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ABSTRACT

This study develops a method for empirically investigating the bureaucratic structure of secondary schools in order to measure student alienation. After a brief review of the literature on bureaucracy and student alienation, the report presents two propositions undergirding the study and the hypotheses tested: (1) while bureaucracy and alienation are dimensionable variables, they can be regarded as integrating concepts under which each of the dimensions is subsumed, and (2) these integrating concepts are positively related to each other. The report notes the implications of this study for future research, draws conclusions, and provides recommendations for improving secondary school organization. (Author/JF)

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THE BUREAUCRACY-ALIENATION RELATIONSHIP IN SECONDARY SCHOOLS

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BUREAUCRATIZATION AND ALIENATION:
AN EMPIRICAL STUDY IN SECONDARY SCHOOLS

At the present time there is a widespread popular notion that there is "something" about schools which results in the alienation of students. This "something" is often referred to in terms such as: "rules and regulations," "red-tape," "paternalism," "impersonality," "fractionalization of education" and so forth - terms which are remarkably similar to certain of the definitive characteristics of bureaucracy suggested by Weber - such as the presence of rules, procedural specifications, hierarchy of authority, impersonal relationships, and specialization. This similarity makes it possible to assert that school bureaucratization[1] may be the "something" which the public believes causes student alienation.

This popular belief is not without theoretical foundations. The authors of a considerable body of sociological literature have maintained that increasing bureaucratization of the organizations in which people participate is a source of increasing alienation in the population (eg: Merton, 1949). While this literature does contain a considerable debate about the nature of the concepts of alienation (Seeman, 1959) and bureaucratization (Punch, 1967), the notion that the two are related has remained a fairly consistent theme.

Despite the amount of theoretical literature which suggests that alienation is related to bureaucratization, there have been few attempts to investigate this relationship. Those studies which have been performed suffer from a variety of problems and have led to inconclusive results.

I. THE PROBLEM

The intent of this study is to build upon earlier studies, as well as upon related research and theoretical literature, in order to provide a thorough empirical investigation of the extent of the relation between bureaucratization and student alienation in secondary schools. This major purpose requires the prior examination of two subsidiary problem areas; for it is first necessary to ascertain the pattern and extent of bureaucratization, as well as the pattern and extent of student alienation, in secondary schools.

Background of the Problem

To be seen in perspective, the problem requires a grasp of the concepts of alienation and bureaucracy, as well as an understanding of the theoretical relation between the two concepts. The following three sections are intended to familiarize the reader with these points.

Alienation

The term alienation is very complex, as it tends to be defined in a variety of ways. Seeman (1959), for example, suggests five different meanings which have been applied to the term: powerlessness, meaninglessness, normlessness, isolation and self-estrangement. He maintains that each of these is independent of the others and that each has been described by some earlier author. There is little need to go into these definitions here, as they are thoroughly discussed and referenced by Seeman and also by Dean (1961).

An important question concerning the dimensionality of the concept of alienation arises out of Seeman's work, "How many dimensions of alienation exist, and how are they related to each other?" One typical view is that alienation is a syndrome.[2] Blauner (1964:15), for example, defines alienation as "...a general syndrome made up of a number of different objective conditions and subjective feeling-states..." In a

similar vein, McClosky and Schaar (1965:40) state that Anomy "...may be only one of many symptoms expressing a negativistic, despairing outlook both on one's own life and on the community in which one lives." Clearly, the implication of such thinking is that there may be a number of variables which vary together and which, when considered together, compose a syndrome which may be labelled alienation. Alienation, conceptualized in this manner, is somewhat like Spearman's "g", in that it is a general factor or integrating concept which is composed of more specific factors.

In contrast to these viewpoints, Seeman (1959:783) argues that there are "...five basic ways in which the concept of alienation has been used." These usages are, he maintains, logically distinguishable. Dean (1961:754) concurs with Seeman, but also notes that "...Sometimes the same writer includes several nuances of meaning (of alienation)."

A debate as to whether or not alienation is uni- or multi-dimensional is largely academic, since it is essentially an empirical question. There is, for example, empirical evidence in the form of factor analytic studies by Neal and Rettig (1963; 1967), Struening and Richardson (1963), Besag (1966) and Kolesar (1967); as well as in the form of correlational studies by Dean (1961) and Middleton (1963); which supports Seeman's (1959) contention that alienation is "really" multi-dimensional.

With the sole exception of a study by Neal and Rettig (1967), there appear to be no attempts to reveal the extent to which the factors, or dimensions, of alienation co-vary. Most authors were, in fact, concerned with demonstrating the multi-dimensional nature of alienation; therefore none of their data analyses could be expected to reveal a single underlying factor, or "syndrome."

Bureaucracy

A concept which has been useful in the analysis of social organization is that of social structure, denoting the organization of interaction. In a narrow sense, organizations are regarded as structured to the extent that they direct and control the activities of their members. The study of this concept may be approached in many ways, but one of the more popular has been through the use of the bureaucratic model. The classic formulation of this model is by Weber (1946:196-204) and it has led to a great deal of theoretical discussion and empirical investigation.

According to Weber (1946:196-204), the bureaucratic organization, as an ideal type, exhibits the following fundamental characteristics:

(i) There are fixed and official areas of jurisdiction (offices), each with officially prescribed duties.

(ii) Each office has a clearly defined sphere of competence.

(iii) Offices are arranged in a clearly defined hierarchy. There is a parallel hierarchy of authority and thus, a clearly defined system of super- and sub-ordination.

(iv) Authority to use coercive means - physical, sacerdotal, or other - is vested in officials.

(v) The conduct of an office is regulated by general and impersonal rules.

(vi) Administrative acts, decisions, and rules are based upon written documents (files). Bureaucracies therefore possess manpower (and/or equipment) to look after these files.

(vii) Persons are placed in official positions by virtue of their technical competence and training.

(viii) Administrative officials separate their bureaucratic duties from their private lives; notably, they are separated from

ownership of the means of production or administration.

These points are a bit exhaustive of Weber's formulation, but they do illustrate the central points in Weber's thinking. Bureaucratic organization, as conceptualized by Weber, is applicable to all types of administrative tasks and hence to many different types of organizations (Weber, 1947:337-340).

Attempts to refine the bureaucratic model and to use it in empirical research have taken two basic routes. The most common has been to compare, in detail, actual organizational functioning with Weber's model, indicating his errors and omissions with a view to constructing a more comprehensive model (eg: Selznick, 1949; Gouldner, 1954, Blau, 1956; 1963; March and Simon, 1958; Crozier, 1964). Efforts to develop ideal types which are deliberately less comprehensive than Weber's, but which are more easily dealt with conceptually are basically similar to this procedure (eg: Gerth, 1952; Presthus, 1961; Gouldner, 1954).

Attempts to use Weber's ideal type dimensions as a basis for classifying organizations as more or less bureaucratic represent the second major application of his model. This procedure requires a highly refined conception of bureaucracy and consequently a great deal of literature deals with four problem areas:

The first is how many, and which, dimensions are essential to bureaucratic structure. There is considerable confusion in the literature about this point, beginning with Weber himself. Pugh et. al. (1963:295) find twenty-six different characteristics in his formulation. Despite the profusion of possibilities, both Heady (1959:515), and more importantly, Hall (1961:6-7) conclude that there is substantial agreement on the basic elements. With this as his rationale, Hall (1961;1966)

was able to construct scales for the measurement of six of the "basic" dimensions: hierarchy of authority, specialization, rules, procedural specifications, impersonality, and technical competence.

A third problem associated with dimensional approaches to studies of bureaucratic structure centers upon whether it is best to focus on the formally prescribed, or expected, amount of each bureaucratic dimension, or upon the de facto degree of emphasis on each dimension. The choice would appear to depend upon the purposes of a study - and in this case it is more appropriate to examine actual operation, on the grounds that it matters less what incumbents are expected to do than what they in fact do. Also, one must decide upon the extent to which an organization may appropriately be used as a unit of analysis. If each stratum in an organization is equally bureaucratic, then the organization is the appropriate unit of analysis. If, as is likely, there are differences between the strata, the strata themselves, and not organizations, are the appropriate unit of analysis.

Empirical studies of this question are scarce. Hall (1961) found differences in the perception of bureaucratization between executive and non-executive personnel. Mackay (1964) found no such differences between teachers and school principals and vice-principals. Both these studies must be interpreted with caution: Hall for his small sample of ten organizations, Mackay on the grounds that teachers and school administrative staff are so alike that no differences could be expected.

Despite the advantages of the dimensional approach over case study methods, there is still considerable confusion surrounding the concept of bureaucratic structure. At least two sources of this confusion are open to empirical investigation through factor analytic procedures: the problem of the number of dimensions, and the problem of the extent to

which the dimensions co-vary.

The Relation Between Bureaucracy and Alienation

Argyris suggests that the demands of formal organization are incongruent with the needs of psychologically healthy individuals (1957:20-21). This, he contends, leads to frustration, failure, short time perspective and conflict for the individual as well as causing the development of competition, rivalry, and inter-personal hostility between individuals. Further, he suggests that the nature of formal organizations is such as to cause individuals to focus on parts of the organization rather than the whole (1957:20-22).

According to Argyris these things may lead to any or all of the following possibilities:

(1) Leaving the organization.

(2) Climbing the organizational ladder.

(3) Manifesting defense reactions such as daydreaming, agression, ambivalence, regression, projection, and so forth.

(4) Becoming apathetic and disinterested toward the organization, its make-up, and its goals. This leads to such phenomena as: (a) employees reducing the number and potency of the needs they expect to fulfill while at work; (b) employees gold-bricking, setting rates, restricting quotas, making errors, cheating, slowing down, and so on.

(5) Creating informal groups to sanction the defense reactions and the apathy, disinterest, and lack of self-involvement.

(6) Formalizing the informal group.

(7) Evolving group norms that perpetuate the behavior outlined in (3), (4), and (6) above.

(8) Evolving a psychological set in which human or non-material

factors become increasingly unimportant while material factors become increasingly important.

(9) Acculturating youth to accept the norms outlined in (7) and (8).

Furthermore, it can also be shown that many managements tend to respond to the employees' behavior by:

(1) Increasing the degree of their pressure-oriented leadership.

(2) Increasing the degree of their use of management controls.

(3) Increasing the number of "pseudo" participation and communication programs.

These three reactions by management actually compound the dependence, subordination, and so on that the employees experience which in turn cause the employees to increase their adaptive behavior, the very behavior management wished to curtail in the first place. (1957:23).

The similarity between the psychological consequences of formal organization suggested by Argyris and the dimensions of alienation mentioned earlier is striking. For example, much of his argument is founded on a belief that formal organizations demand control over the individual - or in other words that the individual is powerless over the organization. His description of employers as apathetic and disinterested covers an aspect of the dimension of futility; cheating, restricting quotas and so on is similar to the dimension of misfeasance, and emphasis on material factors and lack of self involvement are aspects of self-estrangement.

The theoretical relation between formal organization and meaninglessness is more clearly explored by Mannheim (1940) who feels that meaninglessness arises in bureaucracies as a result of the tension

between attempts to obtain organizational efficiency and the ability of the individual to be rational in his behavior. In the search for efficiency there has been increasing fragmentation of jobs with the result that "The man who has a highly subdivided job in a complex factory and the clerk working in a huge government bureau need only know very limited tasks.... They need not know how their own small task fits into the entire operation." (Blauner, 1964:22). This suggests that there will be a "...decline in the individual's ability to act intelligently in a given situation on the basis of insight into the inter-relation of events." (Mannheim, 1940:59).

There has been little empirical research specifically aimed at revealing the relation between bureaucratic structure and alienation. In school situations, Kolesar's (1967) study (based upon schools classified as punishment-centered, representative, monocratic or mock bureaucracies (following Gouldner)) found pupil powerlessness to be realted to type of bureaucratic organization. On the other hand, Byles found that measures of social control, which are somewhat similar to the control aspects of bureaucratization, and alienation "...are two co-existing but separate phenomena, each operating independently of the other." (1967:21).

