with the control concept. If raw data can be obtained from the original researchers, a trend in control attitudes can be developed. Next, a future-oriented longitudinal study can determine relative values of the four functions in management's conceptual structure. If the cultural trend is toward a more "involved" work climate, the trend for management personnel should be away from emphasis on control toward more emphasis on the other management functions.
Learning element.--One reason offered for the sparsity of humanized work climates has been the lack of a model which managers could use as a guide. Figure 4, page 93, is a first effort toward filling that void. The "humanized work climate" model is a synthesis of theory, relevant research and communalities abstracted from experiences of humanized firms. There are no elements alien to contemporary production processes. Its unique character comes from definitions of the elements and their relationships.

One example is the learning sub-element. Prior concepts considered learning in terms of feedback. Some research data supported the value of feedback, others did not. More sophisticated studies revealed an interaction of job structure and feedback. The humanized model can be used to explain all three classes of data. It needs, however, experimental verification. A longitudinal study using control and experimental groups could validate the model. Autonomous changes in job performance which result in variation in the product should modify the self-concept.

External factors.--The self-concept is one element of the humanized model which is influenced by both internal and external conditions. This study developed data suggesting the existence of pre-work attitude relationships which are inconsistent with the humanized climate. One explanation for the vocational subject's relative preference
for autonomous work environments was their training programs. A comparison of labor employees, who were not exposed to this training, could provide some insight into the effect of vocational training on job attitudes. The non-public vocational training programs were not utilized in this study. It is possible that time-task job attitudes of the private school students differ from the attitudes of public school students. Further, longitudinal studies will be necessary to evaluate the influence of work experience on job climate attitudes and the self-concept.

Professional or managerial.--While the data supported an inference of a managership-ownership consortium, they also suggest some differences in perceptions between the professionals in personal service occupations, such as lawyers, CPAs, and doctors and professionals who perform the managerial functions for larger formal organizations. It may well be that the academic high school subjects who responded "Yes" to "One day I would like to own my own business" were responding to a unique mental image resulting from their particular background. Identification of the mental image "my own business" is necessary before further interpretation of these results is possible.
Conjecture

It is difficult to miss the implication that "involve-
ment" is a new era in cultural evolution. The potential of
the human mind is astounding. For example, in 1902 man
did not have powered flight. In 1969 he went to the moon.
Regardless of the reason for the adventure, the process of
coordinating the necessary resources was a tremendous mental
achievement. It required the informed involvement of a
large number of people. There are some signs that this
"psychic energy" may be about to unleash itself upon the
business world. What will be the consequences?

The differences that exist between vocational and
non-vocational students and between union officials and
business managers will continue to exist. The differences
will remain because they are manifestations of viable
genotypes, phenotypes, and cultures.

Production processes will be structured in manners
which synergize the differences. For example, the apparent
conflict between management's efforts to maximize profits
and labor's efforts to maximize their standard of living
is an illusion. The increased profitability and increased
wages in the humanized firms is tangible proof of this.
In this particular case, the problem is more efficient
utilization of resources, not greater exercise of counter-
vailing power.
The industrial culture's most needed activity is to redefine "production" in terms of its own evolutionary character. This study identifies the education system as an appropriate vehicle for developing the new definitions.
APPENDIX I

RESEARCH QUESTIONNAIRE

1. I can learn to do more than one job well.

2. If an employer has to lay-off someone, he will probably lay-off those who can do only one job before he lays off those who can do several jobs.

3. If a person can do more than one job, he should be permitted to work on any job he can do.

4. To me a good job is one where I can change what I am doing whenever I wish.

5. There are some jobs which must be started and stopped at specific times.

6. Most managers believe employees are most productive when they do only one job.

7. Many of the skills learned on one job can be used on other jobs.

8. If everyone could do all the jobs in a business, they could trade off and no one would have to do the "dirty" jobs all the time.

9. Most people can learn to do more than one job well.

10. People who can do a lot of things are more in demand than those who can do only a few.

11. A good place to work is one where the individual can use all his work skills.

12. People would be more productive if they could move from one work place to another at least once during the day.

13. The start and stop time is not important to some jobs.

14. Most managers will not let an employee change from one job to another.
15. A lot of jobs are just different routines, not any real difference in basic skills.

