Data collected from 297 teachers and 7,376 students in 20 urban high schools were used to examine relationships between dimensions of bureaucratic structure and pupil control orientation and behavior. Results of the analyses revealed two distinct patterns of rational organization. Hierarchy, rules, impersonality, and centralization comprised the first set of organizational characteristics, and specialization and expertise comprised the second set. Both pupil control orientation and behavior were positively correlated with the first set of dimensions and negatively correlated with the second set. Also, significant differences in bureaucratization, pupil control orientation, and pupil control behavior were found among the 20 high schools, suggesting that urban high schools can be differentiated based on structural components. (Contains 5 tables and 83 references.) (SLD)
BUREAUCRACY AND PUPIL CONTROL ORIENTATION
AND BEHAVIOR IN URBAN SECONDARY SCHOOLS

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Abstract

Data collected from 297 teachers and 7,376 students in twenty urban high schools were used to examine relationships between dimensions of bureaucratic structure and pupil control orientation and behavior. Results of the analyses revealed two distinct patterns of rational organization. Hierarchy, rules, impersonality, and centralization comprised the first set of organizational characteristics, and specialization and expertise comprised the second set. Both pupil control orientation and behavior were positively correlated with the first set of dimensions and negatively correlated with the second set. Also, significant differences in bureaucratization, pupil control orientation, and pupil control behavior were found among the twenty high schools, suggesting that urban high schools can be differentiated based on structural components.
BUREAUCRACY AND PUPIL CONTROL ORIENTATION
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Public schools, in this case, secondary schools, exhibit many of the same characteristics as bureaucratic organizations. Weber's (1947) classic analysis of bureaucracy is the theoretical basis of most contemporary treatments of the bureaucratic nature of public schools (Blau & Scott, 1962; Bolman & Deal, 1997; Hall, 1962, 1991; Perrow, 1986; Scott, 1992). Many school administrators adopt the bureaucratic model, and this may explain why the model can be used to analyze behavior in schools (Abbott, 1965; Abbott & Caracheo, 1988; Chubb & Moe, 1990; Corwin & Borman, 1988; Firestone & Herriott, 1981; Gronn, 1996; Hoy & Miskel, 1996; Miles, 1965; Meyer & Rowan, 1978).

In Weber's (1947) ideal-type bureaucracy, the person in command is superior to subordinates within a functionally defined competency. The typical official is a trained specialist who evidences impersonality in dealings with those within the organization, follows rational rules, and channels obedience through a hierarchy of authority, which subordinates lower to higher offices. This perspective is consistent with Waller's (1967) description of the organization of the school as one which emphasizes dominance of teachers and the subordination of students.

In a field study of a junior high school, Willower and Jones (1967) found that although many factors influenced the organization of the school, pupil control was a dominant motif, the integrative theme that gives meaning to patterns of teacher-teacher and teacher-principal interactions. Subsequent research has underscored the saliency of pupil control orientation and behavior in the organizational life of public schools (Packard, 1988). These studies support Waller's analysis of the school as a small social system in which social interactions between and among the teachers and the principal center around teaching and learning and determines the political structure of the school.

Instruments developed to measure the bureaucratic structure of public schools portray the characteristics of bureaucracy within them by assessing various aspects of teacher-teacher and
teacher-principal interactions. However, the pupil control orientation and behavior of professional personnel are not included as an aspect of the bureaucratic structure of schools. Etzioni refers to the pupil in the school as the lower participant and states: "... we treat organizations as collectivities of which the lower participants are an important segment. To exclude them from analysis would be like studying ... a political regime without the citizens" (Etzioni, 1975, p. 29). The establishment of a relationship between bureaucracy and the pupil control orientation and behavior of schools would be an important first step in establishing a link between bureaucracy and the lower participant, the pupil. Thus, the purpose of this paper is to examine the relationship between the pupil control orientation and behavior of professional personnel and dimensions of bureaucracy in urban secondary schools.

**CONCEPTUAL FRAMEWORK**

**Bureaucracy**

Weber (1947), in his seminal work on bureaucracy, described bureaucratic organizations from the dimensional perspective. That is, he listed a number of organizational characteristics that, when present, constitute the bureaucratic form of organization. These dimensions, including division of labor, hierarchy of authority, rules and regulations, impersonality, and career orientation, have served as the basis for subsequent delineations of bureaucratic structure (pp. 330-334).

Critics emerged to dispute Weber's mainly functional analysis of bureaucracy. Merton (1940) contended that the discipline needed for obtaining standardized behavior in a bureaucratic organization will bring about displacement of goals. Such a dysfunctional result will be a consequence of the resistance to standardized behavior that is imposed mechanically upon individuals in an organization. Selznick (1949) used arguments similar to Merton regarding unanticipated consequences but applied his schema to specialization. Gouldner (1954) addressed the issue of close supervision and the imposition of bureaucratic rules to illustrate the
dysfunctional aspects of bureaucratic structure. Blau & Scott (1962) and others (Scott, 1992) suggested that a communication blockage is a dysfunctional aspect of the hierarchy of authority dimension.

Another criticism of Weber's ideal type bureaucracy is its neglect of the informal work group. Teachers, administrators, and students within schools inevitably generate their own informal systems, which contain structural, normative, and behavioral dimensions (Coleman, 1961; Gordon, 1957; Jackson, 1990, Waller, 1967). These informal systems include informal structure, informal norms, informal patterns of leadership, communication, and working arrangements which can be constructive or destructive on the formal organization (Barnard, 1938; Iannacone, 1962; Lunenburg, 1995; Lunenburg & Ornstein, 2000; Mayo, 1933; Peters & Waterman, 1982; Robbins, 1991; Roethlisberger & Dickson, 1939).

The professional-bureaucratic dilemma inherent in organization structure has also been used to criticize Weber's description of bureaucracy as a connected set of variables that form a unitary whole. Merton (1957), Mills (1951), Lewis & Maude (1953), and other investigators (Ben-David, 1958; Bendix, 1960; Daniels, 1969 Goldner & Ritti, 1967; Hall, 1968; Whyte, 1957) contend that bureaucracy can be particularly detrimental to professionals because it limits autonomy and expertise, important elements of professionalism. Other investigators (Barnard, 1938; Bidwell, 1965; Blau, 1955; Bucher & Stelling, 1967; Dalton, 1961; Glaser, 1964; Gross & Etzioni, 1985; Janowitz, 1960; Kornhauser, 1962; Mintzberg, 1979; Scott, 1981, 1987, 1992), however, argue that, while some conflict exists between professional and bureaucratic principles, the two arrangements are not incompatible in all respects.

Common to many of these early studies of bureaucracy are two assumptions: first, bureaucracy is either present or absent; second, bureaucracy is a unitary concept – that is, the Weberian characteristics vary together. More recent research has provided data that challenge these assumptions (Hall, 1963; MacKay, 1964; Pugh & Hickson, 1976; Punch, 1969; Sousa & Hoy, 1981). There seems to be substantial agreement that organizations vary in the extent to
which they exhibit bureaucratic characteristics and that bureaucracy exists along a continuum, rather than being a condition that is either present or absent. This point may be embellished to state that bureaucracy is a form of organization that exists along a number of continua or dimensions. Hence, it is more useful to study bureaucracies in terms of a set of dimensions or structural characteristics of organizations. It is then possible to describe an organization in terms of a profile of its structural properties and to relate the profile to other organizational, group, or individual behavior.