The possibility of revealing a relationship between school bureaucratization and student alienation is confounded by a number of variables which have been shown to be related to alienation by earlier empirical studies. There is some confusion as to the nature of many of these relationships but a number of variables do emerge as consistently associated with alienation: political apathy (Dean, 1960; Erbe, 1964; Rosenberg, 1956), lack of access to life goals (Mier and Bell, 1959), low educational achievement (Middleton, 1963), low social class (McClosky and Schaar, 1965; Middleton, 1963; Gold, 1962; Erbe, 1964), low social

class identification (Mier and Bell, 1959; Mizruchi, 1960), low degree of social participation (Mizruchi, 1960; Neal and Seeman, 1964; Pearlin, 1962; Clark, 1959; Erbe, 1964), membership in work-centered groups (unions) (Neal and Seeman, 1964), pre-emptory exercise of official authority (Pearlin, 1962), large hierarchical discrepancies between manager and managed (Pearlin, 1962), lack of promotions (Pearlin, 1962), high expectations of financial reward (Mizruchi, 1960), low satisfaction with the organization (Clark, 1959), and low degrees of relevant knowledge (Clark, 1959; Seeman, 1963; Neal and Seeman, 1964).

Operational Definitions

Bureaucracy. The operational definition of bureaucracy is similar to that suggested by Hall (1961). It is regarded as an integrating concept composed of relatively independent dimensions. The six dimensions which follow are similar to those utilized by Hall, who regards them as being the most central aspects of bureaucracy in the discussions of a number of authors. Each dimension is defined in terms of highly bureaucratic organizations:

(1) Specialization: There is a division of labor based upon functional specialization.

(2) Procedural Specifications: There is a set of specifications which regulate the work situation.

(3) Hierarchy of Authority: There is a clearly defined system of super- and sub-ordination.

(4) Rules: There is a system of rules covering the rights and duties of members of the organization.

(5) Technical Competence: Promotion and selection is based upon technical competence and training.

(6) Impersonality: Interpersonal relations between members of different hierarchical strata are conducted impersonally.

Alienation. Like bureaucracy, alienation is regarded as an integrating concept composed of relatively independent dimensions. It is operationally defined in a manner similar to that suggested by Seeman with the exception of minor changes in terminology designed to obtain greater clarity; and with the proviso that alienation is regarded as having an object; that is, a student is studied (for example) with respect to his powerlessness in school as opposed to his being generally powerless (Cf: Clark, 1959). This is done since there does not seem to be a necessary connection between feelings of powerlessness in school and feelings of powerlessness in general. Each dimension is defined in terms of an alienated student:

(1) Powerlessness: High powerlessness refers to a student's expectancy that he cannot determine or control the outcomes or reinforcements he seeks within the school situation.

(2) Meaninglessness: Students who experience high meaninglessness do not expect to be able to make satisfactory predictions about the future outcomes of their behavior in the school situation.

(3) Misfeasance: (Similar to what Seeman terms normlessness) A student who experiences a feeling of high misfeasance expects that he must use means which are proscribed by school authorities in order to attain his goals.

(4) Futility: (Similar to Seeman's concept of isolation) Students who experience a feeling of futility are those who assign low reward value to goals and beliefs that are typically highly valued by school authorities.

(5) Self-estrangement: Students who experience a feeling of self-estrangement are those whose participation in school and school related activities is largely based upon anticipation of future rewards (as opposed to rewards that are inherent in participation such as enjoyment).

As noted earlier, studies have shown a number of variables to be related to alienation. The more important of these variables should be controlled during an attempt to locate the independent association between school bureaucratization and student alienation. In addition to sex, the following variables appear to fall into this classification and are measured for purposes of obtaining statistical control over their effects.

Socio-Economic Status. Socio-economic status (SES) is frequently found to be associated with alienation. It was measured by asking each student to describe his father's occupation. These descriptions were then used to place the subject in one of the seven broad categories of the Blishen Occupation Scale (Blishen, 1965).

Social Participation. The extent of a causal relation between social participation and alienation has not been clearly established. Despite this, the fact that the two are known to be associated suggests that it would be desirable to control social participation in order to obtain a more accurate estimate of the independent association which exists between bureaucratization and alienation. In this study social participation is measured with a modified Chapin Social Participation Scale (Miller, 1964:208-212), excluding school-related activities.

Membership in Work-Oriented Groups. Neal and Seeman (1964) show that membership in a work-oriented group such as a union tends to reduce feelings of powerlessness in workers. A similar type of membership is

available to school students through school clubs, athletic teams and so forth. For purposes of clarity this type of participation will be separated from social participation in general. A modified Social Participation Scale adapted for use with school-related organizations will be utilized to measure this variable.

Degree of Past Success. Pearlin (1962) shows lack of promotion to be associated with alienation in workers. At a more general level this variable seems to represent lack of past success in the organization, a variable which may manifest itself in the school situation in the form of poor marks or as outright failure of a grade or course. A general estimate of past success, age in relation to grade, is used as an estimate of this variable.

Organizational Size. A number of authors (e.g.: Marx, 1961; Argyris, 1957; Durkheim, 1958; Nisbet, 1953; Blauner, 1964) have suggested that the size and complexity of modern organizations and societies is one important source of alienation. In order to control for this possibility, school size is measured as the number of students in a school.

II. THE STUDY

Hypotheses

Two general propositions undergird the whole study. The first of these is that while bureaucracy and alienation are dimensional variables, it is also proper to regard them as integrating concepts, under which each of the dimensions is subsumed. Second, these integrating concepts are positively related to each other. These two general propositions are tested by nine specific hypotheses.

H1. Items which measure school bureaucratization tap six dimensions of bureaucratic structure: Hierarchy of Authority, Rules for Personal Conduct, Procedural Specifications, Impersonality,

Technical Competence, and Specialization.

H2. Pupil and teacher perceptions of school bureaucratization are dissimilar.

H2(a). There is no difference between student and teacher perceptions of the pattern of bureaucratic structure in schools.

H2(b). Teachers and students differ in the extent to which they perceive their schools as bureaucratized.

H3. The six dimensions of school bureaucratization may be regarded as aspects of the integrating concept "bureaucratic structure".

H4. The means of the six dimensions, as well as that of the underlying factor "bureaucratic structure", vary between schools.

H5. The items which measure student alienation from school tap five dimensions of alienation: Powerlessness, Meaninglessness, Misfeasance, Futility, and Self-estrangement.

H6. The five dimensions of alienation may be regarded as aspects of the integrating concept "alienation".

H7. The means of the five dimensions of alienation from school, as well as that of the integrating factor "alienation", vary from school to school.

H8. Student alienation does not alter perception of school bureaucratization.

H9. With the influence of certain control variables held constant, student alienation from school is positively related to school bureaucratization.

Instrumentation

Both the alienation and bureaucracy indices were developed expressly for this study. The instruments consist of Likert-type items with five

possible responses ranging from strongly agree through neutral or undecided to strongly disagree.

Selection of these items took place in three stages. First, a pool of items purporting to measure either bureaucratization or alienation was collected, largely from existing scales reported in research articles. Fifty new items were written and added to this pool and some of the old items re-written to make them compatible with the operational definitions of bureaucratic structure and alienation. The pool of items was examined and items which showed poor face validity, or which were redundant, were removed.

During the second step of the development work, an attempt was made to determine the construct validity (Kerlinger, 1966:445-447) of the remaining items as measures of the six dimensions of bureaucratic structure and five dimensions of alienation. The pool of 360 items intended to measure either bureaucratic structure or alienation from school was randomly divided among six questionnaires of sixty items each. Each of these questionnaires was administered to between 25 and 30 grade ten students drawn from a large composite high school (and who therefore were fairly representative of the range of academic ability to be found among grade ten students). The students were given simple definitions of the eleven concepts the items were intended to measure, and were asked to match each item with its appropriate definition. Using their responses, a frequency distribution was made up for each item showing the number of times it had been matched with its "proper" definition as a fraction of the number of attempts to match it with any definition. If this fraction was not larger than that which could be expected by chance, the item was discarded. This procedure eliminated items which are ambiguous to students, and it also tends to ensure that the measures of bureaucratic

structure and student alienation are not merely two different measures of the same concept.

The third step in the development of the School Description Inventory involved an attempt to determine the predictive validity of each item by determining its ability to distinguish between two schools thought to differ in the extent to which they were bureaucratized (cf. Kerlinger, 1966:448). The Inventory, which consisted of 110 items at this stage in its development, was administered to 25 students of a "free" school, in which one of the explicit goals of the staff and students was the removal of the bureaucratic characteristics often found in public schools; and to two grade ten classes, totalling 67 students, located in a private, bureaucratically organized school for boys.[3]

For an item on the School Description Inventory to be a useful measure of bureaucratization, it should differentiate between these two schools. Welch's approximation to the T-test (Welch, 1938) was used to compare the mean scores obtained in each school on each item. Only those items which differentiated ($P < .05$) between the two schools were retained for use in the final scale.

The third stage in the development of the School Expectations Inventory was an attempt to establish the predictive validity of each item by determining its ability to distinguish between alienated and non-alienated youths.

The Inventory, which consisted of 104 items at this point, was administered to two groups of adolescents. The first of these was a class of 27 grade eleven students all of whom were (1) more heavily involved in extra-curricular activities, (2) taking one or more extra academic courses, (3) attending school even though they were legally free to leave, and (4) regarded by their teachers as students who truly

enjoyed school. In short, a group of students one would not normally consider to be alienated from school.

The second group of youngsters was drawn from two sources: a boarding house established to aid alienated youths, and a drop-in center operating in a church basement and located in an area where alienated youths congregate. Staff members of the drop-in center and of the boarding house identified some of the most alienated youths in the two centers and 15 of these youths, all but one of whom had dropped out of school, completed the Student Expectations Inventory. Again, Welch's approximation to the T-test was used to compare the mean scores of each group on each item, and only those items which differentiated between the two groups were retained for the final scale.

The preliminary development work resulted in a School Description Inventory containing 57 items, distributed among the sub-scales as follows: Hierarchy of Authority - 10 items, Rules for Personal Conduct - 9 items, Procedural Specifications - 9 items, Impersonality - 9 items, Technical Competence - 9 items, Specialization - 11 items. A teacher form School Description Inventory consists of a simple rewording of the items obtained through the foregoing procedures.

The Student Expectations Inventory contained 44 items distributed among the sub-scales as follows: Powerlessness - 7 items, Meaninglessness - 7 items, Misfeasance - 8 items, Futility - 8 items and Self-estrangement - 14 items.

Collection of Data

The study population was drawn from secondary schools located in southern Ontario, Canada. From this group of schools a random sample of 18 schools, stratified on the basis of school district size, was selected. Data were collected on bureaucratic structure, alienation, and certain

other biographical details of the teachers and students during the period December-March, 1968-69. All staff members were asked to respond to the teacher form of the School Description Inventory, and all grade ten students to their form of the School Description Inventory and to the Student Expectations Invnntory.[4] Care was taken to ensure that all respondents felt that their responses would be treated with confidentiality and anonymity. Further, to avoid the possible effects of a response set, the order in which students completed the two instruments was reversed for fifty percent of the subjects.

Data Analysis I: Bureaucratic Structure

H1. The 50 items of the School Description Inventory were subjected to an Image Analysis (Guttman, 1953; Kaiser, 1963) and nine factors with eigenvalues greater than one were found. In general, the first six of these correspond in meaning to the six dimensions of bureaucratic structure, while the last three had no loadings greater than .24 and were therefore uninterpretable. The factors were named as follows: (1) Rules and Regulations, (2) Hierarchy of Authority, (3) Impersonality, (4) Subject Matter Specialization, (5) Centralization of Control, and (6) Technical Competence. These results were basically as expected, with the following exceptions: (a) the anticipated dimensions of Rules for Personal Conduct and Procedural Specifications combined into what is now called Rules and Regulations, (b) the anticipated dimension Hierarchy of Authority was found to contain a group of items which measure Centralization of Control, (c) after a varimax rotation of the factor matrix (Kaiser, 1958b) thirteen items had no significant loadings (greater than .24) on any of the factors. These items were dropped from all subsequent analyses on the grounds that they tapped unique factors.

A parallel analysis was conducted on the teacher form of the School Description Inventory with similar results.

