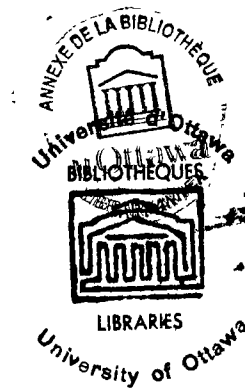


THE EFFECT OF PRINCIPAL-TEACHER INTERACTION ON
SECONDARY SCHOOL ENVIRONMENTS:
AN EMPIRICAL STUDY

by Parnell Garland

Thesis presented to the School of
Graduate Studies of the University
of Ottawa as partial fulfillment
of the requirements for the degree
of Doctor of Philosophy



Parnell Garland, Ottawa, Canada, 1973

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CURRICULUM STUDIORUM

Parnell Garland was born at Fort Augustus, Prince Edward Island, on May 7, 1943. He is a graduate of St. Dunstan's University (Bachelor of Arts, 1968), the University of Prince Edward Island (Bachelor of Education, 1970), and the University of Ottawa (Master of Arts in Educational Administration, 1971). The title of his M. A. thesis was A Study of the Relationship between Teacher Participation in School Decision-Making and the Task-Needs Integration in Schools.

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INTRODUCTION

Most organization theorists agree that organizational action results in participant reaction. This phenomenon is particularly important in education because of the nature of the school-client relationship and because it is difficult to separate the educational process from the educational product. Although many individuals postulate that those in positions of leadership have a significant influence on the educational process, there is a paucity of empirical evidence in this area. At the same time, organizations channel energy into the recruitment, selection, and training of educational leaders on the assumption that leaders do affect organizational action and, concomitantly, the lives of students.

Schools are organized on the basis of superordinate-subordinate relationships. Much of the interaction which occurs between the principal and his staff, because of its organizational context, results in the establishment and elaboration of role expectations for teachers. Thus, it is reasonable to expect that the nature of this interaction influences the performance of a staff group and the quality of the educational process in schools. The research reported in this thesis is directed at empirically validating this postulate; the aim of the study is to determine the effect of principal-teacher interaction on the educational environment of schools.

The theoretical rationale for the study is based on a synthesis of theories developed and refined by Fiedler and Stern. In relation to schools, Fiedler hypothesized that the performance of an instructional group is dependent on the leadership style of the principal and the favorability of the group situation which, in the context of schools, is operationalized in terms of principal-teacher relationships. According to Fiedler, favorable and unfavorable situations require one type of leadership style while moderately favorable situations require a different style for maximum group effectiveness. Stern has developed a model of school environments which utilizes student perception of the latent and manifest functions of organizational activity. His theory provides a multi-dimensional conceptualization of organizational effects in relation to student needs and therefore provides a valid methodology for evaluating the effectiveness of staff groups.

The study provides an empirical link between the work of Fiedler and Stern. It also extends the school-based research on Fiedler's theory by focusing on a third leadership style which Fiedler has identified and by examining the effectiveness of schools which vary in relation to the favorability dimension. In a practical sense, the results have implications for the selection of educational administrators and for planning change in educational organizations.

The research is reported in four chapters. Theory and research associated with the aim of the study is reviewed in Chapter I. A description of the research design is presented in Chapter II. The results of the statistical analyses are presented in Chapter III. In the fourth chapter, the results of the study are analyzed in relation to theory and previous research.

CHAPTER I

REVIEW OF THE LITERATURE

The literature examined in this chapter is aimed at establishing a theoretical rationale for research on the effect of principal-teacher interaction on school environments. First, the humanistic movement is examined in order to demonstrate the relevance of examining schools in terms of providing self-actualizing environments. In the second section, the humanistic concept is expanded to an examination of sociopsychological theories of needs and environments in an attempt to provide an explanation of the relationship between students and school organizations; in this treatment, relevant aspects of school environments are analyzed in order to identify organizational conditions which provide for human development. In the third section, the general concept of leadership and leader behavior is examined. Fiedler's theory of leadership effectiveness is applied to the complex school organization in the fourth section. An analysis of research related to the dependent variable of the study is presented in the fifth section. The relationship between Fiedler's leadership variables and Stern's environmental model is examined in the sixth section. A statement of the problem and the hypotheses of the study are given in the final section.