One of the first and most systematic attempts to measure bureaucracy using a dimensional perspective is Hall’s (1963) formulation. Hall’s Organizational Inventory has been modified for use in schools by a host of researchers (Isherwood & Hoy, 1973; Kolesar, 1967; MacKay, 1964; Punch, 1969; Robinson, 1966; Spinks, 1980; Zaller, 1987). More recently, Anderson (1970, 1971, 1973, 1974) measured bureaucratic patterns in secondary schools using the School Description Inventory (SDI) that operationalizes, with some variations, the six dimensions formulated earlier by Hall and adapted for use in schools by other researchers.

Anderson defined the six specific dimensions of bureaucracy as follows:

*Hierarchy of Authority* - the extent to which a clearly defined system of superordinate-subordinate relationships exists.

*Subject Matter Specialization* - the extent to which there is a division of labor based upon functional specialization as it applies to subject matter taught or learned.

*Rules and Regulations* - the extent to which a system of rules covering the rights and duties of members of the organization exists and a set of specifications which regulate how the work of the organization is to be done.

*Impersonality* - the extent to which interpersonal relations between members of different hierarchical strata are conducted impersonally.

*Technical Competence* - the extent to which promotion and selection of personnel is based upon technical competence and training.
Centralization of Control - the extent to which members of the organization are given individual freedom to act without the consent or approval of superiors.

Each of these dimensions is treated as a separate continuum. These dimensions of bureaucracy are the basis of the analysis of the organizational structure of the secondary schools studied.

Pupil Control

A plethora of research has underscored the saliency of pupil control in the organizational life of public schools (Packard, 1988). The importance of pupil control in schools is not surprising. Schools are people-developing or people-changing institutions. The objectives of the school as a social institution are to achieve major changes in the child. These changes are not restricted to cognitive behavior (learning) but include a wide range of social, emotional, physical, and, in some cases, moral behavior (Bidwell, 1965). Organizations that achieve or attempt to achieve the most thoroughgoing change are performing functions crucial to the maintenance of social control.

Furthermore, schools accept as conscripted clients all those who legally must attend. That is, neither the organization (school) nor the client (student) exercises choice concerning participation in the relationship (Carlson, 1964). The mandatory nature of the pupil’s participation suggests that schools are dealing with clients whose motivations and desires for the school’s services cannot be assumed. It seems reasonable that pupil control would be a major concern.

The teacher receives relatively little help in this task of pupil control. The absence of a contractual agreement between a pupil and his teacher and the lack of an elaborate, defined technology means that the teacher must rely on her own ability to establish rapport with the students, and through the impact of personality, awaken enthusiasm for the learning process. The teacher daily must resolve the conflict between the personalistic, affective demands of the pupil-teacher relationship in the learning process, and the exercise of organizational demands for control and order (Coleman, 1961; Darling-Hammond & Sykes, 1999; Emmer, 2000; Good &
Bureaucracy


Pupil Control Orientation

Pupil control has been conceptualized along a continuum from custodial at one extreme to humanistic at the other (Willower, Eidell, & Hoy, 1967). The model of the custodial perspective is the traditional school that provides an inflexible and highly controlled setting concerned primarily with maintaining order. Students are stereotyped according to their appearance, behavior, and family social status. Teachers who hold a custodial orientation conceive of the school as an autocratic organization with a rigid pupil-teacher status hierarchy. The flow of power and communication is unilaterally downward. Students must accept the orders of their teachers without question. Teachers do not attempt to understand misbehavior, but instead view it as a personal affront. Students are perceived as irresponsible and undisciplined persons who must be controlled through punitive measures. In brief, impersonality, pessimism, and watchful mistrust pervade the atmosphere of the custodial school.

The model of the humanistic perspective is the school as an educational community in which students learn through cooperative interaction and experience. Learning and behavior are viewed in psychological terms, not moralistic ones. Self-discipline is substituted for strict teacher control. Humanistic orientations lead teachers to desire a democratic atmosphere with open channels of two-way communication between pupils and teachers and increased self-determination. In sum, a humanistic orientation is used in the sociopsychological sense suggested by Fromm (1948); it indicates an orientation that stresses the importance of the individually of each student and the creation of a climate to meet the wide range of student needs.

Pupil Control Behavior

The concepts of custodialism and humanism provide a way of thinking about educator orientations toward pupil control. These concepts can be employed in terms of ideology or in terms of behavior. That is, we can speak of an educator whose orientation concerning pupil
control is relatively custodial or humanistic, and we can speak of an educator whose controlling behavior is relatively custodial or humanistic. The study of educators' pupil control orientation rather than their pupil control behavior has provided only a partial view of pupil control in school organizations. "Obviously, ideology may or may not be reflected in behavior" (Helsel & Willower, 1974, p. 6).

To allow a more complete view of pupil control in the school, the construct of pupil control behavior was conceptualized (Helsel & Willower, 1974). This construct is also based on a custodial-humanistic continuum. The concept of pupil control behavior builds upon and is companion to the extensive earlier work on pupil control orientation in educational organizations. Specifically, it represents an attempt to define and measure pupil control behavior using the same theoretical framework that guided the earlier investigations. Prototypes of custodial and humanistic pupil control behaviors follow (Helsel & Willower, 1974).

Custodial educators strive to maintain a high degree of order among pupils. These educators are impersonal and aloof in their relationships with students and are stringent and unyielding in dealing with them. Threats and punitive sanctions are used as means of control. Custodial educators manifest suspicion and distrust of pupils, often addressing them in an unpleasant or angry manner. These educators react personally and judgmentally toward students who misbehave.

Humanistic educators strive to establish a basis of mutual respect and friendship in their relationships with pupils. They are patient, congenial, and easily approached by students. These educators are responsive to student suggestions and ideas and encourage pupil self-discipline and independence. They are flexible and tolerant in dealing with students and try to understand misbehavior.

**RATIONALE AND HYPOTHESES**

Recent emphasis in understanding behavior in organizations has been directed toward observing and analyzing the leadership behavior of role incumbents who occupy positions of
influence and control within the organizational structure (Luthans, 1999). Recent efforts are rooted in earlier attempts to analyze hierarchical influence by focusing on the identification of "actors" who exert influence. The term "actor" refers to specific individuals within the organization whose behavior is determined to be a reference point for organizational direction (Lasswell & Kaplan, 1950).

March and Simon (1993) argue convincingly that hierarchical influence is simply a special instance of causality; namely, the modification of one person's behavior by the actions of another. Consequently, in the analysis of hierarchical influence proposed by March and Simon, "roles" and the behavior of individuals who occupy these roles are the essential elements. The extent to which the behavior of the principal extends throughout the organization and affects the actions and behavior of a subordinate level of management, the teachers, is of major significance, particularly since the effects of such hierarchical influence is primarily directed toward the school's clients, the students.

Likert (1961, 1967, 1979, 1987) dealt extensively with hierarchical influence in his "interaction-influence" principle. He discusses in detail the interaction-influence process in terms of its effect on subordinates' goal achievement, cooperative teamwork, information flow, and the like. Likert (1961, 1967, 1979, 1987) further observed that subordinates reflect their leaders' principles through their behavior and implied that management levels tend toward a homogeneity of behavior throughout all levels of the organization.

More recently, Gray and Starke (1991) recognize that in any complex organization the flow of influence or authority is not unilateral and downward – from leader to subordinate – but also upward from subordinate to leader. Their "reciprocal influence theory" states that certain leader behaviors cause subordinate behaviors, and certain acts of subordinates (for example, low performance) can cause the leader to modify her behavior.