H2(a). The two sets of factors obtained in the testing of hypothesis one were recomputed, using only the thirty-four items which had high loadings on the factors. These matrices were then rotated to positions of maximum congruence (Evans, 1965:A19-A30; cf. Cliff, 1966). This rotation yielded congruence coefficients ranging from .80 to .92, indicating that, qualitatively at least, the two sets of factors are essentially similar. This finding justifies combination of the student and teacher data from the School Description Inventory into one 34 X 34 correlation matrix.

An Image Analysis was performed on this matrix and, on the grounds that it is logical to assume that the dimensions of bureaucratic structure are correlated, the six interpretable factors were rotated to an oblique criterion (Promax, cf. Hendrickson and White, 1964). These rotated factors account for 25.7% of the total variance and 93.2% of the common variance in the thirty-four item scale.

INSERT TABLE I HERE

H2(b). Image scores (Kaiser, 1958a) were computed for each student and teacher on each of the six dimensions of bureaucratic structure.[5] These scores were then used in a series of six tests (Welch, 1938) to determine whether or not there were significant differences between students and teachers in the extent to which they perceived schools to be bureaucratized. The results indicate that students felt their schools to be less highly bureaucratized along each of these dimensions than did teachers. The one exception to this finding was that students felt their

schools to be more highly specialized than did teachers.

INSERT TABLE II HERE

H3. Since the Promax rotation used in testing hypothesis 2(b) yields correlated dimensions of bureaucratic structure, it is possible to test for the existence of an integrating, or second-order, factor by means of yet another Image Analysis, this time of the 6 X 6 matrix of correlations between the dimensions. Such an analysis was performed separately for the student and teacher data, and in both cases, three factors with eigenvalues greater than one were found in the six dimensions. Two of these were interpretable.

The student and teacher factor matrices were compared using Evans' congruence rotation procedure and were found to be qualitatively similar, thereby justifying combination of the student and teacher data into one 6 X 6 correlation matrix. This combined matrix was subjected to an

INSERT TABLE III HERE

Image Analysis and again, three second-order factors with eigenvalues greater than one were found. Two of these were interpretable. Hypothe-

INSERT TABLE IV HERE

sis three was therefore rejected, since two second-order factors are required to represent the dimensions of bureaucratic structure.

The second-order factors are interpreted in terms of the dimensions which have loadings on them of more than .24. Applying this criterion

to the rotated solution of Table IV suggests that factor one is defined by four dimensions: Hierarchy of Authority, Impersonality, Subject Matter Specialization, and Technical Competence. Factor two is also defined by four dimensions: Rules and Regulations, Centralization of Control, Technical Competence, and Subject Matter Specialization.[6]

The dimensions of Subject Matter Specialization and Technical Competence have high loadings on both second-order factors, thus suggesting that they will be of little help in distinguishing between the factors. This being the case, factor one is defined largely by Hierarchy of Authority and Impersonality. The factor seems to be a measure of Status Maintenance: ie: attempts by members of the organization to rely upon the formal status in the organization in their relations with others. The negative loading of Subject Matter Specialization on the factor is consonant with this interpretation, since it is probable that the presence of specialization by function provides both social status and authority of knowledge; both of which decrease the need to rely upon hierarchical position and impersonality as means of obtaining and/or indicating status. Likewise, the presence of Technical Competence on the factor may be indicative of status accruing to competent people.

Factor two seems to measure the extent to which individuals regard their behavior as controlled through rules and centralized decision-making. The negative loading of Subject Matter Specialization on this factor reflects the probability that the need to control behavior is vitiated by the existence of functional specialization which itself exerts behavioral constraints. Similarly, emphasis on Technical Competence may be regarded as a means of controlling behavior.

A more meaningful means of interpreting the second-order factors of bureaucratic structure is through Radex theory. A Radex, as discussed

by Guttman (1954), is a two-dimensional representation of some basic "factor" in which differences in kind between various components of the factor are represented by their "compass placement" on a circle, while differences in degree (or complexity) are represented by distance from the center of the "circumplex."[7]

Guttman suggests that a factor analysis of Radex ordered data will yield factors equal in number to the number of simplexes contained in the data. If this is so, and if the dimensions of bureaucratic structure can be regarded as part of a Radex (ie: part of a configurative whole but differing in both kind and complexity), one would expect the two second-order factors to be composed of simplex ordered tests (cf. Hall and Tittle, 1966; Gibson, 1967).

Simplex ordering, which is characterized by the well-known Guttman Scale, is readily identifiable through inspection of a correlation matrix. When the matrix is properly ordered, it will have large elements near the diagonal with correlations becoming progressively smaller towards the off-diagonal corners of the matrix. Also, the sums of each column are at a maximum in the center of the matrix, tapering off to minima at each end. As can be seen from Tables V and VI, such an order-

INSERT TABLES V AND VI HERE

ing is characteristic of the four dimensions of bureaucratic structure which define each of the second-order factors. Factor one contains a clearly defined simplex order running from Subject Matter Specialization through Impersonality, and Hierarchy of Authority to Technical Competence. Factor two contains a simplex running from Subject Matter Specialization through Rules and Regulations and Centralization of Control to Technical

Competence.

In both the case of factor one and factor two the direction of increasing complexity seems to run from left to right in the tables, Subject Matter Specialization being the least complex of the dimensions, while Technical Competence is the most complex, requiring something beyond everything contained in the other dimensions.

Thus, application of Guttman's Radex Theory to the two factors of bureaucratic structure found in this study suggests that the dimensions of bureaucratic structure can be explained by one integrating factor. However, this integrating factor is much more complex than was originally expected, since it accounts for differences in both kind and complexity among the dimensions.

In retrospect, it is just this kind of difference which one ought to expect in a model of bureaucratic structure, for conceptually at least, dimensions of bureaucracy are not only related to each other in a simple correlational sense; they are functionally dependent on each other. It makes good sense that Technical Competence should be more complex than Subject Matter Specialization or Rules and Regulations, since the "raison d'être" for the existence of these dimensions in a bureaucracy is the attainment of competence.

While the ability of Radex Theory to explain the inter-relationships between the dimensions in terms of more than one factor and yet remain within the bounds of sociological models of bureaucratic structure is important, it is the ability of the theory to account for varying degrees of complexity that is most important: Radex Theory allows one to make predictions and statements about the dependence of one dimension on another (eg: of Technical Competence on Hierarchy of Authority). As preliminary results, these relationships between the dimensions of

bureaucratic structure are encouraging. It certainly appears that the Radex offers much better possibilities as a statistical model for studying the bureaucratic structure of organizations than do more traditional forms of factor analysis.[8]

In sum, the implications of Radex theory is that hypothesis three may be accepted, albeit in a modified form since the integrating factor which was hypothesized to exist is represented by the two factors extracted by means of Image Analysis. These two factors, taken together, parsimoniously describe the bureaucratic structure of a school since the co-ordinates which locate any school on a "map" of bureaucratic structure are given by its two factor scores (see figure 1).[9] In terms

INSERT FIGURE 1 HERE

of the relationship between bureaucratic structure and dependent variables such as alienation, this finding means that the factors must be considered in conjunction with each other in order to obtain maximum predictive effectiveness.

Student-Teacher Quantitative Differences: Second-Order Factors

Using the orthogonally rotated factor pattern matrix of Table IV, image scores were computed for students and teachers on both of the integrating factors of bureaucratic structure. These were used as a basis for testing quantitative differences between student and teacher perceptions of school bureaucratization (hypothesis 2(a)). As was the case in earlier tests of differences in dimensions, significant differences are manifest between the two groups, with students perceiving schools as less highly bureaucratized than do teachers (Table II).

One might argue that these differences are merely of degree, both groups giving schools similar rank orders along each factor. In order to test this possibility, a Spearman rank-order correlation coefficient (Siegel, 1956:202-213) was calculated between the student and teacher rankings of the schools. In the case of factor I, the coefficient is .02, while in the case of factor II it is .08. Both of these are far short of the .40 required for significance at the .05 confidence level, indicating that students and teachers have quite different perceptions of the extent to which their schools are bureaucratized.

H4. Hypothesis four is tested by one-way analyses of variance using schools as treatments. The data for the analysis are the factor scores of students and teachers on the six dimensions of bureaucratic structure and on the two underlying second-order factors.

As can be seen from Table VII, each of the six dimensions, as well

INSERT TABLE VII HERE

as the two second-order factors, differentiates between schools in the perceptions of both students and teachers. Hypothesis four is therefore accepted, meaning that the School Description Inventory successfully discriminates between schools on the basis of the extent to which they are bureaucratized.

Data Analysis II: Alienation and the Alienation-Bureaucratization Relationship

H5. The items of the Student Expectations Inventory were subjected to an Image Analysis and five factors with eigenvalues greater than one were found. These corresponded in meaning to the five dimensions of alienation: (1) Self-estrangement, (2) Misfeasance, (3) Powerlessness,

(4) Futility of Extra-curricular activities, and (5) Meaninglessness. This result was as expected, with the exception that six items had no loadings of more than .24 on any of the factors. These items were dropped from all subsequent analyses, but their loss meant that the dimension of futility was restricted in meaning as the items which load on the factor deal solely with the futility of extra-curricular activities.

This Image Analysis was repeated, using only the thirty-eight items which had high loadings. The five factors which resulted from this analysis were rotated to the Promax criterion, and these rotated factors account for 38.9% of the total variance in the items and 91.4% of the common variance.

INSERT TABLE VIII HERE

H6. A 5 X 5 matrix of correlations between the dimensions of alienation was calculated and subjected to a second-order Image Analysis.

INSERT TABLE IX HERE

This analysis yielded a single factor which accounted for 72.4% of the total variance in the dimensions and 99.7% of their common variance. It

INSERT TABLE X HERE

is thus reasonable to assert that the dimensions of alienation are indeed aspects of a single, integrating, concept.

H7. Image scores were computed for each student on each dimension and on the integrating factor of alienation. These scores were then

used in a one-way analysis of variance in which schools were considered as treatments. The results of this analysis indicated that the dimensions and the integrating factor of alienation discriminated between schools.

INSERT TABLE XI HERE

H8. Hypothesis eight is tested by means of a two-way analysis of variance using multiple linear regression techniques.[10] In order to conduct this analysis, alienation was categorized as high, medium or low and the schools were treated as eighteen mutually exclusive categories.[11] With these two divisions, it is possible to locate any one student in his school and in one of the three categories of alienation. If hypothesis eight is correct, alienated students in any given school will have the same perceptions of that school's bureaucratization as non-alienated students. In regression terms, alienation will be non-significant as a predictor of perceived bureaucratization when the main effects of differences between schools are held constant.

Hypothesis eight must be tested separately for each factor of school bureaucratization. The results of these tests are shown in Table XII and XIII. Both tables consist of four models. The first is a "full"

INSERT TABLES XII AND XIII HERE

model in which each of the mutually exclusive categories or cells (which result from a division of the sample on the basis of the three types of alienation in each of eighteen schools) is used as a predictor of perceived bureaucratization. The second model is a restricted version of

model one in that each member of the sample is placed in one of three categories of alienation and in one of the eighteen school categories. These categories are then used as predictors of perceived bureaucratization. The third model is further restricted since only the three categories of alienation are used to predict bureaucratization, while the fourth model used only the eighteen school categories as predictors.

Comparing the predictive efficiency of model two to that of model one answers the question "Is there any significant interaction between the alienation and school variables in the prediction of bureaucratization?" If interaction is present and significant, the 54 cells will be better predictors than will the 21 categories. The interaction question is important, since statisticians generally agree that tests of main effects in an analysis of variance are inappropriate in the presence of significant interaction effects (Kelly et al, 1969:268).

Should interaction effects prove to be insignificant, it is possible to test for the main effects of alienation and bureaucratization by comparing models theee and four respectively with model one or two. A comparison with model two is preferable since this pools the variance due to interaction with error, thereby giving a more conservative estimate of the variance attributable to main effects than would a comparison with model one, which does not pool variance due to interaction with error (Kelly et al, 1969:273-275). Thus, a comparison between model three and model two is used to answer the question "Are there significant differences in perceived bureaucratization between schools when the effects of alienation are held constant?" and a comparison between model four and model two is used to answer the question "Are there significant differences between alienated and non-alienated students in the perception of school bureaucratization when the effects of differences between

schools are held constant?"