16. I would prefer to rotate jobs rather than take a chance on getting the bad jobs all the time.

17. I doubt that people can learn to do more than one job really well.

18. An employee is more valuable to his firm if he is able to do several jobs.

19. To me a good job is one where I can develop and use several skills.

20. A job where a person does four or five different things is better than one where he does the same task all the time.

21. Once I start to work I don't like to stop until the work day is over.

22. Most managers don't believe employees are capable of learning several jobs.

23. Some jobs are just simple repetition and most anyone could learn them.

24. Most people can handle more than one job without any problem.

25. A person who can do four or five jobs should be paid more than a person who can do only one.

26. To be able to use all his work skills on the job is important to a person.

27. Management has a right to expect you to do only what you are hired to do and not ask to do different jobs.

28. The more a person learns the more he can learn.

29. A person who can do four or five different jobs can be very good at all of them.

30. Management must have the responsibility for job assignment if work is going to get done.

31. People are capable of doing more things than they are usually allowed to do on their jobs.
APPENDIX II

CONTROL DATA QUESTIONNAIRE

1. Age:_______

2. Sex: M  F (circle one)

3. Please estimate your average high school grade in the following subject areas. (Place an X in the appropriate space.)

\[A^+, A^-, B^+, B^-, C^+, C^-, D^+, D^-, F\]

Math: 

Physical Science: 

Social Science: 

English (Language): 

Vocational: 

4. I belong(ed) to the following school organizations:

a.__________________  b.__________________

c.__________________  d.__________________

5. I belong(ed) to the following non-school related organizations: (social, fraternal, religious, etc.)

a.__________________  b.__________________

c.__________________  d.__________________

6. I know, now the occupation in which I want to spend the rest of my life.

Yes  Pretty much  No  What?__________________

7. I have always known what I wanted my life work to be.

Yes  Pretty much  No
8. I worked while attending: (check the appropriate space)

a. High school
   (1) Summers
   (2) Part-time
   (3) Full-time
b. College
   (1) Summers
   (2) Part-time
   (3) Full-time

9. My parents completed the following formal education:

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Mother</th>
<th>Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than high school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College but not degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>College degree</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate degree</td>
<td></td>
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</tr>
</tbody>
</table>

10. My father's occupation is: __________________________________________

11. My mother's occupation is: __________________________________________

12. One day I would like to own my own business.

   Yes   No  (Circle one)
APPENDIX III

STEP-WISE MULTIPLE REGRESSION TABLES

Variable Identification

a = age
b = academic grades
c = vocational grades
d = organization membership
e = occupational knowledge
f = work experience
g = father's education
h = mother's education

The "*" is used to indicate last "R", which is significant at .10 or less. The exact value is indicated at the bottom of the table. All "Rs" preceding the "*" are significant at less than .10 unless followed by an "#". The significance value for "Rs" followed by an "#" are indicated at the bottom of the table.

The "**" is used to indicate the last Multiple R. Its significance is indicated at the bottom of the table.
TABLE XIII

STEP-WISE MULTIPLE REGRESSION OF WORK-MODULE
SCORES ON CONTROL DATA SCORES OF
ACADEMIC COLLEGE SUBJECTS

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Regression Coefficients</th>
<th>Constant</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>g</td>
<td>e</td>
</tr>
<tr>
<td>1</td>
<td>-208</td>
<td></td>
<td></td>
</tr>
<tr>
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*Significant at .08. **Significant at .80.
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STEP-WISE MULTIPLE REGRESSION OF MODIFIED WORK-MODULE
SCORES ON CONTROL DATA SCORES OF
ACADEMIC COLLEGE SUBJECTS

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**Significant at .01.**

**Significant at .001.**
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**STEP-WISE MULTIPLE REGRESSION OF OBJECTIVE VALUE OF MULTIPLE-SKILL ON CONTROL DATA SCORES OF ACADEMIC COLLEGE SUBJECTS**

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*Significant at .05.  **Significant at .13.
### TABLE XVII

**STEP-WISE MULTIPLE REGRESSION OF WORK-MODULE SCORES ON CONTROL DATA SCORES OF ACADEMIC HIGH SCHOOL SUBJECTS**

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*Significant at .07.  **Significant at .12.
TABLE XVIII
STEP-WISE MULTIPLE REGRESSION OF MODIFIED WORK-
MODULE SCORES ON CONTROL DATA SCORES OF
ACADEMIC HIGHSCHOOL SUBJECTS

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*Significant at .09.  **Significant at .26.
# TABLE XIX

**STEP-WISE MULTIPLE REGRESSION OF SUBJECTIVE VALUE OF MULTIPLE-SKILL ON CONTROL DATA SCORES OF ACADEMIC HIGH SCHOOL SUBJECTS**

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# Significant at .21.
*Significant at .10.