McGregor (1960) implied hierarchical influence, in his Theory X and Theory Y formulation, based on the leader's assumptions about the nature of people. Moreover, Ouchi
(1993) crystallizes hierarchical influence associated with the total organization in his Theory Z formulation. Ouchi’s Theory Z is an extension of McGregor’s Theory X and Theory Y construct. The principle difference is that McGregor’s Theory X and Theory Y formulation is an attempt to distinguish between the personal leadership styles of an individual leader, whereas Theory Z is concerned with the “culture of the whole organization.” That is, Theory Z is concerned with the difference the organizational culture makes in the way the whole organization is put together and managed.

Further evidence of hierarchical influence is provided by Blake and Mouton (1994). Their Leadership Grid is based on the assumption that each leader has a discernible style of leadership which is based on the degree of the leader’s concern for both production and people. The Leadership Grid portrays five key leadership styles, each style resulting in certain implications for organizational behavior. Argyris (1993) notes the negative effects of leader behavior that suggests a mechanistic view of man. He stresses the importance of mutual supportiveness in an attempt to integrate the individual and the organization (Argyris, 1990).

A widely known framework for administrative behavior in schools is the social systems analysis developed by Getzels and Guba (1957). In Getzels and Guba’s social systems theory, behavior is seen as a function of the interaction between unique personalities and preestablished roles within the organization. According to Getzels and Guba, administrative behavior may follow one of three general patterns of hierarchical influence: the nomothetic style, the idiographic style, and the transactional style.

Halpin (1956) utilized “initiating structure” and “consideration” as two fundamental dimensions of leadership behavior. Moreover, the interaction between principal behavior and teachers’ behavior was demonstrated to be a significant factor in determining the organizational climate of schools (Halpin & Croft, 1963; Hoy & Clover, 1986; Kottkamp, Mulhern, & Hoy, 1987). Subsequently, organizational climate has found wide use as an explanation of differences
in the performance of schools and the hierarchical influence relationship between and among the principal and the teachers. (Lunenburg & Ornstein, 2000; Miskel & Ogawa, 1988).

Pursuing additional insight into hierarchical influence in schools, Anderson (1970, 1971, 1993, 1974) used a dimensional approach to conceive and operationalize bureaucracy, conceptually anchored in the Weberian framework. Subsequent research using various instrumentation generated and tested several hypotheses with regard to the effect of bureaucracy on other personal and organizational variables (Abbott & Caracheo, 1988). Such research substantiated the notion that bureaucracy is an organizational variable that significantly affects other components within the school organization.

In a field study of one junior high school, Willower and Jones (1967) described pupil control as the “dominant motif” within the social system of the school, the integrative theme that gives meaning to patterns of teacher-teacher and teacher-principal relations. Explanations for some of the differences exhibited in this observable phenomenon were initiated by the work of Willower, Eidell, and Hoy (1967). Adapting a typology employed in the study of control ideology of mental hospital staff members concerning patients, prototypes of custodial and humanistic orientations toward pupil control were developed and tested (Willower, Eidell, & Hoy, 1967). Later parallel constructs were developed for pupil control behavior (Helsel & Willower, 1974). Conceptual frameworks were employed, based on status relations in formal, service-type organizations, and a number of predictions and hypotheses were empirically tested (Packard, 1988).

Hierarchical influence in mediating superordinate-subordinate relationships is firmly rooted in previous research. In this investigation, teachers are considered to be a logical extension of hierarchical influence, and as such, would reflect the tendency for management systems to be internally consistent. Put another way, a principal’s influence within the hierarchical system of the school may in part condition the way dimensions of bureaucracy, as perceived by teachers, affect the teacher’s pupil control orientation and behavior. Assuming such a connection, the
investigators proposed a relationship between dimensions of bureaucracy, in terms of hierarchy of authority, rules and regulations, impersonality, centralization of control, treated as separate continua, and the pupil control orientation and behavior of teachers. Previous research has indicated that these continua do not necessarily vary together (Anderson, 1970, 1971, 1973, 1974; MacKay, 1964; Punch, 1969; Robinson, 1966). The first four dimensions were negatively correlated with the last two. Therefore, the following two sets of related hypotheses are proposed. First, there is a positive relationship between overall bureaucratization and hierarchy of authority, rules and regulations, impersonality, centralization of control and a custodial pupil control orientation as perceived by teachers; there is an inverse relationship between specialization and technical competence and custodial pupil control orientation. Second, there is a positive relationship between overall bureaucratization and hierarchy, rules, impersonality, centralization and a custodial pupil control behavior as perceived by students; there is an inverse relationship between specialization and technical competence and custodial pupil control behavior.

Stated in other terms, it is anticipated that the empirical findings will show that on four dimensions of bureaucracy, there is a positive relationship with custodialism in pupil control orientation and behavior, and on two dimensions there is a negative relationship with custodialism. For example, a rigid hierarchy of authority, the presence of extensive rules and stringent procedures to enforce rules, impersonality in interpersonal relations, and centralization of control would appear to have a logical relationship with custodialism in pupil control orientation and behavior. On the other hand, a high degree of specialization and emphasis on technical competence as the basis for hiring and advancement seems incompatible with custodialism, especially in secondary schools which require competence in specialized subject matter areas such as mathematics, science, music, and the like.
METHOD

Sample

In order to examine the hypotheses of this study, a sample of urban public high schools was drawn from the listing of all public secondary schools in the most current *Midwestern Public High School Directory*. Using a table of random numbers, schools were drawn from the list in the directory until a minimum of 45 schools was selected. Several criteria were used in the selection of secondary schools for study. First, since the principal is important in the development and maintenance of a particular type of organizational structure, only schools with principals who were near the completion of at least their third year as full-time principals and who served in only one building were included in the sample. Second, the more recent research concerning school bureaucracy has been conducted in secondary schools, and this afforded a more realistic basis of comparison. Third, the School Description Inventory, the most recent survey instrument used to measure dimensions of bureaucracy, has been validated at the secondary level. Twenty schools that met the selection criteria agreed to participate in the study.

The size of the high schools in the sample ranged from 797 to 4026 students (with a mean of 1848 students), full-time teachers ranged from 59 to 197 (with a mean of 98 teachers per school). Classes were then randomly selected from within each school so as to sample approximately 10 per cent of the teachers. Thus, fewer classes were chosen in smaller schools and more in larger ones. Ninth through twelfth grade classes that met five periods per week were selected by the throw of a die for each grade level. The number of classes used at each school ranged from five to 20, with an average class size of about 25. All of the teachers and students selected in this manner completed appropriate operational measures of school bureaucratic structure, pupil control orientation, and pupil control behavior. Overall, 297 teachers and 7,493 students in these teachers’ classes participated in the study. However, some student responses to the pupil control behavior measure were unusable so the final sample size for that subject group
was 7,376. Mean scores for each of the 297 classrooms were computed, and the classroom scores for each variable were used to test the hypotheses. In addition, statistical tests of differences among the 20 schools on each of the variables were computed.

**Instruments**

To test the hypotheses, operational definitions were required for three major variables: school bureaucratization, (measured along six dimensions), pupil control orientation, and pupil control behavior. Measures used in previous studies were available for this purpose.