Factor I: Status Maintenance

Model 1 of Table XII indicates that alienation and school variables account for 8.5% of the variance in perceived Status Maintenance. A comparison between model two and model one indicates that interaction effects are insignificant, although they do account for 1.1% of the variance in perceived Status Maintenance.

The main effects of schools are significant and account for 6.5% of the variance in Status Maintenance. This finding substantiates hypothesis four, the only difference being that the present test imposes a control over the influence of alienation. On the other hand, alienation accounts for only .1% of the variance in perceived Status Maintenance, which means that there are no significant differences in the means of perceived Status Maintenance between the three types of alienated students.

Factor II: Behavior Control

Model one of Table XIII shows that alienation and school variables account for 31.9% of the variance in perceived Behavior Control. A comparison between model two and model one indicates that interaction effects are even less significant than was the case for factor one, as they account for only .8% of the variance in Behavior Control. Comparing model three with model two indicates that differences between schools are significant, accounting for 2.1% of the variance in perceived Behavior Control. Again, this is merely a restatement of the test of hypothesis four with the restriction that the influences of alienation is controlled.

Comparing model four with model two indicates that differences between the three types of alienated students account for 25% of the variance in perceived bureaucratization. Alienation is thus a highly significant predictor of perceived Behavior Control. The direction of the association is instructive. The average "score" on factor two for highly alienated students is 1.126, for moderately alienated students it is +.001, and for the least alienated students is -.814. The corresponding scores, when adjusted to compensate for school effects,[12] are 1.052, +.018, and -1.131.[13] Thus, the more highly alienated a student, the less likely he is to perceive himself as subject to the school's behavioral constraints.

The association between alienation and perception of bureaucratization when school effects are controlled means that hypothesis eight must be rejected, at least for factor two of bureaucratic structure. This, in turn, means that some controls must be placed over alienation in the testing of the alienation-bureaucracy relationship since, for the moment, the direction of causality in the relationship is indeterminate.[14]

H9. In order to gain as much insight as possible into hypothesis nine, it is tested three different ways. Each of these tests shed some light on the relationship bwtween school bureaucratization and student alienation. Also, because there is so little correlation between student and teacher perceptions of school bureaucratization, the hypothesis is tested separately for student and teacher data.

Test One

The first test of hypothesis nine is by means of a regression analysis design which is suggested by Werts and Linn (1969) as appropriate for investigating the effects of school contests on pupils. In applying their model to this hypothesis, alienation is first predicted from the two factors of bureaucratization plus the control variables, and then

from the control variables alone. Differences in the effectiveness of the two predictions are attributable to the factors of bureaucratic structure. If the hypothesis is to be upheld, both factors of bureaucratic structure must be significant as predictors of alienation and, furthermore, the factors of bureaucratic structure must be positively related to alienation.

Because hypothesis eight was rejected, it is necessary to control for the possibility that a relationship between bureaucratization and alienation is due to the fact that alienated students perceive themselves as following fewer behavioral constraints than do non-alienated students. In order to obtain this control, the sample was split into two parts by the simple expedient of putting every second student into what may be called sample "B", the remainder going into sample "A". Sample "B" was then used to compute mean scores on each factor of bureaucratic structure for each of the eighteen schools. These means were then used to place the school in one of the four quadrants of Figure 2.[15]

INSERT FIGURE 2 HERE

If hypothesis nine is correct, the students of schools located in quadrant I will be the least alienated from school, those of schools located in quadrant III will be the most alienated, and those of schools located in quadrants II and IV will fall somewhere between these two extremes. Further, if the students in question are drawn from sample "A" while the schools have been placed in quadrants on the basis of the perceptions of the students in sample "B", a measure of bureaucratization has been obtained which is independent of the alienation of the students used to test hypothesis nine. It is thus possible to say (within the

rather severe limits of an ex-post facto design) that any relation between the two variables is likely to be caused by bureaucratization.

Table XIV summarizes the results of this test of hypothesis nine.

INSERT TABLE XIV HERE

The Table consists of five models. The first is a "full" model in which alienation is predicted from four mutually exclusive categories, representing the four quadrants of bureaucratic structure; plus the control variables. The second model is a restricted version of this full model: it uses the control variables plus four mutually exclusive categories (representing membership in the high or low category of Status Maintenance and the high or low category of Behavior Control) as predictors of alienation from school. Model three is further restricted, using the control variables plus only two mutually exclusive categories, high or low on Behavior Control, to predict alienation. Model four is similar to model three, except that the two categories represent high or low on Status Maintenance. Model five uses only the control variables as predictors of alienation.

Comparing the predictive effectiveness of model two with that of model one serves to determine whether or not there are significant interaction effects between Status Maintenance and Behavior Control in the prediction of alienation (Bottenberg and Ward, 1963:39-41). Should interaction prove to be insignificant, it is possible to test for the main effects of Status Maintenance by comparing model three with model two. The main effects of Behavior Control on alienation are tested by comparing model four with model two. Last, a comparison between model one and model five tests the combined effects of Status Maintenance and

Behavior Control in the prediction of alienation. All four of these comparisons test the strength of the bureaucratization - alienation relationship as it exists over and above any effects attributable to the control variables. (Bottenberg and Ward, 1963:76-95).

Model one of Table XIV shows that the factors of bureaucratic structure, together with the control variables, account for 22.6% of the variance in alienation. The comparison between model one and model two indicates that interaction effects are insignificant, and that they account for only .1% of the variance in alienation from school. This means that tests for the main effects of Status Maintenance and Behavior Control are meaningful.

Comparing model three with model two indicates that Status Maintenance is a statistically significant predictor of alienation from school, but that it accounts for only 1.3% of the variance in the variable. The comparison between model two and model four shows that Behavior Control is also a significant predictor, but that it accounts for only .7% of the variance in alienation. Both factors of bureaucratic structure, when taken together, account for a total of 2.6% of the variance in alienation from school (model one compared with model five).[16]

The mean alienation "score" within each quadrant of Figure 2 is shown in Table XV. As can be seen from the first row of this table, both

INSERT TABLE XV HERE

the raw means and the means "adjusted" for the effects of the control variables are such as to suggest that hypothesis nine can not be accepted; the relationship between Behavior Control and alienation is negative rather than positive. Because of this negative relationship, the most

highly alienated students are found in quadrant II, rather than I; and the least alienated students are found in quadrant IV rather than quadrant III. Formal status barriers give a degree of stability to interpersonal relations, and apparently the positive association between alienation and Status Maintenance is due to an inability of students in schools with high Status Maintenance to control or influence the behavior of their teachers. The negative association between Behavior Control and alienation is also a plausible finding, since Behavior Control measures submission, obedience to rules and centralized control rather than attempts to exert control.

Because alienation scores are a linear combination of the dimension scores, it is possible that the bureaucracy-alienation relationship is due to a very large association between bureaucratization and only one of the dimensions. As a precaution against this possibility, the analysis described above was repeated for each dimension of alienation. The results of these tests indicate that the nature of the relationship bescribed for alienation in toto is also true for each of the dimensions of alienation: the most alienated students are found in quadrant II and the least alienated in quadrant IV, while quadrants I and III form areas of transition between these more extreme cells. There is but one departure from this over-all pattern; after the influence of control variables has been taken into account ("adjusted") students with the greatest feelings of power are found in schools where both perceived emphasis on Behavior Control and Status

Maintenance are low. This is hardly surprising, since people who do not follow rules and who operate among friends are apt to feel they have a good deal of control over their destiny, Moeller's (1962:48) finding notwithstanding.

In sum, this first test of hypothesis nine shows that they hypothesis may be accepted only in part. Both factors are significant predictors of alienation but, in the case of Behavior Control, the relationship is negative. Further, the amount of variance in student alienation from school (or in any of its dimensions) which may be attributed to the factors of bureaucratic structure is very small.

Test Two

One explanation for the small amount of variance in alienation attributable to the factors of bureaucratic structure may lie in the amount of information which was lost when the data about the bureaucratic structure of eighteen schools was collapsed into only four categories. A two-step procedure which permits more of this data to be retained is as follows: alienation is predicted from the twenty-three control variables plus eighteen mutually exclusive categories, one for each of the schools in the sample. The restricted model involves the prediction of alienation from the control variables alone. Any differences in the predictive effectiveness of the two models is due to some unknown difference(s) between schools.

Differences between schools would, in turn, be partially attributable to differences in the extent to which each school was bureaucratized along each of the two factors of bureaucratic structure. Therefore, if differences between schools account for differences in alienation, and if the correlation between alienation from school and each of the factors of bureaucratization is high,[17] we are justified in asserting a) that some sort of differences between schools account for a significant amount of the variance in alienation from school, b) that the upper limit of the amount of variance in alienation which can be predicted from factors of school bureaucratization is the amount of variance in alienation which is attributable to differences between schools, and c) that differences in bureaucratization from school to school are important as far as the prediction of alienation is concerned.

Table XVI contains the regression models necessary to examine the

INSERT TABLE XVI HERE

first step of the procedure. As can be seen from model one, the control variables plus the eighteen schools account for 23.5% of the variance in alienation (as opposed to 22.6% when the four quadrants were used with the controls). This small increase in predictive effectiveness is due to the increased amount of data retained by using 18 instead of four categories.

A comparison between model one and model two of Table XVI shows that only 3.5% of the variance in student alienation is attributable to differences between schools. This represents an upper limit to the amount of variance in alienation which could be attributed to differences in school bureaucratization. The comparison between model one and model three

indicates that a much larger amount of the variance in alienation (17.1%) can be attributed to the control variables.

Table XVII shows that the correlation between alienation and

INSERT TABLE XVII HERE

both Status Maintenance and Behavior Control are high, statistically significant, positive in the case of Status Maintenance, and negative in the case of Behavior Control. They are large enough to suggest that the majority of the 3.5% of the variance in alienation from school which is attributable to school effects may, in turn, be attributable to student perceived school bureaucratization.

Test Three

The third test of hypothesis nine involves a regression analysis at the school level (ie:based on the correlations of Table XVII) in which both factors of student perceived bureaucratization are used to predict alienation from school. The results of this analysis are shown in Table XVIII. Using these student perceptions of school

INSERT TABLE XVIII HERE

bureaucratization, it is possible to predict 68.9% of the "between schools" variance in alienation.[18] A comparison of model one of Table XVIII with model two indicates that Status Maintenance alone accounts for 12.4% of this variance, while a comparison of model one with model three indicates that Behavior Control accounts for 48.5% of the "between schools" variance in alienation.

At first, these figures seem inconsistent with the results of the two previous tests. The percentages of variance explained are much higher and in this test Behavior Control is a much more important predictor of alienation than is Status Maintenance; the reverse was true in the case of test one. Two points resolve these apparent differences: first, this third analysis tests the relationship between "between schools" variance in bureaucratization and total, or "between persons", variance in alienation; thereby giving an estimate of the extent to which "between schools" variance in bureaucratization accounts for the 3.5% of the total variance in alienation which is attributable to school effects. From this it follows that student perceived Status Maintenance accounts for .4% (12.4 x 3.5%) of the total variance in alienation from school. Likewise, student perceived Behavior Control accounts for 1.7% (48.5 x 3.5%) of the total variance in alienation (ef Harp & Richer; 1969: 673-678).

It is possible to explain the differing importance of Status Maintenance and Behavior Control as predictors of alienation by noting that a great deal of variance in the two factors is lost in the categorization scheme followed in test one. As Table XVII shows, there is a great deal more variance lost by the factor of Behavior Control than by Status Maintenance since its variance is four times larger to begin with. Therefore, it is likely that this third test of hypothesis nine yields the most accurate estimates of the amount of variance in alienation attributable to each factor of bureaucratic structure, an assertion which is supported by the sizes of the first-order correlations between alienation and each of the two factors.