**Significant at .60.
TABLE XX  
STEP-WISE MULTIPLE REGRESSION OF OBJECTIVE VALUE  
OF MULTIPLE-SKILL ON CONTROL DATA SCORES OF  
ACADEMIC HIGHSCHOOL SUBJECTS

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#Significant at .14.  
*Significant at .06.  
**Significant at .46.
## TABLE XXI

**STEP-WISE MULTIPLE REGRESSION OF WORK-MODULE SCORES ON CONTROL DATA SCORES OF COLLEGE VOCATIONAL SUBJECTS**

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TABLE XXII

STEP-WISE MULTIPLE REGRESSION OF MODIFIED WORK-
MODULE SCORES ON CONTROL DATA SCORES OF
COLLEGE VOCATIONAL SUBJECTS

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*Significant at .06. **Significant at .17.
TABLE XXIII

STEP-WISE MULTIPLE REGRESSION OF SUBJECTIVE VALUE
OF MULTIPLE-SKILL ON CONTROL DATA SCORES OF
COLLEGE VOCATIONAL SUBJECTS

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*Significant at .09.  **Significant at .51.
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TABLE XXV

STEP-WISE MULTIPLE REGRESSION OF WORK-MODULE
SCORES ON CONTROL DATA SCORES OF HIGH SCHOOL
VOCATIONAL SUBJECTS

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<td>.231</td>
<td>-1.51</td>
<td>1.62</td>
</tr>
<tr>
<td>8</td>
<td>. . .</td>
<td>. . .</td>
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</tr>
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</table>

**Significant at .78.**
TABLE XXVI

STEP-WISE MULTIPLE REGRESSION OF MODIFIED WORK-MODULE SCORES ON CONTROL DATA SCORES OF HIGH SCHOOL VOCATIONAL SUBJECTS

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Regression Coefficients</th>
<th>Constant Term</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variable Identification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>a e f d h c b g</td>
<td>-0.703</td>
<td>249</td>
</tr>
<tr>
<td>2</td>
<td>.249</td>
<td>0.633</td>
<td>304</td>
</tr>
<tr>
<td>3</td>
<td>.228 - .176</td>
<td>-0.075</td>
<td>344</td>
</tr>
<tr>
<td>4</td>
<td>.235 - .169 .161</td>
<td>-0.977</td>
<td>360</td>
</tr>
<tr>
<td>5</td>
<td>.247 - .172 .142 .110</td>
<td>-0.842</td>
<td>365</td>
</tr>
<tr>
<td>6</td>
<td>.254 - .149 .134 .113 - .064</td>
<td>-1.334</td>
<td>370</td>
</tr>
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<td>7</td>
<td>.257 - .144 .139 .128 - .071 .066</td>
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<tr>
<td>8</td>
<td>.250 - .144 .146 .126 - .083 .099 - .057</td>
<td>-0.978</td>
<td>374**</td>
</tr>
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</table>

**Significant at .88.
### TABLE XXVII

**STEP-WISE MULTIPLE REGRESSION OF SUBJECTIVE VALUE OF MULTIPLE-SKILL ON CONTROL DATA SCORES OF HIGH SCHOOL VOCATIONAL SUBJECTS**

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Regression Coefficients</th>
<th>Constant Term</th>
<th>R</th>
</tr>
</thead>
<tbody>
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<td></td>
<td>Variable Identification</td>
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<td>2.348</td>
<td>.276#</td>
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<td>.404</td>
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<tr>
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<td>.347 .424 -.222</td>
<td>1.929</td>
<td>.443*</td>
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<tr>
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<td>.346 .411 -.199 .116</td>
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<td>.460</td>
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<td>.463</td>
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<tr>
<td>8</td>
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<td>-0.657</td>
<td>.464**</td>
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</tbody>
</table>

#Significant at .13.
*Significant at .10.
**Significant at .61.
### TABLE XXVIII

**Step-wise Multiple Regression of Objective Value of Multiple-Skill on Control Data Scores of Highschool Vocational Subjects**

<table>
<thead>
<tr>
<th>Step No.</th>
<th>Regression Coefficients</th>
<th>Constant Term</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Variable Identification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>c</td>
<td>d</td>
<td>g</td>
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<tr>
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<td>0.432</td>
<td>0.264</td>
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<tr>
<td>8</td>
<td>0.345</td>
<td>0.430</td>
<td>0.263</td>
</tr>
</tbody>
</table>

*Significant at .08.  **Significant at .26.*
BIBLIOGRAPHY

Books


**Articles**


Carlson, R. E., "Degree of Job Fit as a Moderator of the Relationship Between Job Performance and Job Satisfaction," Personnel Psychology, XXII (Summer, 1969), 159-170.


"It Pays to Wake Up the Blue-Collar Worker," Fortune, LXXXII (September, 1970), 133-135.


Greiner, L. E., "What Managers Think of Participative Leadership," HBR, LI (March-April, 1973), 111-117.


Mann, H. and others, "Four Types of Personalities and Four Ways of Perceiving Time," Psychology Today, VI (December, 1972), 76-84.


Myers, S. M., "Overcoming Union Opposition to Job Enrichment," HBR, XLIX (May-June, 1971), 37-49.


---


Reports


Encyclopedia Articles


Unpublished Materials


Newspapers


____________________, January 2, 1974.

____________________, April 14, 1974.