1. The Humanistic Movement.

The current unrest in education is reflected in the literature in a number of ways. At one extreme, writers such as Illich suggest, perhaps rather romantically, that society should "deschool."¹ Another school of thought focuses on changing schools in the direction of humaneness. The rationale used by these authors is based on the premise that schools as organizations often nurture their own bureaucratic needs to the exclusion of the needs of clients who remain unmotivated. Although these authors differ in a number of ways, they all appear to utilize a common starting point--the recognition that higher-order human needs have to be met if the formal educational effort is to improve. Coombs captured the spirit of the movement:

If schools are going to be more human it is clear that they must become relevant to the needs and experience of students and must find more effective ways to induce students to take a major responsibility for their own learning.²

Thus, in contrast to the child-centered educators of an earlier era who focused on the interests of students, the contemporary

1 Ivan Illich, Deschooling Society, New York, Harper and Row, 1970, xx-116 p.

2 Arthur W. Coombs, "An Educational Imperative: The Human Dimension," in Mary-Margaret Scobey and Grace Graham (eds.), To Nurture Humaneness: Commitment for the 70's, Washington, Association for Supervision and Curriculum Development, 1970, p. 185.

person-centered strategists direct their attention to human needs. In other words, relevance becomes a matter of functionally linking extrinsic school experiences to basic intrinsic concerns and feelings or needs.

The humanistic movement has gained momentum recently and is now a clearly discernible force. The publication of educational objectives for the affective domain³ appears to have provided a critical stimulus. The production of this work brought together a number of behavioral scientists who recognized the importance of the noncognitive outcomes of the educational experience; their effort legitimized the humanistic movement.

In the years since the publication of the Taxonomy, the cause of affective education has evoked considerable scholarly effort directed at the problem of making schools more human. The Schools for the 70's Seminar provides one example; four hours after the seminar discussions began, each of the six discussion groups independently concluded that the major task for educational reform in the next decade was that of making schools more human.⁴ Silberman reached a similar

³ David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, Taxonomy of Educational Objectives, The Classification of Educational Goals, Handbook II: Affective Domain, New York, David McKay, 1964, xiv-196 p.

⁴ Center for the Study of Instruction, Schools for the 70's and Beyond: A Call to Action, Washington, the Center, 1971, p. 17.

conclusion.⁵ Writing in the same tradition, Weinstein and Fantini advocated the development of a human school experience on the basis that, "Concerns, wants, interests, fears, anxieties, joys, and other emotions and reactions to the world contain the seeds of 'motivation.'"⁶ Joyce also claimed that one dynamic challenge of the future is to:

[...] produce humanistic modes of education which can help people make contact with each other in new and stronger ways and can help individuals create lives which are unique, uniquely fulfilling, and socially productive, even transcendently cooperative.⁷

Since the affective domain "contains the forces that determine the nature of the individual's life,"⁸ it is not surprising that this dimension of the educational experience is receiving increased attention.

The desirability of considering human needs has been recognized by theorists for a number of years. Tyler included

5 Charles E. Silberman, Crisis in the Classroom: The Remaking of American Education, New York, Random House, 1970, xiv-553 p.

6 Gerald Weinstein and Mario D. Fantini (eds.), Toward Humanistic Education: A Curriculum of Affect, New York, Praeger Publishers, 1970, p. 28.

7 Bruce R. Joyce, "The Curriculum Worker of the Future," in Robert M. McLure (ed.), The Curriculum: Retrospect and Prospect, The Seventieth Yearbook of the National Society for the Study of Education, Part I, Chicago, the Society, 1971, p. 311-312.

8 Krathwohl et al., op. cit., p. 91.

the needs of the learner in his well-known rationale.⁹ Taba's exhaustive curriculum planning process begins with a diagnosis of the needs of learners.¹⁰ Starratt proposed the utilization of Maslow's hierarchy of human needs for the design of a human school experience which is based on a curriculum model composed of four elements: one substantive (curriculum content), and three contextual. These contextual arrangements would provide for interaction between personal meanings and culturally defined meanings, individual activity and group activity, and intrinsically and extrinsically motivated activities.¹¹ Weinstein and Fantini's action research project for the Ford Foundation provides support for designing a school experience based on human needs. These researchers analyzed a sample of children's statements and found three recurring themes: concern about self-image, about disconnectedness, and about control over one's life.¹² These three concepts recur in a wide variety of sociopsychological theories of needs. Gibb, for example, identified four

9 Ralph W. Tyler, Basic Principles of Curriculum and Instruction, Chicago, University of Chicago Press, 1949, vi-128 p.

10 Hilda Taba, Curriculum Development: Theory and Practice, New York, Harcourt, Brace & World, 1962, xiv-526 p.

11 Thomas J. Sergiovanni and Robert J. Starratt, Emerging Patterns of Supervision: Human Perspectives, New York, McGraw-Hill, 1971, p. 241-259.