Each of these three tests of hypothesis nine was repeated using teacher perceptions of school bureaucratization as the basis for

categoring schools. These tests showed that teacher perceptions were insignificant as predictors of student alienation from school. This is probably due to differences between student and teacher perceptions of bureaucratization and to the fact that student perceptions are more likely to be related to student feelings, teacher perceptions to teacher feelings, and so on.

III. CONCLUSIONS

Bureaucratic Structure

1. The conceptualization of bureaucratic structure apparent in the work of Hall (1961), Mackay (1964), Punch (1969), and Kolesar (1967) as composed of a linear combination of dimensions, is defective; since the relationships between the concept and the dimensions indicate that Radex Theory is a better means of describing the concept.

Using this theory the dimensions are regarded as dependent one upon the other; rather than as additive components of a single concept. This type of dependency means that bureaucratic structure will not be a linear combination of its dimensions; ie: it will not emerge as one "factor". Instead, there will be as many factors in a data matrix as there are sets of interdependencies (or simplexes) in the data (Guttman, 1954).

2. A second defect in the bureaucratic model as it has been operationalized in the past, is that it creates a priori dimensions of bureaucratic structure. In this study, two of these a priori categories, Rules for Personal Conduct and Procedural Specification, were found to be empirically indistinguishable; while the Hierarchy of Authority dimension was found to be composed of two empirically separable components. Thus, dimensional models of bureaucracy must begin with

much more basic investigations of the operational definition and measurement of dimensions if they are to avoid spurious conclusions about the bureaucratic structure of organizations.

3. Teacher perceptions of school bureaucratization, are unrelated to student perceptions, and are therefore poor choices as predictors of student attitudes and behavior. More generally, this indicates that care must be taken in using perceptual measures obtained in one segment of an organization as explanations of the behavior and attitudes of members in other areas. In a study of organizational (e.g. school) effects using perceptual measures, it is best to obtain measure of the effects as they are perceived by the group whose behavior or feelings are under investigation, unless there is good reason to involve a second group in the model.

Alienation From School

1. Alienation from school is a unitary concept composed, in this case, of five dimensions. This finding offers strong empirical support for Seeman's (1959) formulation of the concept. However, only 3.5% of the total variance in alienation from school is attributable to differences between schools.

2. Alienated students perceive schools differently than to non-alienated students. In general, highly alienated students feel that they obey fewer behavioral constraints than do non-alienated students. However, it is impossible to state whether this is because the two types of students have differing perceptions of the same situation, or whether it is because school administration actually exerts different degrees of control over non-alienated students. There is no difference between alienated and non-alienated students insofar as their perception of Status Maintenance is concerned.

3. There is a relationship between the student perceived factors of bureaucratic structure and alienation from school. The relationship is small, but statistically significant, and accounts for 2.6% of the total variance in alienation. This conclusion was reached after the influence of a number of variables thought to be causes of alienation was held constant; thus, the relationship between bureaucratization and alienation is a reasonably conservative estimate of the amount of variance in alienation which is attributable to school bureaucratization.

IV. IMPLICATIONS

For Theory

1. Traditional theories of bureaucracy have tended to regard the concept as unitary, or at most as a linear combination of dimensions. In the case of schools, the data imply that this model is incorrect; that instead bureaucracy is more appropriately regarded as a concept made up of dimensions which are dependent upon each other. While it is possible that this structure may not occur in organizations other than schools, the model presented in this study seems to offer considerable promise as a means of developing empirical research studies of bureaucracies, and it gives researchers a novel and powerful means of answering the question "How many, and which, dimensions are important in the measurement of bureaucratic structure?"

2. An allied implication is that there needs to be some research aimed at completing the Radex "map" of bureaucracy. As can be seen from Figure 1, considerable areas of the Radex are presently undefined by dimensions. The work of Foa (1962) and Guttman (1966) suggests methods by which researchers might set out to fill in these "holes" in

the model. Obviously, it would be desirable to have a larger part of the Radex "mapped" by dimensions than is the case in this study; there is therefore need to seek and measure dimensions other than those which were included in this study. Also, it is possible that other, qualitatively different, dimensions of bureaucratic structure are present in organizations. Location of these dimensions would add a third axis to the model of Figure 1.

3. The model of alienation used in this study has been based largely upon the work of Seeman (1959), with the important restriction that the concept was measured in relation to schools. The study provides strong support for Seeman's model, implying that the dimensional approach to the study of alienation might be profitably applied to the study of alienation from foci other than the school. In addition, it has yielded a fairly rigorous, reliable measure of alienation from school, which might now be applied to a study of the behavioral consequences of alienation.

4. The finding of significant relationships between alienation and bureaucratization offers support for sociological theories which attempt to relate alienation to social and/or organizational sources. While the relationship found in this study is small, basically it supports the theory; also, there is much less variance in the bureaucratization of public schools than exists between (for example) the army and a university faculty, and a correspondingly smaller possibility of variance in bureaucratization being able to account for, or explain, variance in alienation. A more rigorous test of bureaucracy-alienation relationships would be possible with a sample of organizations that included a wider range of bureaucratization than was present in the

sample of public secondary schools.

5. A good deal of the variance in alienation from school is attributable to factors other than school-related variables. While some of these were included in this study, a number of psychological correlates of alienation were left uncontrolled. A study intended to explain variance in alienation would have to include these personality variables, since this study seems to indicate that sociological variables alone cannot account for a majority of the variance in alienation. Clearly then, a theory which hopes to account for alienation must begin to meld the sociological and psychological literature on the subject (cf. McClosky & Schaar, 1965).

6. The relationships between dimensions of alienation and bureaucratic structure offer a wide field of unexplored theoretical interest. While this study has sketched out broad relationships between the two integrating concepts, it is probable that more detailed analysis of the data would reveal stronger relationships than are found at a macroscopic level of analysis. For example, the relationship between Powerlessness and Rules and Regulations may be much greater than the more general relationship between bureaucratic structure and alienation. Such detailed analyses may have greater theoretical and practical significance than do investigations of a more general nature.

7. Obviously, there is need of research on the behavioral correlates of alienation and bureaucratization.

For Practice

1. The implications of this study for practice must be drawn with caution, since its ex post facto design does not permit rigorous tests of causality in the relationships which were found. Having

noted this point, the study would seem to indicate that school administrators wishing to lower alienation among their students might attempt to reduce the extent to which school personnel attempt to exert controls over pupil behavior. At the same time, he might attempt to decrease staff reliance on the formal organization of the school in order to give students the feeling that they have access to, and can exert some influence over, the sources of power and decision-making in the school.

2. Differences between student and teacher perceptions of school bureaucratization are indicative of the need for school personnel to make strenuous efforts to investigate the world of students. Basing estimates of student attitudes and behavior upon faculty perceptions of school organization is unlikely to prove worthwhile.

3. Since the variance in student alienation attributable to any differences between schools is only 3.5%, the administrator of a public school has little chance of making major modifications in student alienation without first making some very major departures from the "normal" model of public education. Even so, he would appear to have little hope of success, for the control variables, which are out of the hands of a school administrator, account for a full 17% of the variance in student alienation, while other variables, undefined in this study, account for the remainder.

By way of an over-all conclusion, it may be noted that the study has fulfilled its objectives. A viable, if perhaps tentative means of empirically investigating the bureaucratic structure of schools has been developed as has a means of measuring alienation from school.

The two variables have been shown to be related in a small, but significant way. The study then, has sketched out a framework within which more detailed studies of organizational effects on attitudes and behavior might be conducted.

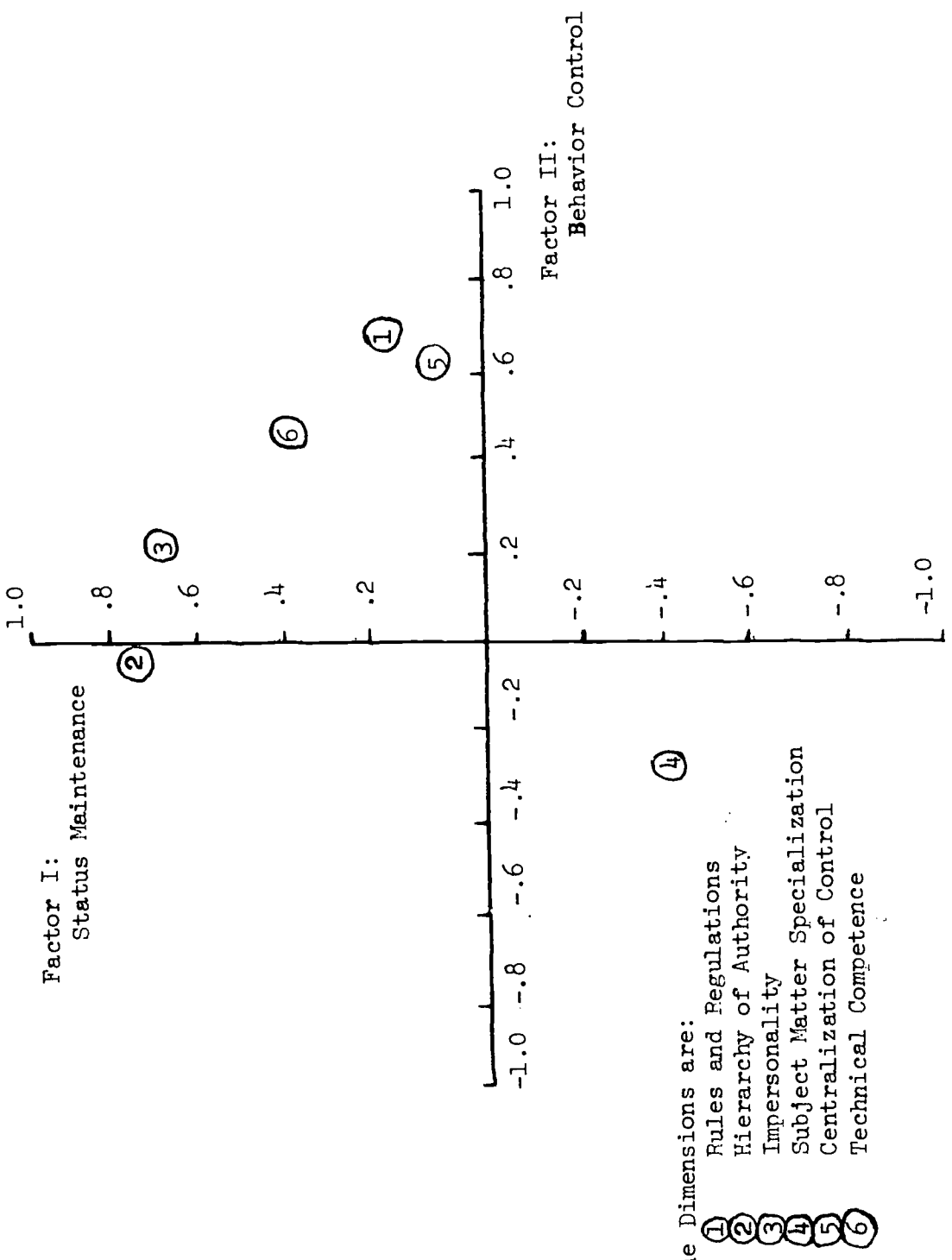

FIGURE 1

DIMENSIONS OF BUREAUCRATIC STRUCTURE PLOTTED AGAINST ORTHOGONAL FACTORS

Quadrant IV High on student perceived Status Maintenance[a] Low on student perceived Behavior Control[b] Contains five schools (Nos. 1, 2, 4, 6, 7) Contains 405 students	Quadrant I High on student perceived Status Maintenance[a] High on student perceived Behavior Control[b] Contains four schools (Nos. 9, 13, 15, 16) Contains 611 students
Quadrant III Low on student perceived Status Maintenance[a] Low on student perceived Behavior Control[b] Contains four schools (Nos. 3, 5, 11, 14) Contains 411 students	Quadrant II Low on student perceived Status Maintenance[a] High on student perceived Behavior Control[b] Contains five schools (Nos. 8, 10, 12, 17, 18) Contains 464 students.