**Dimensions of Bureaucracy**

The School Description Inventory (SDI), developed for use in secondary schools (Anderson, 1970), was used to solicit teachers’ perceptions of the bureaucratic structure of schools. The SDI is a 38 item Likert-type instrument composed of six subscales. Each subscale measures one of six dimensions of bureaucratization: Hierarchy of Authority, Subject Matter Specialization, Rules and Regulations, Impersonality, Technical Competence, and Centralization of Control derived through factor analysis. Responses to each item of the SDI range over five choices from strongly agree to strongly disagree. Dimension scores are obtained by summing scores for each subscale in the inventory. On all dimensions the higher the score, the higher the perceived bureaucratization of the school by the respondent. Corrected split-half reliabilities of .80 or higher for each of the six bureaucratic dimensions were reported for the instrument, and it discriminated between schools judged to be bureaucratic and non-bureaucratic (Anderson, 1970).

Examples of items from each scale are:

1. **Hierarchy of authority scale:** “School officials frequently exercise their right to tell me what to do.”

2. **Subject matter specialization scale:** “I teach a large number of courses.” (reverse scored).

3. **Rules and regulations scale:** “I follow rules stating when I am to arrive and/or depart from the building.”
4. Impersonality scale: “My relationships with school authorities are very formal and impersonal.”

5. Technical competence scale: “My chances for success in this school depend entirely on my ability.”

6. Centralization of control scale: “In the final analysis, the principal of this school has a lot of authority over me.”

**Pupil Control Orientation**

The pupil control orientation of teachers was assessed by the PCI form (Willower, Eidell, & Hoy, 1967). The PCI is a Likert-type instrument including 20 items, such as “It is desirable to require pupils to sit in assigned seats during assemblies,” “Being friendly with pupils often leads them to become too familiar,” and “Pupils should not be permitted to contradict the statements of a teacher in class.” Responses are made on a 5-point scale in a strongly agree to strongly disagree format. The scoring range is 20 to 100, the higher the score the more custodial the orientation. The instrument has been used in more than 200 studies. Corrected split-half reliabilities of .91 and .95 were reported for this instrument, and it discriminated between teachers and schools judged to be custodial or humanistic (Willower, Eidell & Hoy, 1967). Further, numerous validity studies indicate that the PCI predicts many instructional and managerial behaviors as well as pupils' perceptions of their teachers (Packard, 1988).

**Pupil Control Behavior**

Students' perceptions of their classroom teachers pupil control behavior was assessed by the PCB form (Helsel & Willower, 1974). The PCB is a 20-item instrument in a Likert-type format. Examples of items (preceded by the words, “My teacher”) are “is cheerful and pleasant with students,” “Is bossy with students,” and “Gets angry with students.” Responses to each item range over five choices from “always” to “never”. The instrument is completed by students, and the score of a given teacher is the mean of the scores of the responding students in that teacher's class. The possible score range is from 20 to 100. Higher scores indicate more custodial pupil control.
control behavior, while lower scores indicate more humanistic behavior. The reported reliability of the PCB Form was .92 as estimated by Cronbach's alpha. Item-scale correlations for the instrument averaged .81, and a one-way analysis of variance indicated that the measure differentiated among subjects while clustering within subjects (Helsel & Willower, 1974).

RESULTS

The results of the study are reported first for the study hypotheses and then for the relationships among the dimensions of bureaucracy, pupil control orientation, and pupil control behavior by school.

Test of the Hypotheses

A series of Pearson product-moment correlation coefficients were performed to analyze the data and test the hypotheses. The dimensions of bureaucracy scores (overall bureaucratization, Rules and Regulations, Hierarchy of Authority, Impersonality, Subject Matter Specialization, Centralization of Control, and Technical Competence) were correlated first with mean PCI scores and then with mean PCB scores. The correlations showing the relationships among the study variables (PCI, PCB, SDI, and the six SDI dimensions are presented in Table 1.

Insert Table 1 about here

The two related hypotheses of the study were confirmed. As shown in Table 1, the results indicated that a high level of bureaucratization and Rules and Regulations, Hierarchy of Authority, Impersonality, and Centralization of Control were positively correlated with custodial pupil control orientation, with Pearson correlation coefficients of .63, .81, .67, .61, .78, respectively. Also, as predicted, Subject Matter Specialization and Technical Competence were negatively correlated with custodialism in pupil control orientation, with correlation coefficients of -.34 and -.67.
In addition, as shown in Table 1, all of the variables are correlated with each other at the .0001 level of significance. However, as expected, Rules and Regulations, Hierarchy of Authority, Impersonality, and Centralization of Control were negatively correlated with Subject Matter Specialization and Technical Competence. This finding was supported in previous studies (MacKay, 1964; Punch, 1969; Robinson, 1966) using MacKay's School Organizational Inventory, and prior to this study by Anderson (1970) using the SDI. When examining the relationship between PCI scores and PCB scores, the correlation coefficient is quite strong at .73 (p< .0001). This indicates that as teachers view themselves as more custodial or humanistic, the student PCB scores tend to follow a similar pattern. The correlation coefficient between SDI and PCI is relatively strong as well at .63 (p < .0001). This means that as the overall level of bureaucratization increases, custodialism in teacher pupil control orientation increases and as the overall level of bureaucratization decreases, custodial pupil control orientation decreases.

In terms of the subscale dimensions of SDI, a somewhat similar pattern exists. The higher the levels of Rules and Regulations, Hierarchy of Authority, Impersonality, and Centralization of Control, the higher the custodialism in pupil control orientation. Correlation coefficients on these dimensions range from a high of .81 (p < .0001) for RR to a low of .61 (p < .0001) on IM. And the higher the levels of Subject Matter Specialization and Technical Competence, the lower the custodialism in pupil control orientation.

In examining PCB with SDI and its related dimensions, a very similar pattern to that of PCI appears to exist. When examining SDI scores with student PCB scores, the correlation coefficient is somewhat weaker at .49 (p < .0001) than the SDI-PCI correlation. Nevertheless, the SDI-PCB relationship indicates that as teachers perceive their schools to be more or less bureaucratic, students perceive the pupil control behavior of teachers as more or less custodial.

In terms of the dimensions of SDI with PCB scores, a somewhat similar pattern exists. As with PCI, the higher the levels of Rules and Regulations, Hierarchy of Authority, Impersonality, and Centralization of Control, the higher the PCB scores (i.e., the more custodial the pupil control
behavior of the teacher as perceived by students). Correlation coefficients on these dimensions range from .65 (p < .0001) for RR to a low of .52 (p < .0001) for IM. And the higher the levels of Subject Matter Specialization and Technical Competence, the lower the PCB scores (i.e., the more humanistic the pupil control behavior of the teacher as perceived by students). Correlation coefficients ranged from -.30 (< .0001) for SMS to -.58 (> .0001) for TC.

In examining the SDI related dimensions with each other, the pattern of significant correlation coefficients persist. When examining Rules and Regulations scores with the Hierarchy of Authority scores, the correlation coefficient is quite strong at .74 (p < .0001). This indicates that as teachers perceive their schools to have lower or higher degrees of Rules and Regulations, their perceptions of the degrees of Hierarchy of Authority tend to follow a similar pattern. In terms of other dimensions of SDI with positive correlations (HA, IM, and CC), the same pattern holds. In these cases, the higher the RR scores, the higher the degree of each dimension. Correlation coefficients on these dimensions range from .88 for CC to a low of .69 for IM. As expected, negative correlations were found between RR and SMS and TC, with correlations ranging from -.40 (p < .0001) SMS to -.76 (p< .0001) for TC.