12 Weinstein and Fantini, op. cit., p. 39.

basic concerns that arise from all social interaction: acceptance concern (fears about inadequacy), data concern (a deep sense of depersonalization and isolation), goal concern (a loss of identity), and control concern (a feeling of powerlessness).¹³

The provision of humanistic modes of education requires more than changes in curriculum content and teaching strategy. Arnstine postulated that:

[...] no serious discussion of freedom could ever be limited to considerations of the curriculum of schools or the techniques of teaching. Freedom or its absence is directly a matter of the social and political structure of schools and school systems. Indeed, it is this structure which largely determines whatever particular impact on learners will be had by the curriculum and the techniques by which it is taught [...]. Changes in the curriculum or in teaching techniques are not likely to make much of a difference in what children learn if the bureaucratic structure of schools remains unchanged.¹⁴

Krathwohl et al. adopted a similar position:

In effect, the entire educational environment must be turned toward the achievement of complex objectives if they are to be attained in any significant way.¹⁵

¹³ Leland P. Bradford, Jack R. Gibb, and Kenneth D. Benne, T-Group Theory and Laboratory Method, New York, John Wiley, 1964, p. 280-282.

¹⁴ Donald Arnstine, "Freedom and Bureaucracy in Schools," in Vernon F. Haubrich (ed.), Freedom, Bureaucracy and Schooling, Washington, Association for Supervision and Curriculum Development, 1971, p. 27.

¹⁵ Krathwohl et al., op. cit., p. 78.

Thus, the school is faced with the task of maximizing "environmental characteristics which can contribute to humaneness."¹⁶

Much of the knowledge required for establishing this kind of school experience is available. Bloom, for example, wrote that:

Psychologists, educators, and human development specialists are able to identify some of the major characteristics of an environment which will positively or negatively affect the development of general intelligence or school achievement. These include communication and interaction with adults, motivation and incentives for achievement and understanding of the environment, and the availability of adult models and exemplars of language, communication and reasoning.¹⁷

In other words, much of the humaneness of schools occurs in the realm of social interaction. There is little doubt that the social reinforcement and distribution of power that occur in the school are significant stimuli for students. Morrison and MacIntyre stated that the skill with which these variables are handled affects the general climate of the school and the cooperation and learning of the individual. These variables set the conditions for effective instruction.¹⁸

¹⁶ Raphael O. Nystrand and Luvern L. Cunningham, "Organizing School to Develop Humane Capabilities," in Scobey and Graham (eds.), op. cit., p. 132.

¹⁷ Benjamin S. Bloom, Stability and Change in Human Characteristics, New York, John Wiley, 1964, p. 188.

¹⁸ A. Morrison and D. MacIntyre, Schools and Socialization, Middlesex, England, Penguin Books, 1971, p. 107.

The application of sociopsychological humanistic thought to education has provided a framework within which the formal educational effort may be understood and improved. It is evident that the approach is still on the frontier of practice. However, the movement has indicated, as Stern wrote in a discussion of the unrest in education, that:

It has become increasingly clear that we need to know more about what we do and how this affects the student, regardless of the reasons which might be given as to why we do them.¹⁹

Bloom also feels that the problem of the influence of schools deserves immediate and concentrated attention:

Schools can and do have considerable effects on both the cognitive and affective aspects of the manifest curriculum. But to judge the effects of schools only in terms of this curriculum is to ignore a great range of other influences resulting from the ways in which we have organized our schools and the processes involved in schooling. We have paid a high price for our innocence in this area because we have ignored the effects of the latent curriculum and because we have permitted so many aspects of this curriculum to develop in response to efficiency and convenience in managing students rather than in response to their educational needs.²⁰

In this section, general theoretical parameters for research on the influence of leadership variables on students

¹⁹ George G. Stern, "Measuring Noncognitive Variables in Research on Teaching," in N. L. Gage (ed.), Handbook of Research on Teaching, Chicago, Rand McNally, 1963, p. 434.