a) Mean for students is -.29

b) Mean for students is -.14

FIGURE 2

CLASSIFICATIONS OF BUREAUCRATIC STRUCTURE AS PERCEIVED BY STUDENTS

TABLE I

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings					
			1	2	3	4	5	6
		Factor I: Rules and Regulations						
II	11	I follow school rules which regulate my attendance.	39	-16	-13	00	01	07
II	12	I follow school rules which regulate gum chewing.	40	-13	-10	-02	-03	03
II	13	I follow a school rule which states that I may not leave the building during school hours.	52	03	07	01	-03	00
II	15	I follow school regulations about where and when I may smoke while I am at school.	41	-09	-11	-04	02	04
II	16	I follow school regulations about the use of drinking fountains between classes.	51	-02	-03	05	-04	-08
II	17	I obey a lot of rules regarding my personal behavior in and around the school.	64	05	06	02	01	-07
II	18	I follow rules stating when I am to arrive at and/or depart from the building.	51	-09	03	-02	-05	12

TABLE I (continued)

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings					
			1	2	3	4	5	6
II	19	I am careful not to violate school rules which regulate my personal conduct.	60	-12	00	04	01	01
III	21	There are school-wide, standard classroom procedures which I follow.	50	-01	-06	00	03	02
III	23	The school has definite procedures which I follow when I deal with most of the situations which arise.	38	03	02	01	06	05
III	24	I follow school rules which state that I may not leave the classroom unless I have permission to do so.	50	08	19	-09	05	-06
III	25	In most classes, I follow rules which regulate where I may sit.	39	16	14	-08	05	-10
III	26	I follow a lot of routine school regulations about how school work is to be done.	53	18	01	05	01	01
III	28	I follow school rules which state how I am to be dismissed at the end of a school day.	54	05	00	01	-01	04

TABLE I (continued)

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings 1	2	3	4	5	6
		Factor II: Hierarchy of Authority						
I	1	I often get orders from "higher up."	09	56	-12	-12	01	-01
I	2	School officials frequently exercise their right to tell me what to do.	-01	67	-08	02	00	01
I	4	Officials in this school act like little gods, always ordering me about and telling me what to do.	-12	56	09	02	-01	06
I	7	I frequently get told what to do by someone higher up in the school organization.	08	58	-06	00	02	04
I	10	There are people in this school who are empowered to give me orders and they often do.	04	57	-08	00	01	10
VI	54[R]	My teachers seem to have an overlap in their responsiblities - in fact, they can't seem to decide who is to teach what.	10	-32	-14	02	03	06

TABLE I (continued)

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings					
			1	2	3	4	5	6
		Factor III: Impersonality						
IV	30	My relationships with school authorities are very formal and impersonal.	05	-04	59	04	-04	00
IV	31	I speak to teachers on a formal basis.	17	-03	55	-04	07	-02
IV	37	My relationships with teachers are formal and impersonal.	03	-05	66	02	02	04
		Factor IV: Subject Matter Specialization						
VI	50[R]	I take a large number of different courses.	03	02	07	50	01	-02
VI	51[R]	In this school, I take a wide variety of courses rather than specializing in one small area.	02	03	-02	51	00	-02

TABLE I (continued)

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings					
			1	2	3	4	5	6
		Factor V: Technical Competence						
V	39	My past promotions have been based upon my ability.	01	-01	-07	-01	34	00
V	42	My achievement in this school is not based on the personal preferences of the people who evaluate me, but on an objective evaluation of my abilities.	02	-14	00	00	31	-01
V	43	Promotions are based on how well I do my work.	-02	05	03	-03	40	03
V	45	My chances of success in this school depend almost entirely on my ability.	-04	03	06	06	40	00

[a]The sacles are:
I. Hierarchy of Authority
II. Rules for Personal Conduct
III. Procedural Specifications
IV. Impersonality
V. Technical Competence
VI. Specialization

insofar as their perception of Status Maintenance is concerned.

TABLE I (continued)

SCHOOL DESCRIPTION INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings					
			1	2	3	4	5	6
		Factor V: Centralization of Control						
I	3	In the final analysis, the principal of this school has a lot of authority over me.	04	09	-03	09	03	33
I	5	When my interests conflict with the interests of those who run the school, they make the final decision about what will be done.	-09	01	-02	-01	02	41
I	6	I can take little action until my decisions are approved by a school official.	01	07	13	-06	-02	38
I	8	I can't put many of my own decisions about school into action unless I first check with a school official.	00	14	10	-06	00	33
I	9	Ultimately, school authorities have an important degree of control over me.	07	06	01	01	01	40

TABLE II

TEST OF DIFFERENCES IN STUDENT AND TEACHER PERCEPTIONS OF BUREAUCRATIZATION: DIMENSIONS OF THE SCHOOL DESCRIPTION INVENTORY

	Mean		Standard Deviation				
	Students	Teachers	Students	Teachers	Df	T Prime	Two-Tailed Probability
1. Rules and Regulations	-.175	.730	.945	.923	1190.91	25.17	.000
2. Hierarchy of Authority	-.243	1.089	.878	.812	1238.37	41.67	.000
3. Impersonality	-.325	1.467	.754	.682	1238.47	66.46	.000
4. Subject Matter Specialization	.278	-1.295	.803	.846	1133.67	48.37	.000
5. Centralization of Control	-.162	.651	.954	.965	1164.05	21.76	.000
6. Technical Competence	-.106	.402	.967	1.061	1107.20	12.52	.000
Factor I	-.301	1.363	.796	.798	1170.60	53.79	.000
Factor II	-.139	.553	.988	.888	1265.56	19.67	.000

TABLE III

CORRELATIONS BETWEEN THE DIMENSIONS OF BUREAUCRATIC STRUCTURE:
COMBINED STUDENT AND TEACHER DATA

Dimensions	1	2	3	4	5	6
1. Rules and Regulations	1.00					
2. Hierarchy of Authority	.03	1.00				
3. Impersonality	.34	.65	1.00			
4. Subject Matter Specialization	-.35	-.47	-.56	1.00		
5. Centralization of Control	.63	-.01	..22	-.28	1.00	
6. Technical Competence	.56	.45	.36	-.26	.35	1.00

N = 4598
P .01 = .23
P .05 = .16

TABLE IV

SECOND-ORDER FACTORS OF THE DIMENSIONS OF BUREAUCRATIC STRUCTURE: COMBINED STUDENT AND TEACHER DATA

Dimensions	Unrotated Factor Loadings			Varimax Rotated Factor Loadings			Communalities[a]
	1	2	3	1	2	3	
1. Rules and Regulations	-.57	.48	-.01	.16	.72	.07	.55
2. Hierarchy of Authority	-.58	-.46	.06	.72	-.02	.19	.56
3. Impersonality	-.67	-.23	-.10	.68	.23	.04	.51
4. Subject Matter Specialization	.58	.10	.17	-.54	-.27	.05	.37
5. Centralization of Control	-.43	.44	-.07	.08	.61	-.01	.38
6. Technical Competence	-.63	.12	.21	.38	.46	.31	.45
Variances	2.03	.71	.09	1.45	1.23	.14	2.82
Eigenvalues	6.46	3.43	1.52				

[a]These also represent lower-bound estimates of the reliabilities of the dimensions (Harman, 1960, p. 15).

TABLE V

SIMPLEX ORDERED CORRELATIONS BETWEEN THE DIMENSIONS OF BUREAUCRATIC STRUCTURE LOADING ON FACTOR I: STATUS MAINTENANCE

Dimensions	4	3	2	6
4. Subject Matter Specialization	1.00			p .01 = .23 p .05 = .16
3. Impersonality	-.56	1.00		
2. Hierarchy of Authority	-.47	.65	1.00	
6. Technical Competence	-.26	.36	.45	1.00
Totals (absolute values)	2.29	2.57	2.57	2.07

TABLE VI

SIMPLEX ORDERED CORRELATIONS BETWEEN THE DIMENSIONS OF BUREAUCRATIC STRUCTURE LOADING ON FACTOR II: BEHAVIOR CONTROL

Dimensions	4	1	5	6
4. Subject Matter Specialization	1.00			p .01 = .23 p .05 = .16
1. Rules and Regulations	-.35	1.00		
5. Centralization of Control	-.28	.63	1.00	
6. Technical Competence	-.26	.56	.35	1.00
Totals (absolute values)	1.89	2.54	2.26	2.17

TABLE VII

ANALYSIS OF VARIANCE BETWEEN SCHOOLS FOR THE DIMENSIONS OF BUREAUCRATIC STRUCTURE

	Student Form					Teacher Form				
	Mean Squares					Mean Squares				
Dimension	Treatment	Error	Df	F	P	Treatment	Error	Df	F	P
1	19.461	.809	3773/17	24.05	.00	6.067	.741	788/17	8.19	.00
2	5.628	.748	3773/17	7.52	.00	2.644	.617	788/17	4.28	.00
3	4.007	.553	3773/17	7.24	.00	1.819	.437	788/17	4.16	.00
4	6.117	.620	3773/17	9.87	.00	2.140	.686	788/17	3.12	.00
5	10.272	.869	3773/17	11.82	.00	3.172	.884	787/17	3.59	.00
6	11.358	.888	3773/17	12.79	.00	6.398	1.012	788/17	6.32	.00
Factor I	4.221	.619	3773/17	6.82	.00	2.620	.600	788/17	4.36	.00
Factor II	19.183	.893	3773/17	21.47	.00	4.941	.702	788/17	7.04	.00

TABLE VIII

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number[b]	Item	Obliquely Rotated Factor Loadings[c]				
			1	2	3	4	5
		Factor 1: Self-estrangement					
V	32[R]	I really enjoy my work at school	70	01	03	-02	06
V	33[R]	If I had the chance to do things over again, I would be in school this year because I really enjoy it.	58	-05	04	00	04
V	35	I would prefer to be out working than to remain in school.	33	08	-02	11	11
V	36[R]	School is like a hobby to me.	45	-08	01	-05	01
V	37	Most of the time I have to force myself to go to school.	58	12	-03	04	-02
V	38[R]	School is usually interesting enough to keep me from getting bored.	62	-01	00	-02	05

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number[b]	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor I: Self-estrangement					
V	39[R]	I feel fairly well satisfied with school.	69	-01	-02	-04	11
V	40	I definitely dislike school.	69	08	-04	-03	-01
V	41[R]	I feel that I am happier in school than most other pupils.	68	-04	-04	-02	-07
V	42[R]	Most days I am enthusiastic about school.	71	-04	02	00	-02
V	43	Each day of school seems like it will never end.	57	08	04	03	-07
V	44	I am disappointed that I have to attend this school.	37	08	-01	05	19

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number[b]	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor V: Meaninglessness					
II	8	I just don't see how completing my high school education in this school will guarantee me the ability to provide myself and my family with all the things we will need.	-04	19	-02	-01	35
II	9	I just can't see any relation between my school experiences and my becoming a better citizen.	-07	21	02	07	41
II	10[R]	I think that school preapres me to make better decisions about life's problems.	02	00	-01	-01	62
II	11	School doesn't help me figure out what to do with my life.	-05	00	05	01	66

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor IV: Futility of Extra-curricular Activities					
IV	23	Generally speaking, I think that my participation in school athletic activities is (or would be) a waste of my time.	-09	02	01	68	-03
IV	25[R]	I think that the extra-curricular activities offered in this school are really useful.	03	-06	04	51	09
IV	28	I have better things to do with my time than fool around in school clubs.	12	04	01	54	-02
IV	29[R]	For me, participating in inter-school competitions (such as basketball, debating, chess, etc.) is worthwhile.	03	-04	-02	68	-03

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor III: Powerlessness					
I	2	There is little I can do about the way this school is run.	02	-06	67	00	-03
I	3	There is not much chance that I can make this school a better place in which to learn.	-01	01	59	01	02
I	4	I, as an individual student, can't do anything about what goes on in this school.	-04	00	66	-01	04
I	6	My teachers generally do what they want to do, no matter what I say.	11	10	36	-03	02
I	7	What happens in this school happens no matter what I do. It is like the weather, there is nothing I can do about it.	-01	07	61	02	-01