When examining Hierarchy of Authority scores with those with which it is positively correlated, namely IM and CC, the correlation coefficients hold to the previously discussed pattern. Hierarchy of Authority scores most strongly correlate with the CC dimension at .81 (p < .0001) and with the IM dimension at .62 (p< .0001). Negative correlations were found between HA and SMS and TC at -.31 (p< .0001) and -.51 (p< .0001), respectively.

Impersonality scores positively correlate with RR at .69 (p < .0001) followed closely by CC at .68 (p < .0001). This indicates that as teachers perceive lower or higher levels of Impersonality, their perceptions of the degrees of RR and/or CC within their schools tend to follow similar patterns.

When examining SMS scores, negative correlations exist with RR, HA, IM, and CC, and a positive correlation was found with TC, and SMS is the weakest of all the correlations. The
The strongest correlation for SMS is with RR at .40 (p < .0001). The weakest of all SMS correlations is with IM at .26 (p < .0001). All remaining dimensions fall within this low range.

In examining TC scores with the other 5 dimension scores, the same pattern persists. TC most strongly correlates with RR at .76 (p < .0001) followed by CC at .64 (p < .0001). Again, as Technical Competence scores increase, so do the above mentioned dimension scores. And, as expected, Technical Competence is positively correlated with Subject Matter Specialization, with a correlation coefficient of .39 (p < .0001).

In addition, two stepwise regression analyses were performed on the data. (See Tables 2 and 3.) Standard use of stepwise regression was employed. That is, the first predictor variable added was the one that correlated highest with the criterion; the next variable added was the one that, in concert with the first, best predicted the criterion, and so on. The final regression equation contained the variables that in combination represented the best predictive value while holding the other variables constant.

In the first regression analysis, PCI was the criterion variable with the independent variables being years of teacher experience, and the six dimensions of the SDI (RR, HA, IM, CC, SMS, TC). The following variables came into the model: RR explaining .67552 of the variance, followed by CC explaining an additional .0203 of the variance. The overall predictiveness of the model is 70 percent.

In the second regression analysis, PCB was the criterion variable with the independent variables being years of teacher experience, and the six dimensions of the SDI (RR, HA, IM, CC, SMS, TC). The following variables came into the model: RR explaining .41945 of the variance, followed by CC explaining an additional .016565 of the variance, and TC explaining an additional .01570 of the variance. The overall predictiveness of the model is 45 percent.
Comparison of SDI by School

To determine if the SDI responses differentiated among schools, a one-way analysis of variance was applied using responses of 297 teachers. If the analysis of variance indicated significant differences, Tukey's Honestly Difference Test was used to find wherein the difference fell. Table 4 provides SDI scores and SDI subscale scores for all schools, which measure the teachers' perceptions of the degree of bureaucratization in their school.

It is recognized that the perceptions of teachers of their school may well be at variance with the officially prescribed structure (i.e., the administrator's perception thereof). The official structure, however, is only as important as the degree to which it is implemented. If the actual school structure is a replica of the formal structure, then the formal structure as perceived by administration is the significant structural component. On the other hand, the degree of variation from the formal structure is the actual, practiced structure for day-to-day school operation. Accurate measurements of participant perceptions, (in this case, teacher perceptions of the level of bureaucratic structure and pupil control orientation and student perceptions of teacher pupil control behavior) should therefore yield a reliable and valid representation of actual organizational structure.

Insert Table 4 about here

Overall Bureaucratization (SDI)

The overall SDI mean score of the 297 teacher respondents was 98.4 (SD 32.3). Analysis of variance shows statistically significant differences between schoolteachers' overall mean SDI scores (F=31.5, p< .0001) by school. To further define the difference between schools, Tukey's Honestly Difference Test (HSD) was performed. Schools A and B have the lowest mean SDI scores (M= 48.3 and M=49.9 respectively). By far, School S (M=155.0) has the most highly perceived degree of bureaucracy by teachers as reflected by the mean SDI teacher scores at that
school. It differs significantly from all other schools except School R and School T. The bulk of the differences in SDI scores are between Schools A through H and Schools K, L, through T with mean scores of 48.3 through 86.1 and 115.0 through 115.0 respectively.

Rules and Regulations (RR)

As with the overall SDI, there are also significant differences in teacher scores by school in terms of Rules and Regulations (RR). The overall mean RR score of the 297 teachers who completed this subscale of the SDI is 43.1 (SD 14.6). Lower scores on this subscale represent low degrees of adherence to RR and higher scores greater adherence. The analysis of variance shows statistically significant differences between schoolteachers' overall mean RR scores (F=28.0, p ≤ .0001) between schools.

Tukey HSD further defined differences between teacher's mean RR scores. Schools A and B (M=21.3 and M=21.9 respectively) have by far the lowest mean RR scores. They significantly differ from Schools F, H, through T (means ranging from M=36.5 through M=64.8). School S (M=64.8) has the most highly perceived degree of RR by teachers reflected in the mean RR teacher scores. Again School S differs from the majority of the schools except Schools O, Q, R and T. The bulk of the differences in RR scores in schools are between Schools A through H and K through T (means ranging M=21.3 through M=37.2 and M=53.0 through M=64.8 respectively).

Hierarchy of Authority (HA)

There are significant differences in teacher scores by school in terms of Hierarchy of Authority (HA). The overall mean score of the 297 teachers who completed this subscale of the SDI is 15.2 (SD 6.2). On this subscale, lower scores represent a lower degree of perceived HA and higher scores represent a higher degree. The analysis of variance shows a statistically significant difference between teachers' overall mean HA score (F=12.2, p ≤ .0001) between schools.
Tukey HSD was used to further define the differences between teacher’s mean HA scores. School B has the lowest mean on the HA subscale (M=7.9). School B significantly differs from Schools H through T with mean scores ranging from M=13.6 through M=26.0. By far, Schools T and S (M=24.0, M=26.0) have the most highly perceived degree of HA by teachers as reflected in their mean HA teacher scores. The mean scores for these two schools are significantly different from every school sampled. They are not, however, significantly different from each other. The bulk of the differences in HA scores in these schools are in the block of Schools A through D (means ranging M=7.9 through M=10.4) and Schools K through Q, S and T (M=16.7 through M=26.0).

**Impersonality (IM)**

In terms of Impersonality (IM) there are also significant differences in teacher scores by school. The overall mean IM score of the 297 teachers who took this section of the SDI is M=7.7 (SD 3.5). Lower to higher scores on this subscale represent lower perceived degrees of IM to higher perceived degrees of IM. Analysis of variance shows statistically significant differences between schoolteachers’ overall mean IM scores (F=12.9, p ≤ .0001) between schools.

To further define the differences between schools, the Tukey HSD was performed. Overall, Schools A and B (M=3.3 and M=3.9 respectively) have the lowest mean IM scores and are significantly different from schools I through T (means ranging from M=7.1 through 14.3). School S (M=14.3) has the most highly perceived degree of IM by teachers depicted by the mean IM teacher scores. School S differs from the majority of the schools except Schools R and T. The bulk of the differences in IM scores by schools are between Schools A through E and Schools L, N, P through T (Means ranging from M=3.3 through M=5.5 and M=9.4 through M=14.3 respectively).

**Subject Matter Specialization (SMS)**

There are also significant differences in teacher scores by school in terms of Subject Matter Specialization (SMS). The overall mean SMS score rendered by the 297 teachers who
completed this schedule of the SDI is M=6.5 (SD 2.2). Lower scores on this subscale represent low perceived degrees of SMS and higher scores greater perceived SMS. The ANOVA shows a statistically significant difference between teachers’ overall mean SMS score (F=5.1, p ≤ .0001) between schools.