²⁰ Benjamin S. Bloom, "Innocence in Education," School Review, Vol. 80, No. 3, May 1972, p. 344.

have been established. In particular, the literature has demonstrated both the utility and relevance of considering the school experience in terms of the needs of students. The literature also indicated that the organizational context within which the formal educational experience occurs contains the major inhibiting and facilitating forces. Furthermore, the analysis illustrated that the nature of the manifest curriculum does not adequately explain the results of the interaction between students and schools; the latent curriculum of schools also contains forces which must be recognized in any attempt to determine aspects of administrative behavior which provide for student self-actualization. In this sense, the literature examined in this section provides support for operationalizing school effectiveness in terms of the phenomenological environment which is created by the interaction of individuals and groups within the context of the school. While the literature examined in this section establishes direction, it lacks specificity and does not provide an explicit operational model of significant environmental variables. This problem will be examined in the next section.

2. Organizational Environment.

The aim of this section is to identify environmental variables which are relevant in terms of the developmental

needs of students. Organizational theory along with related psychological theory is examined in order to substantiate and explicate the dictums of educational humanists.

The coexistence of goal-oriented complex organizations and need-oriented variable humans is a dominant component of the formal educational effort. A major theme of the developing science of organization theory focuses on this phenomenon in terms of the problematic relationship between individuals and organizations with their concomitant environments. The attention to this problem seems to center on the recognition that countervailing rational and psychological forces create malfunction. This body of organization theory is psychologically oriented in the sense that the main concern of theorists, most of whom are psychologists, centers on the behavior of individuals and groups in large-scale organizations.

The concept most frequently used to refer to the state of the relationship between individuals and organizations is organizational climate. The ubiquity of the references to the concept of climate attests to the centrality of the concept in organization theory. From the point of view of the administrator, it involves, in Bennis' terms, the task of promoting "conditions for congruence of individual

and organizational goals."²¹ Bakke and Argyris also claimed that the problem is central from the point of view of administration:

The first problem in all organizational life is how to take an aggregate of varied individual people, with varied capacities and predispositions and get them involved in cooperative activity which adds up to success for the organization and satisfaction for the individuals concerned. In short, the problem is to integrate the individual participants with the organization.²²

Along with indicating the importance of climate, these statements are suggestive of the nature of the construct.

Argyris is generally credited with the first attempt to systematically describe the domain of organizational climate.²³ He described climate as "a confusion of simultaneously existing, multilevel, mutually interacting variables."²⁴ He also attempted to order these variables into three sets: (1) formal organizational variables such as

²¹ Warren G. Bennis, "Leadership Theory and Administrative Behavior: The Problem of Authority," Administrative Science Quarterly, Vol. 4, No. 3, December 1959, p. 299.

²² E. W. Bakke and C. Argyris, Organizational Structure and Dynamics, New Haven, Labor and Management Center, Yale University, 1954, p. 4, quoted by Jacob W. Getzels, James M. Lipham, and Roald F. Campbell, Educational Administration as a Social Process, New York, Harper & Row, 1968, p. 127.

²³ Chris Argyris, "Some Problems in Conceptualizing Organizational Climate: A Case Study of a Bank," Administrative Science Quarterly, Vol. 2, No. 1, March 1958, p. 501-520.

²⁴ Ibid., p. 501.

policies, practices, and job descriptions, (2) personality variables such as needs, abilities, values and self concepts, and (3) informal variables that arise out of the participants' continuing struggle to adapt to the formal organization so that the latter achieves its objectives while simultaneously the individuals obtain at least a minimal amount of self-expression.²⁵ Although Argyris is credited with the first attempt to describe climate, the idea was implicit in Barnard's work on organizations as cooperative systems. His attempt to integrate the theory of the Scientific Management Era and the Human Relations Era is essentially a definition of organizational climate:

The persistence of cooperation depends upon two conditions: (a) its effectiveness; and (b) its efficiency. Effectiveness relates to the accomplishment of cooperative purpose, which is social and non-personal in character. Efficiency relates to the satisfaction of individual motives, and is personal in character. The test of effectiveness is the accomplishment of a common purpose or purposes; effectiveness can be measured. The test of efficiency is the eliciting of sufficient individual wills to cooperate.²⁶

Barnard's description of cooperation is conceptually similar to Lonsdale's definition of organizational climate as:

25 Ibid., p. 501-502.

26 Chester I. Barnard, The Functions of the Executive, Cambridge, Harvard University Press, 1938, p. 60.

[...] the global assessment of the interaction between the task-achievement dimension and the needs-satisfaction dimension within the organization, or, in other words, of the extent of the task-needs integration.²⁷

Both of these descriptions attempt to balance the task-needs dimensions, however the concept of climate often has a psychological connotation.