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENOTRY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings[c]				
			1	2	3	4	5
		Factor II: Misfeasance					
III	20	In order to get ahead in this school it is necessary to do things of which school authorities do not approve.	02	67	-02	-03	-06
III	21	I would have to do things which were not really honest in order to get an honors standing.	03	63	00	-03	-04
III	22	For me to be successful in this school requires the use of absolutely any means I can devise - whether or not such means are "approved" by teachers.	-05	64	03	01	-10

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor II: Misfeasance					
III	15	In order to get ahead in this school, I am almost forced to break school rules.	06	56	00	00	-03
III	16	Cheating is the only way for me to get what I want out of school.	02	55	-07	-01	07
III	17[R]	The best way for me to get ahead in this school is for me to be honest in all my dealings with the staff.	15	29	00	-05	15
III	18	I will probably have to break school rules if I am to obtain some of the highest awards this school offers.	-03	65	03	00	-05
III	19	For me to be really successful in this school, I would have to use methods that are illegal as far as teachers are concerned.	01	70	00	01	-01

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number[b]	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor V: Meaninglessness					
II	12[R]	My school courses help me decide what I want to do with my life.	08	-14	-03	-02	72
II	13	I don't understand how the attitudes and habits which I learn in school will help me to lead a better life.	-03	18	-01	06	44
II	14[R]	My school studies help me to make predictions about the kind of world in which I will live in the future.	09	-14	02	-02	57
IV	24	I think that what is taught in this school is mostly useless in today's world.	11	12	05	-03	37

TABLE VIII (continued)

STUDENT EXPECTATIONS INVENTORY ITEMS ARRANGED BY FACTORS

Original Scale Placement[a]	Item Number[a]	Item	Obliquely Rotated Factor Loadings[c] 1	2	3	4	5
		Factor V: Meaninglessness					
IV	27[R]	The courses available in this school are extremely valuable to me.	21	-06	00	-05	53

[a]The scales are:
I. Powerlessness
II. Meaninglessness
III. Misfeasance
IV. Futility
V. Self-es rangement

[b]Items marked "R" are reverse scored.

[c]Decimals omitted.

TABLE IX

CORRELATIONS BETWEEN THE DIMENSIONS OF STUDENT ALIENATION FROM SCHOOL

Dimensions	1	2	3	4	5
1. Self-estrangement	1.00				N = 3792 P .01 = .23 P .05 = .16
2. Misfeasance	.75	1.00			
3. Powerlessness	.72	.77	1.00		
4. Futility of Extra-curricular Activities	.77	.73	.74	1.00	
5. Meaninglessness	.87	.83	.78	.76	1.00

TABLE X

SECOND-ORDER FACTORS OF THE DIMENSIONS OF STUDENT ALIENATION FROM SCHOOL

Dimensions	Unrotated Factor Loadings			Communalities
1. Self-estrangement	.87	-.06	.00	.76
2. Misfeasance	.84	.04	.00	.72
3. Powerlessness	.82	.06	.00	.67
4. Futility of Extra-curricular Activities	.81	.02	.00	.66
5. Meaninglessness	.91	.02	.00	.83
Variances	3.62	.01	.00	3.63
Eigenvalues	17.62	1.22	1.01	

TABLE XI

ANALYSIS OF VARIANCE BETWEEN SCHOOLS FOR THE DIMENSIONS OF ALIENATION FROM SCHOOL

	Mean Squares				
Dimension	Treatment	Error	Df	F	P
1. Self-estrangement	13.163	.951	3773/17	13.838	.00
2. Misfeasance	16.196	.975	3773/17	10.460	.00
3. Powerlessness	8.929	.973	3773/17	9.173	.00
4. Futility of Extra-curricular Activities	8.648	.979	3773/17	8.832	.00
5. Meaninglessness	13.991	.957	3773/17	14.618	.00
Integrating Factor	12.584	.961	3773/17	13.094	.00

TABLE XII

RESULTS OF REGRESSION ANALYSIS PREDICTING PERCEIVED BUREAUCRATIZATION ON FACTOR I: STATUS MAINTENANCE FROM ALIENATION AND SCHOOL VARIABLES
N = 3792

	Predictors	RSQ	Source of Variance[a]	% Criterion Variance Accounted for	F	Df	Prob.
Model 1.	54 categories: high, medium and low alienation by 18 schools.	.085					
Model 2.	21 categories: high, medium and low alienation, totals plus totals for each of the 18 schools.	.074	Model 1 - Model 2: Interaction between alienation and schools.	1.1	1.36	34/3738	.095
Model 3.	3 categories: high, medium and low alienation totals.	.009	Model 2 - Model 3: Differences between schools.	6.5	15.58	17/3772	.000
Model 4.	18 categories: totals for each of the 18 schools.	.073	Model 2 - Model 4: Differences between alienated and non-alienated students.	.1	.28	2/3772	.631

[a]Using Model 2 in place of Model 1 pools variance due to interaction with error.

TABLE XIII

RESULTS OF REGRESSION ANALYSIS PREDICTING PERCEIVED BUREAUCRATIZATION ON FACTOR II: BEHAVIOR CONTROL FROM ALIENATION AND SCHOOL VARIABLES
N = 3792

Predictors	RSQ	Sources of Variance[a]	% Criterion Variance Accounted for	F	Df	Prob.
Model 1. 54 categories: high, medium and low alienation by 18 schools.	.319					
Model 2. 21 categories: high, medium and low alienation totals plus totals for each of the 18 schools.	.311	Model 1 - Model 2: Interaction between alienation and schools.	.8	1.34	34/3730	.106
Model 3. 3 categories: high, medium and low alienation totals.	.290	Model 2 - Model 3: Differences between schools.	2.1	3.18	17/3772	.000
Model 4. 18 categories: totals for each of the 18 schools.	.061	Model 2 - Model 4: Differences between alienated and non-alienated students.	25.0	683.57	2/3772	.000

[a]Using Model 2 in place of Model 1 pools variance due to interaction with error.

TABLE XIV

RESULTS OF REGRESSION ANALYSIS PREDICTING ALIENATION FROM SCHOOL FROM STATUS MAINTENANCE, BEHAVIOR CONTROL, AND CONTROL VARIABLES
N = 1891

	Predictors	RSQ	Source of Variance[a]	% Criterion Variance Accounted for	F	Df	Prob.
Model 1.	4 categories: 4 Quadrants of bureaucratic structure plus control variables.	.226					
Model 2.	4 categories: high and low on Status Maintenance, high and low on Behavior Control, plus control variables.	.225	Model 1 - Model 2: Interaction between factors of bureaucratization.	.1	2.54	1/1864	.110
Model 3.	2 categories: high and low on Behavior Control, plus control variables.	.212	Model 2 - Model 3: Status Maintenance.	1.3	31.26	1/1865	.000
Model 4.	2 categories: high and low on Status Maintenance, plus control variables.	.218	Model 2 - Model 4: Behavior Control.	.7	15.49	1/1865	.000
Model 5.	Control variables.	.200	Model 1 - Model 5 Status Maintenance plus Behavior Control.	2.6	20.36	3/1864	.000

[a]Using Model 2 in place of Model 1 pools variance due to interaction with error.

TABLE XV

ADJUSTED AND UNADJUSTED MEANS OF ALIENATION IN EACH QUADRANT OF BUREAUCTRATIC STRUCTURE
(AS INDEXED BY STUDENTS)

Variable	Unadjusted Means				Adjusted Means			
	Quadrants				Quadrants			
	I	II	III	IV	I	II	III	IV
Alienation from School	-.036	-.261[a]	.088	.320[b]	-.590	-.970[a]	-.600	-.418[b]
Self-estrangement	.006	-.282[a]	.142	.353[b]	-.553	-1.096[a]	-.588	-.448[b]
Misfeasance	-.076	-.141[a]	-.016	.294[b]	-.698	-.756[a]	-.656	-.370[b]
Powerlessness	.061	-.173[a]	-.033	.133[b]	-.263[b]	-.640[a]	-.453	-.333
Futility of Extra-Curricular Activities	-.086	-.114[a]	.086	.198[b]	-.126	-.329[a]	.022	.065[b]
Meaninglessness	-.044	-.305[a]	.132	.309[b]	-.658	-.999[a]	-.661	-.479[b]
Number of Cases	611	464	411	405	611	464	411	405

[a]Most highly alienated students in the row.

[b]Least alienated students in the row.

TABLE XVI

RESULTS OF REGRESSION ANALYSIS PREDICTING ALIENATION FROM SCHOOL CATEGORIES AND CONTROL VARIABLES
N = 1891

	Predictors	RSQ	Source of Variance	% Criterion Variance Accounted for	F	Df	Prob.
Model 1.	18 categories: one category per school plus control variables.	.235	Model 1 - Model 2				
Model 2.	Control Variables	.200	Differences between schools.	3.5	4.92	17/1850	.000
Model 3.	10 categories: one category per school	.064	Model 1 - Model 3 Control Variables	17.1	18.01	23/1850	.000

TABLE XVII

CORRELATIONS BETWEEN STUDENT PERCEIVED STATUS MAINTENANCE, BEHAVIOR CONTROL, AND STUDENT ALIENATION FROM SCHOOL
N = 18

Variable	1	2	3
1. Student Alienation from School	1.00		P .01 = .52 P .05 = .38
2. Status Maintenance	.45	1.00	
3. Behavior Control	-.75	-.14	1.00
Means	.013[a]	-.342	-.194
Standard Deviations	.273	.158	.319

[a]The higher the alienation score, the less alienated the student. These results confirm the findings presented in Table XLIX (p.243).

TABLE XVIII

RESULTS OF REGRESSION ANALYSIS PREDICTING ALIENATION FROM SCHOOL FROM AVERAGE STUDENT PERCEPTIONS OF STATUS MAINTENANCE AND BEHAVIOR CONTROL
N = 18

	Predictors	RSQ	Source of Variance	% Criterion Variance Accounted for	F	Df	Prob.
Model 1.	Status Maintenance Behavior Control	.689					
Model 2.	Behavior Control	.565	Status Maintenance	12.4	5.98	1/15	.027
Model 3.	Status Maintenance	.204	Behavior Control	48.5	23.36	1/15	.000

Notes

[1]School bureaucratization refers to the extent to which schools are bureaucratically organized.

[2]In this case the use of term "syndrome" is similar to its medical usage where it refers to a set of concurrent symptoms of a disease. It is a term which has been applied to alienation in order to denote that the concept is composed of a mumber of variables.

[3]Evidence of the extent to which the staff of the free school had succeeded in "de-bureaucratizing" their school is ample: the students are on a first-name basis with the staff, there are no exams, the students aren't enrolled in a program, but merely attend those classes which they find interesting, there are no attendance reports and no grades. The "principalship" of the school is rotated among the staff members from month to month; the job and paperwork that goes with it being regarded as one of the necessary evils of running the school, and the school is not organized into "grades" or "classes".

The most striking example of the difference between this and the more familiar bureaucratic school is found in a daily noon hour meeting. This meeting forms the basis for planning what will be done in the school and for allocating responsibility for most of the routine housekeeping chores. These decisions, rather than being pre-programmed and planned in advance as they are in a bureaucracy (March and Simon, 1958, pp. 162-164), are discussed and debated at length in a meeting involving all of the students and teachers and in which each student and teacher has but one vote. This "power equalization", is a management technique which differs markedly from those found in bureaucracies.

The private boys' school was intended to prepare the sons of relatively affluent people for entrance to university. The school exhibited several characteristics which indicate that it is more bureaucratic than the "free" school. Teachers and students address each formally, there is a pre-planned program of classes and activities over which the students have no control, there is a strong emphasis on success in examinations, and there are rules which regulate the conduct of pupils both in class and during their "free" time in the school.

[4]Grade 10 students were selected because they have generally been in a secondary school for at least a year; and because it is the last year in which most students are legally required to attend school in Ontario. Selecting grade 11 students could result in a sample from which a large number of alienated students have been removed, while grade 9 students might not have been able to form well-developed ideas about their school's bureaucratic structure.