The Tukey HSD was again used to further define the differences between teachers' mean SMS scores. School B (M=4.2) has the lowest mean score of all the schools. School N (M+8.3) reflects the most highly perceived degree of SMS by teachers. There are very few schools significantly different on this subscale. The majority of the significant differences are found between School B (M=4.2) which differs from Schools J through N, P, Q and S (M=7.0 through M=7.6). Schools B, C, and D represent the population where the significant differences are found. With the exception of Schools Q and S, these three schools are significantly different from the aforementioned list.

Centralization of Control (CC)

As with the overall SDI instrument, there are again significant differences in teacher scores by school in terms of Centralization of Control (CC). The overall mean for CC scores of the 297 teachers who completed this subscale of the SDI is 14.2 (SD 5.9). Scores range from a low of 5 to a maximum of 25, with low representing a lesser degree of perceived Centralization of Control, and higher greater control. ANOVA analysis shows statistically differences between teachers’ overall mean CC scores (F=22.8, p ≤ .0001) between schools.

Tukey HSD was used to further define the differences between schools in teachers’ mean CC scores. Schools A and B (M= 5.0, M=6.1 respectively) have the lowest mean CC scores and are significantly different from Schools G through T (means ranging from M=12.0 through M=24.6). By far, School S (M=24.6) has the most highly perceived degree of CC by teacher as reflected in the mean CC teacher scores. Once again, School S differs from all of the other schools, except School T. The bulk of the difference in CC scores in schools are between
Schools A through F (means ranging M=5.0 through M=10.9) and Schools K through M, Schools O through T (M=17.3 through 24.6).

**Technical Competence (TC)**

There are also significant differences in teachers' scores by school in terms of Technical Competence (TC). The overall mean TC score of the 297 teachers who completed this subscale of the SDI instrument is 11.7 (SD 4.8). Scores range from a low of 4 to a high of 20 with lower scores representing low Technical Competence and high scores high Technical Competence (TC). The ANOVA analysis shows a statistically significant difference between teachers' overall mean TC score (F=12.7, p ≤ .0001) between schools.

Tukey HSD was used to further define the differences between schools. Schools A and B (m=4.5 and M=5.9 respectively) have the lowest mean TC scores. Schools A and B significantly differ from Schools I through T (means ranging from M=11.7 through M=17.8). School S (M=17.8) has the most highly perceived degree of TC by teachers related by the mean TC teacher scores. School S significantly differs from roughly half of the schools. Those excluded from these differences are J, M, N, and P through T. The bulk of the differences in TC scores in schools is between Schools A through F (M=4.5 through M=9.8) and Schools J, M, N, P through T (M==14.3 through M=17.8).

**Comparison of PCI and PCB by School**

Table 5 depicts the overall mean pupil control orientation scores of 297 teachers who completed the PCI. The higher the score, the more custodial the pupil control orientation. The overall mean PCI score for the 297 teachers is 47.3 (SD 17.0) showing statistically differences between schoolteachers’ overall mean PCI scores (F=34.9, p < .0001).

Insert Table 5 about here
To further define the differences between schools, Tukey's Honestly Significant Difference Test (HSD) was performed. Schools A, B, and C have lower mean PCI scores (ranging from 25.0 to 27.1) which are different from Schools H through T (which have average mean scores of 41.4 through 72.8). Schools D, E, F, and G (ranging from M=32.1 to M=34.9) are significantly different from Schools I through T (ranging from M=46.3 to M=68.8). Schools H and I (M=41.4, M=46.3) are in a gray area and are less similar to Schools A, B, and C than Schools J through Q. By far Schools T (M=68.8) and Q (M=72.8) have the most custodial teachers in terms of their PCI scores, with School Q being the most custodial. It should be noted that School Q was significantly different from all other schools except Schools R, S, and T. The bulk of the significant differences in mean PCI scores are between schools in the block of Schools A through H from Schools J through T. Different schools' teachers do see Pupil Control Ideology differently. There are differences in teachers' PCI scores by what schools the teachers come from. The differences in the mean PCI scores across the schools in this sample are significant.

Table 5 also reflects the overall mean pupil control behavior scores of the 7,493 students who completed the PCB. The scores represent how students view their teachers' pupil control behavior. The score of a given teacher is the mean of the scores of the responding students in that teacher's class. Higher scores represent more custodial pupil control behavior, while lower scores indicate more humanistic behavior. The overall mean PCB score is 44.6 (SD 11.9). The analysis of variance for PCB scores shows statistically significant differences between overall mean PCB scores (F=23.6, p < .0001) by school.

The Tukey HSD further defined the differences between schools' mean pupil control behavior scores of teachers as perceived by students. Schools A through E have lower mean PCB scores (ranging from 30.1 to 35.3) which are different from Schools I through T (which have average mean scores ranging from M=44.8 to M=62.0). In addition to Schools A through E, Schools F, G, and H are significantly different from the block of Schools K through T (M=36.7,
M=37.2, M=38.8 respectively). The students from School T (M=62.0) have the most custodial mean PCB scores. School T differed significantly from all schools except School J (M=58.0) and Schools P, Q, R, and S (M=59.8, M=54.4, M=51.2, and M=57.0 respectively). The bulk of the differences in the mean PCB student scores in schools are in the block of Schools A through H and Schools J through T. Students do perceive their teachers' Pupil Control Behavior differently. There are differences in PCB scores by what schools the students attend. The differences in the mean PCB scores across the schools in this sample are significant.

DISCUSSION

The rationale for the two related hypotheses of this study stressed the importance of hierarchical influence in mediating superordinate-subordinate relationships. It was assumed that the behavior of the principal extends throughout the organization and affects the actions and behavior of a subordinate level of management, the teachers; and the ultimate effects of such hierarchical influence is directed toward the school's clients, the students.

In general, we predicted relationships between a high degree of school bureaucratization and custodialism in pupil control orientation and behavior. The confirmation of the hypothesis that custodialism in pupil control orientation would be positively related to high levels of Rules and Regulations, Hierarchy of Authority, Impersonality, Centralization of Control and negatively related to high levels of Subject Matter Specialization and Technical Competence; and the hypothesis that custodialism in pupil control behavior would be positively related to high levels of Rules and Regulations, Hierarchy of Authority, Impersonality, Centralization of Control and negatively related to high levels of Subject Matter Specialization and Technical Competence provided support for the theoretical rationale.

The urban high schools in this study varied rather widely in their degree of bureaucratization, pupil control orientation, and pupil control behavior. However, despite the variation among schools, two sets of organizational patterns emerged with respect to bureaucratic structure. With the exception of the dimensions of Subject Matter Specialization and Technical
Competence, a generally positive relationship existed between levels of bureaucratization and custodialism in pupil control orientation and behavior. Subject Matter Specialization and Technical Competence were inversely related to custodial pupil control. This suggests that there are two relatively distinct patterns of rational organization structure rather than one completely integrated bureaucratic structure. Rules and Regulations, Hierarchy of Authority, Impersonality, and Centralization of Control tended to vary together, and Subject Matter Specialization and Technical Competence similarly varied together; however, the two groups of bureaucratic dimensions were inversely related to each other.

That is, in the schools studied, the characteristics of Weber's ideal-type bureaucracy do not necessarily form a connected set of components; instead, there are likely to be two distinct sets of organizational characteristics or patterns: (1) "bureaucratic" and (2) "professional." This pattern was found to exist in previous studies using different instruments (MacKay, 1964; Punch, 1969; Robinson, 1966). The results of the present investigation, combined with the previous studies, justifies confidence in the likelihood that two relatively distinct patterns of rational organization operate in urban public high schools.

With two distinct patterns of rational organization (bureaucratic and professional) operating in public schools, it should not be surprising to find some conflict between teachers and administrators over spheres of authority. The conflict centers on authority based on bureaucracy and authority based on professional norms. The central notions of bureaucratization and professionalization are logically incompatible. Therefore, there is a need for separating spheres of authority in schools; that is, delegating strictly administrative decisions to those in hierarchical positions, while allowing teachers to make decisions requiring professional knowledge. Research supports the notion that bureaucratic orientation and professional attitudes need not conflict, if teachers are provided with sufficient autonomy to carry out their jobs (Barnard, 1938; Bidwell, 1965; Blau, 1955; Bucher & Stelling, 1967; Dalton, 1961; Glaser, 1964; Gross & Etzioni, 1985; Janowitz, 1960; Kornhauser, 1962; Mintzberg, 1979; Scott, 1981, 1987, 1992).
The strength of the correlation found to exist between bureaucratization and custodialism in pupil control orientation and behavior and the strong relationship found between control orientation and behavior may have substantial theoretical import. The SDI measures the bureaucratic structure of the school by tapping teacher-teacher and principal-teacher interactions. The PCI and PCB measure the orientations and behavior toward the control of students. It seems appropriate to raise the question of the extent to which the concepts of "custodialism" and "humanism" are useful in identifying different types of school organizational structure. If pupil control is a salient feature of the organizational life of public schools and pupil control orientation and behavior correspond relatively well, then the pupil control orientation and behavior of the school may be another important correlate of the organizational structure of public schools. Public schools are social systems in which the students play an important role.

The measures used in this study to define bureaucracy and pupil control have demonstrated some related structural characteristics of urban public secondary schools. The structure of schools as defined by these dimensions and measures provide an empirical, albeit exploratory, basis for proposing a formulation of school structure which incorporates the study's variables. The model of the school with high levels of bureaucratization is the traditional school characterized by impersonal standardized procedures, hierarchy of roles, and strict distribution of authority, power, and responsibility — usually concentrated at the top of the organization. In addition, communications, decision making, and participation are controlled by the administrative hierarchy, and there is a distinct stratification of student and adult subcultures, stressing the dominance of teachers and the subordination of students. All of this contributes to an organizational style and atmosphere that perpetuates custodialism in pupil control orientation and behavior.

The model of the school with low levels of bureaucratization is the learning organization which exhibits open, organizationally uninhibited communications, shared decision making, and creative conflict. Moreover, members identify with the organization and its goals, and are
committed to their roles and to continuous interaction with principals, other teachers, staff, and students (who are fully functioning-participants in the organization). Personal identification is consonant with role. Furthermore, the relationship between the individual and the organization extends beyond the identification goals and roles and into the realm of Argyris's (1990) integration of individual and organization, in which the individual becomes personally fulfilled by doing the work of the organization. The ability of the organization to manifest this quality in its members demands an organizational style, which is a combination of personal qualities, leadership qualities, and other elements which are also part of the organizational structure. Such an environment contributes to humanism in teacher pupil control orientation and behavior.

Results of this study suggest that many of the urban high schools sampled may be bureaucratic and custodial in a large number of ways. The bureaucratic dimensions of rules, hierarchy, impersonality, and control are viewed by teachers as part of an overarching hierarchical structure. Hierarchical control is the dominant motif of the structure of the high schools studied; all aspects of structure are strongly related to a pervasive authority structure. High school teachers in this sample maintain that they must ask permission and get approval before they do almost anything; even small matters, such as leaving the building during school hours, have to be referred to a superior for final approval.

One strategy to decrease the levels of bureaucratization in urban secondary schools is to flatten the hierarchy. As the hierarchy is flattened, three things happen. First, the leader becomes more powerful. The concept has been referred to in the educational literature recently as "empowerment." The idea is that you can achieve ultimate power by giving it to people who work for you. Tracy (1990) says that power operates under the same principle as love: The more you give to others, the more you receive in return. Also, Tracy suggests that leaders can maximize their own power and their opportunities for success by enabling the employees they supervise also to achieve their own sense of power and success; that is, following the principle of hierarchical influence, teachers empower their students. Second, the teachers as a group increase
their decision-making power and responsibilities. Today, many school districts are recommending a flattening of the hierarchy. These administrators are beginning to see the need to involve their faculties in making decisions and solving problems. Real power flows from the bottom up, rather than the top down. Third, teachers as professionals increase their professional prerogatives, thereby accommodating the professional-bureaucratic conflict (Bidwell, 1965; DiPaoli & Hoy, 1994; Glaser, 1965; Gross & Etzioni, 1985; Kornhauser, 1962; Marjoibanks, 1977; Mintzberg, 1979; Thornton, 1970) experienced in many public schools.


Table 1

Correlation Matrix of Predictor Variables

<table>
<thead>
<tr>
<th></th>
<th>PCI</th>
<th>PCB</th>
<th>SDI</th>
<th>RR</th>
<th>HA</th>
<th>IM</th>
<th>SMS</th>
<th>CC</th>
<th>TC</th>
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<td>PCB</td>
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<tr>
<td>SDI</td>
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<td>.69**</td>
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<tr>
<td>RR</td>
<td>.81**</td>
<td>.65**</td>
<td>.97**</td>
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<td></td>
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<td>.74**</td>
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<td>.69**</td>
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<td>.88**</td>
<td>.81**</td>
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<tr>
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<td>.51**</td>
<td>.55**</td>
<td>.39**</td>
<td>.64**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Significant < .0001

PCI = Pupil control Ideology

PCB = Pupil Control Behavior

SDI = School Description Inventory

RR = Rules and Regulations

HA = Hierarchy of Authority

IM = Impersonality

SMS = Subject Matter Specialization

CC = Centralization of Control

TC = Technical Competence
Table 2

Regression Model with PCI as Dependent

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<th>R Square</th>
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<th>Significance Of F</th>
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Table 3

Regression Model with PCB as Dependent

<table>
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<th>F</th>
<th>Significance Of F</th>
<th>B</th>
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<td>TC</td>
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<td>.0001</td>
<td>.47</td>
</tr>
<tr>
<td>(Constant)</td>
<td>22.19</td>
<td></td>
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</tbody>
</table>
Table 1