[5]"The most neglected of all problems in factor analysis is un unquestionably that of obtaining factor-scores for individuals. The reason for this, simply, is that it is impossible. The common

part of a test is a non-observable, hypothetical random variable. Consequently, facotr-scores cannot be calculated. The best that can be done is to approximate them via least-squares. If, in factor analysis the number of common factors is small it may readily be proved that this approximation to factor-scores is, in a certain sense, the "worst" possible--the common -factor space is in outer space, maximally removed from the test-space when the number of common factors is a minimum. The approach suggested in this paper stands in stark contrast to this unpalatable situation in traditional factor analysis. Images are not hypothetical; they are observable--the image space is the same as, or is a sub-space of the test-space. Consequently, factor-scores based on factors derived from the image space are exactly determinable by a straightforward calculation." (Kaiser, 1958a: 8).

[6]Dimensions are listed in order of the magnitude of their loading on the factors.

[7]Guttman notes that the Radex need not be limited to two-dimensional space, as it could be expanded into a multidimensional space without loss of the basic distinctions between order and complexity.

[8]Foa (1962) and Guttman (1966) have set out (in another substantive context) some of the methodological procedures which would be required for detailed application of Radex Theory to the bureaucratic model.

[9]A Radex "map", on which dimensions are located, is shown in Figure 1. This "map" is in factor space, while Guttman's (1954) is in test space.

[10]Bottenberg and Ward (1963, pp. 32-48) and Kelly et al (1969, pp. 268-275) contain excellent explanations of the procedure.

[11]Highly alienated students are more than one standard deviation above the mean, low alienated students are below one standard deviation below the mean, medium alienated students are the remainder.

[12]The adjusted scores are those which would be obtained if all schools were "the same". Naturally, these are somewhat hypothetical, but nonetheless, they are worthy of note inasmuch as they clearly indicate that hypothesis eight must be rejected for factor two. (See Garrett, 1958, pp. 300-301 and pp. 407-408 for discussion of controls and adjusted scores in analysis of variance.

[13]As an odd outcome of the scoring system, the higher the alienation score, the less alienated the student.

[14]With the data at hand, it is as possible that alienation could cause perception of high bureaucratization as that perception of high bureaucratization could cause alienation.

[15]The quadrants were obtained by ranking the schools as indexed by the students of smaple "B" on each factor of bureaucratic structure. Schools located in quadrant I are in the first nine ranks on both factors, those in quadrant II are in the first nine ranks of Behavior Control, but the last nine of Status Maintenance; those in quadrant III

are in the last nine ranks on both factors; while those located in quadrant IV are in the first nine ranks of Status Maintenance but the last nine of Behavior Control.

[16] Model two is used in testing main effects because this pools whatever variance in alienation is attributable to interaction with error. This yields a conservative estimate of the strength of any main effects.

[17] In this case, the correlations between bureaucratization and alienation are based on school means, ie: on a sample size of eighteen. Again, the school means for the factors of bureaucratic structure are calculated from sample "B", while those for alienation are calculated from sample "A".

[18] The variance estimates in test three are calculated from squared multiple correlations based on a sample of only eighteen schools. These are not corrected for the small sample size since correction formulae (eg. Garrett, 1958, p. 416) tend to reduce small squared multiple correlations more (proportionately) than they reduce large coefficients. Since variance estimates are obtained by subtracting the relatively small squared multiple correlations of restricted models from the larger SMQs of unrestricted models, application of correction formulae tends to inflate the estimate of variance attributable to any one factor of bureaucratic structure.

BIBLICGRAPHY

Argyris, C. "The Individual and the Organization: Some Problems of Mutual Adjustment," Administrative Science Quarterly, 2:1-24, 1957.

_____. "The Individual and the Organization: An Empirical Test," Administrative Science Quarterly, 4:145-167, 1959.

Besag, F.P. Alienation and Education: An Empirical Approach. Buffalo, New York: Hertillon Press, 1966.

Blau, P.M. Bureaucracy in Modern Society. New York: Random House, 1956.

_____. The Dynamics of Bureaucracy. 2nd. ed. Chicago: University of Chicago Press, 1963.

Blauner, R. Alienation and Freedom. Chicago: University of Chicago Press, 1964.

Blishen, B.R. "The Construction and Use of an Occupational Class Scale." In B.R. Blishen, F.E. Jones, K.D. Naegele and J. Porter (eds.). Canadian Society: Sociological Perspectives. Toronto: MacMillan of Canada, 1965.

Bottenberg, R.A. and Ward, J.H. "Applied Multiple Linear Regression." Technical Documentary Report PRL-TDR-63-6. Springfield, Virginia: National Bureau of Standards Clearinghouse for Federal Scientific and Technical Information, AD 413-128, 1963.

Byles, J.A. "Alienation and Social Control." Interim Research Project on Unreached Youth (mimeo), 1967.

Clark, J.P. "Measuring Alienation Within a Social System," American Sociological Review, 24:849-852, 1959.

Cliff, N. "Orthogonal Rotation to Congruence, " Psychometrika, 31:33-42, 1966.

Crozier, M. The Bureaucratic Phenomenon. Chicago: University of Chicago Press, 1964.

Dean, D.G. "Alienation and Political Apathy," Social Forces, 38:185-189, 1960.

_____. "Alienation: Its Meaning and Measurement," American Sociological Review, 26:753-758, 1961.

Durkheim, E. Professional Ethics and Civic Morals. Glencoe, Illinois: The Free Press, 1958.

Erbe, W. "Social Involvement and Political Activity: A Replication and Elaboration," American Sociological Review, 29:198-215, 1964.

Evans, G.T. "The Growth of Mathematical Ability in Adolescents." Unpublished Ph.D. dissertation, University of Queensland, 1965.

Foa, U.G. "The Structure of Interpersonal Behavior in the Dyad." In J.H. Criswell, H. Solomon, and P. Suppes (eds.). Mathematical Methods in Small Group Processes. Stanford, California: Stanford University Press, 1962.

Garrett, H.E. Statistics in Psychology and Education. Toronto: Longmans, Green and Co., 1958.

Gerth, H.H. "The Nazi Party: Its Leadership and Composition." In R.K. Merton et al. (eds.). Reader in Bureaucracy. Glencoe, Illinois: The Free Press, 1952, 100-103.

Gibson, W.A. "A Latent Structure for the Simplex," Psychometrika, 32:35-46, 1967.

Gold, D. "Independent Causation in Multi-Variate Analysis: The Case of Political Alienation and Attitude to a School Bond Issue," American Sociological Review, 25:645-654, 1960.

Gouldner, A. Patterns of Industrial Bureaucracy. Glencoe, Illinois: The Free Press, 1954, 410-418.

Guttman, L. "Image Theory for the Structure of Quantitative Variates," Psychometrika, 18:277-296, 1953.

_____. "A New Approach to Factor Analysis: The Radex." In P.F. Lazarsfeld (ed.). Mathematical Thinking in the Social Sciences. Glencoe, Illinois: The Free Press, 1954.

_____. "Order Analysis of Correlation Matrices." In R.B. Cattell (ed.). Handbook of Multi-Variate Experimental Psychology. Chicago: Rand McNally and Company, 1966.

Hall, R.A. "An Empirical Study of Bureaucratic Dimensions and Their Relation to Other Organizational Characteristics." Unpublished Ph. D. dissertation, The Ohio State University, 1961.

_____. and Tittle, C.R. "A Note on Bureaucracy and its Correlates," American Journal of Sociology, 72:267-272, 1966.

Harman, H.H. Modern Factor Analysis. Chicago: University of Chicago Press, 1960.

Harp, J. and Richer, S. "Sociology of Education," Review of Educational Research, 39:671-694, 1969.

Heady, F. "Bureaucratic Theory and Comparative Administration," Administrative Science Quarterly, 3:509-525, 1959.

Hendrickson, A.E. and White, P.O. "Promax: A Quick Method for Rotation to Oblique Simple Structure," The British Journal of Statistical Psychology, 17:65-70, 1964.

Kaiser, H.F. "The Best Approximation of a Common Factor Space." Berkeley: University of California Research Report No. 25, Contract No. AF 41(657)-76, 1958a.

_____. "Image Analysis." In C.W. Harris (ed.). Problems in Measuring Change. Madison, Wisconsin: University of Wisconsin Press, 1963.

_____. "The Varimax Criterion for Analytic Rotation in Factor Analysis," Psychometrika, 23:187-200, 1958b.

Kelly, F.J., Beggs, D.L. and McNeil, K.A. Research Design in the Behavioral Sciences: Multiple Regression Approach. Carbondale, Illinois: Southern Illinois University Press, 1969.

Kerlinger, F.N. Foundations of Behavioral Research. New York: Holt, Rinehart and Winston, 1966.

Kolesar, H. "An Empirical Study of Client Alienation in the Bureaucratic Organization." Unpublished Ph. D. dissertation, The University of Alberta, Edmonton, 1967.

Mackay, D.A. "An Empirical Study of Bureaucratic Dimensions and Their Relation to Other Characteristics of School Organizations." Unpublished Ph. D. dissertation, The University of Alberta, Edmonton, 1964.

March, J.G. and Simon, H.A. Organizations. New York: John Wiley, 1958.

Marx, K. Economic and Philosophical Manuscripts of 1844. Moscow: Foreign Languages Publishing House, 1961.

Mannheim, K. Man and Society in an Age of Reconstruction. New York: Harcourt Brace, 1940.

McClosky, H. and Schaar, J.H. "Psychological Dimensions of Anomy," American Sociological Review, 30:14-40, 1965.

Merton, R.K. Social Theory and Social Structure. Glencoe, Illinois: The Free Press, 1949.

Middleton, R. "Alienation, Race and Education," American Sociological Review, 28:973-977, 1963.

Mier, D.L. and Bell, W. "Anomia and Differential Access to Life Goals," American Sociological Review, 24:189-202, 1959.

Miller, D.C. Handbook of Research Design and Social Movement. New York: David McKay, 1964.

Misruchi, E.H. "Social Structure and Anomia in a Small City," American Sociological Review, 25:645-654, 1960.

Neal, A.G. and Rettig, S. "Dimensions of Alienation Among Manual and Non-Manual Workers," American Sociological Review, 28:599-608, 1963.

_____. and Seeman, M. "Organizations and Powerlessness: A Test of the Mediation Hypothesis," American Sociological Review, 28:216-226, 1964.

_____. and Rettig, S. "On the Multi-Dimensionality of Alienation," American Sociological Review, 32:54-64, 1967.

Nisbet, R.A. The Quest for Community. New York: Oxford, 1953.

Pearlin, L.I. "Alienation from Work: A Study of Nursing Personnel," American Sociological Review, 27:314-326, 1962.

Presthus, R.V. "Weberian vs. Welfare Bureaucracy in Traditional Society," Administrative Science Quarterly, 6:1-24, 1961.

Pugh, D.S., Hickson, D.J., Hinings, C.R., MacDonald, K.M., Turner, C. and Lupton, T. "A Conceptual Scheme for Organizational Analysis," Administrative Science Quarterly, 8:289-315, 1963.

Punch, K.F. "Bureaucratic Structure in Schools and Its Relation to Leader Behavior: An Empirical Study." Unpublished Ph. D. dissertation, The University of Toronto, Toronto, 1967.

Rosenberg, M. "Some Determinants of Political Apathy." In H. Eulau, S.J. Eldersveld, and M. Janowitz (eds.). Political Behavior. Glencoe, Illinois: The Free Press, 1956.

Seeman, M. "On the Meaning of Alienation," American Sociological Review, 24:783-791, 1959.

_____. "Alienation and Social Learning in a Reformatory," American Journal of Sociology, 69:270-284, 1963.

Selznick, P. TVA and the Grass Roots. Los Angeles: University of California Press, 1949.

Siegel, S. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill, 1956.

Struening, E.L. and Richardson, A.H. "A Factor Analytic Exploration of the Alienation, Anomia, and Authoritarianism Domain," American Sociological Review, 30:768-776, 1965.

Weber, M. From Max Weber: Essays in Sociology. H. Gerth and C.W. Mills (eds.). New York: Oxford, 1946.

_____. The Theory of Social and Economic Organization. Trnaslated by A.M. Henderson and T. Parsons, Glencoe, Illinois: The Free Press, 1947.

Welch, B.L. "The Significance of the Difference Between Two Maans When the Population Variances are Unequal," Biometrika, 29:350-362, 1938.