| School Description Inventory and Related Subscale Mean Scores for All Schools |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| SDI Scoresa | RR Scoresb | HA Scoresc | IM Scoresd | SMS Scorese | CC Scoresf | TC Scoresg |
| Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Overall | 98.4 | 32.3 | 43.1 | 14.6 | 15.2 | 6.2 | 7.7 | 3.5 | 6.5 | 2.2 | 14.2 | 5.9 | 11.7 | 4.8 |
| School A | 48.3 | 7.5 | 21.3 | 4.4 | 8.0 | 1.7 | 3.3 | 1.8 | 6.2 | 2.0 | 5.0 | .6 | 4.5 | .8 |
| School B | 49.9 | 15.9 | 21.9 | 7.4 | 7.9 | 1.7 | 3.9 | 1.6 | 4.2 | 1.6 | 7.9 | 4.2 | 7.4 | 3.7 |
| School C | 64.6 | 23.6 | 28.6 | 10.8 | 10.4 | 3.6 | 5.3 | 3.1 | 5.0 | 2.2 | 7.9 | 4.2 | 7.4 | 3.7 |
| School D | 67.4 | 23.9 | 28.1 | 10.7 | 10.4 | 4.8 | 5.0 | 2.5 | 5.2 | 2.6 | 9.3 | 4.2 | 9.6 | 4.7 |
| School E | 72.1 | 26.9 | 31.4 | 13.0 | 12.5 | 8.8 | 5.5 | 2.5 | 5.9 | 2.9 | 10.0 | 4.5 | 8.5 | 3.8 |
| School F | 82.7 | 24.0 | 36.6 | 9.4 | 12.9 | 3.5 | 6.9 | 4.0 | 6.6 | 1.6 | 10.9 | 4.9 | 9.8 | 4.0 |
| School G | 83.1 | 27.1 | 36.5 | 12.1 | 12.6 | 5.2 | 6.9 | 2.9 | 5.6 | 1.8 | 12.0 | 5.1 | 9.5 | 4.1 |
| School H | 86.1 | 30.1 | 37.2 | 13.6 | 13.6 | 5.3 | 6.6 | 2.4 | 6.4 | 1.6 | 12.6 | 6.2 | 9.9 | 4.0 |
| School I | 95.3 | 19.4 | 41.7 | 10.0 | 14.6 | 3.5 | 7.8 | 2.9 | 6.0 | 2.0 | 14.0 | 3.5 | 11.9 | 4.2 |
| School J | 102.7 | 7.7 | 43.1 | 3.4 | 15.7 | 2.8 | 7.1 | 2.0 | 7.9 | .6 | 13.9 | 4.0 | 14.9 | 1.6 |
| School K | 116.9 | 10.7 | 53.0 | 6.8 | 18.4 | 5.4 | 8.2 | 2.1 | 7.6 | 2.1 | 17.8 | 4.1 | 12.0 | 4.3 |
| School L | 115.0 | 12.6 | 51.0 | 7.7 | 17.1 | 4.2 | 9.4 | 3.0 | 7.4 | 1.7 | 17.3 | 2.6 | 12.8 | 4.1 |
| School M | 116.0 | 9.8 | 51.6 | 4.8 | 17.3 | 3.4 | 7.8 | 2.2 | 7.5 | 1.5 | 17.5 | 3.2 | 14.3 | 2.7 |
| School N | 116.7 | 11.8 | 51.5 | 7.0 | 17.4 | 4.2 | 9.1 | 3.0 | 8.3 | 1.4 | 15.8 | 3.7 | 14.6 | 4.2 |
| School O | 115.0 | 8.9 | 54.0 | 5.8 | 16.7 | 4.1 | 8.7 | 3.4 | 5.2 | 2.5 | 18.7 | 2.6 | 11.7 | 3.2 |
| School P | 121.4 | 10.1 | 52.8 | 4.0 | 17.9 | 4.8 | 9.6 | 2.6 | 7.8 | 2.2 | 18.5 | 2.3 | 14.8 | 2.8 |
| School Q | 152.2 | 12.0 | 53.6 | 5.2 | 19.5 | 4.2 | 10.5 | 3.0 | 7.0 | 2.4 | 18.0 | 2.8 | 16.6 | 1.8 |
| School R | 128.2 | 11.9 | 59.3 | 5.8 | 16.0 | 4.5 | 10.8 | 1.3 | 7.2 | 2.1 | 17.8 | 3.1 | 17.0 | 2.4 |
| School S | 155.0 | 9.1 | 64.8 | 3.6 | 26.0 | 3.1 | 14.3 | 1.1 | 7.6 | 1.3 | 24.6 | .7 | 17.8 | 3.5 |
| School T | 138.6 | 23.6 | 60.3 | 9.8 | 24.0 | 5.7 | 12.4 | 3.0 | 5.5 | 1.7 | 21.3 | 3.7 | 15.3 | 3.2 |

---

*F = 31.5, p ≤ .0001  
\( F = 28.0, p ≤ .0001  
\( F = 12.2, p ≤ .0001  
\( F = 12.9, p ≤ .0001  
\( F = 5.1, p ≤ .0001  
\( F = 22.8, p ≤ .0001  
\( F = 12.7, p ≤ .0001  

---

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## Table 5

### PCI and PCB Mean Score for All Schools

<table>
<thead>
<tr>
<th>School</th>
<th>PCI Scores</th>
<th>PCB Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Mean 47.3, SD 16.97</td>
<td>Mean 44.6, SD 11.87</td>
</tr>
<tr>
<td>School A</td>
<td>Mean 25.0, SD 3.41</td>
<td>Mean 30.1, SD 2.37</td>
</tr>
<tr>
<td>School B</td>
<td>Mean 26.6, SD 6.17</td>
<td>Mean 33.1, SD 2.26</td>
</tr>
<tr>
<td>School C</td>
<td>Mean 27.1, SD 4.22</td>
<td>Mean 35.3, SD 5.52</td>
</tr>
<tr>
<td>School D</td>
<td>Mean 32.1, SD 12.07</td>
<td>Mean 33.7, SD 3.86</td>
</tr>
<tr>
<td>School E</td>
<td>Mean 32.6, SD 8.83</td>
<td>Mean 33.0, SD 2.06</td>
</tr>
<tr>
<td>School F</td>
<td>Mean 33.2, SD 8.51</td>
<td>Mean 36.7, SD 3.29</td>
</tr>
<tr>
<td>School G</td>
<td>Mean 34.9, SD 9.26</td>
<td>Mean 37.2, SD 3.29</td>
</tr>
<tr>
<td>School H</td>
<td>Mean 41.1, SD 11.30</td>
<td>Mean 38.8, SD 4.69</td>
</tr>
<tr>
<td>School I</td>
<td>Mean 46.3, SD 10.12</td>
<td>Mean 44.8, SD 9.06</td>
</tr>
<tr>
<td>School J</td>
<td>Mean 51.7, SD 7.14</td>
<td>Mean 58.0, SD 4.81</td>
</tr>
<tr>
<td>School K</td>
<td>Mean 54.3, SD 7.56</td>
<td>Mean 46.4, SD 11.64</td>
</tr>
<tr>
<td>School M</td>
<td>Mean 54.0, SD 11.67</td>
<td>Mean 47.8, SD 7.28</td>
</tr>
<tr>
<td>School N</td>
<td>Mean 54.5, SD 9.07</td>
<td>Mean 48.2, SD 8.14</td>
</tr>
<tr>
<td>School O</td>
<td>Mean 56.3, SD 9.67</td>
<td>Mean 51.1, SD 7.76</td>
</tr>
<tr>
<td>School P</td>
<td>Mean 59.5, SD 11.09</td>
<td>Mean 59.8, SD 12.38</td>
</tr>
<tr>
<td>School Q</td>
<td>Mean 72.8, SD 7.82</td>
<td>Mean 54.4, SD 8.08</td>
</tr>
<tr>
<td>School R</td>
<td>Mean 64.0, SD 12.44</td>
<td>Mean 51.2, SD 11.29</td>
</tr>
<tr>
<td>School S</td>
<td>Mean 66.0, SD 4.47</td>
<td>Mean 57.0, SD 8.72</td>
</tr>
<tr>
<td>School T</td>
<td>Mean 68.8, SD 10.16</td>
<td>Mean 62.0, SD 10.65</td>
</tr>
</tbody>
</table>

* F = 34.9, p < .0001

* F = 23.6, p < .0001
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