The influence of psychologists on this aspect of organizational theory is evident from an examination of the literature. Halpin defined climate in psychological terms: "Personality is to the individual what organizational climate is to the organization."²⁸ Brown extended Sullivan's interpersonal theory of psychology to describe organizational climate as "the cathetic patterns giving identity to subgroup and interpersonal relations in a living organization."²⁹ Since climate or environment is often viewed as a psychological concept and since climate is a manifestation of individual and group behavior in organizations, it seems useful and necessary to explore behavior in psychological terms.

²⁷ Richard C. Lonsdale, "Maintaining the Organization in Dynamic Equilibrium," in Daniel E. Griffiths (ed.), Behavioral Science and Educational Administration, The Sixty-third Yearbook of the National Society for the Study of Education, Part II, Chicago, the Society, 1964, p. 146.

²⁸ Andrew W. Halpin, Theory and Research in Administration, Toronto, Collier-Macmillan, 1966, p. 131.

²⁹ Alan Brown, "Two Strategies for Changing Climate," The CSA Bulletin, Vol. 4, No. 5, July 1965, p. 66.

One formal theoretical system that provides a detailed operational model of individuals in interaction with environments is the seminal contribution of Murray. Utilizing a need-press model, Murray conducted a monumental study with fifty Harvard undergraduates which resulted in the development of a taxonomy of psychogenic needs. He defined need as "a hypothetical process the occurrence of which is imagined in order to account for certain objective and subjective facts,"³⁰ and more fully as:

[...] a force which organizes perception, apperception, intellection, conation and action in such a way as to transform in a certain direction an existing, unsatisfying situation. A need is sometimes provoked directly by internal processes of a certain kind [...] arising in the course of vital sequences, but, more frequently, [...] by the occurrence of one or a few commonly effective press [...]. Thus, it manifests itself by leading the organism to search for or to avoid encountering or, when encountered, to attend and respond to certain kinds of press.³¹

More recently, Murray has defined need as:

[...] a nonobservable construct or intervening variable, which belongs [...] to the category of disposition concepts. It is a state, in short, that is characterized by the tendency to actions of a certain kind.³²

³⁰ Henry A. Murray, Explorations in Personality, New York, Oxford University Press, 1938, p. 54.

³¹ Ibid., p. 124.

³² -----, "Toward a Classification of Interaction," in T. Parsons and E. A. Shils (eds.) Toward a General Theory of Action, Cambridge, Harvard University Press, 1951, p. 435.

In other words, needs are identified with the purposes which an interaction serves for the person and are revealed by the behavior of the individual.

In Murray's formulation, needs are generated both internally and externally. He used the concept of press to designate the directional tendency in an external situation. A press has both quantitative and qualitative power for harming or benefiting the development of personality.³³

Also, according to Murray:

The process in the subject which recognizes what is being done to him at the moment (that says "this is good" or "this is bad") may be conveniently termed pressive perception. The process is definitely ego-centric, and gives rise almost invariably, to some sort of adaptive behavior.³⁴

The power of Murray's work rests on its systematic classification of the components of Lewin's definition of behavior in common terms and comparable magnitudes.³⁵ Bloom commented on the value of the theory. He wrote that:

[...] until individual and environment are described in the same or at least in congruent terms, the task of determining consequences and effects cannot proceed with much power or precision. The Murray (1938) concept of needs and press represents a step in this direction.³⁶

33 Murray, Explorations in Personality, p. 118.

34 Ibid., p. 119.

35 Kurt Lewin, A Dynamic Theory of Personality, New York, McGraw-Hill, 1935, ix-286 p.

36 Bloom, Stability and Change ..., p. 187.

It is evident that Lewin and Murray offer a powerful model for studying environments in relation to psychogenic needs.

Stern's refinement of Murray's taxonomy represents a significant advance for the study of the relationship between individuals and organizations. Utilizing Murray's need-press model, Stern defined needs as "organizational tendencies which appear to give unity and direction to a person's behavior."³⁷ Press, on the other hand, refers to "an external situational counterpart to the internalized personality needs,"³⁸ and is complimentary and isomorphic, but not necessarily reciprocal to the corresponding need. It refers to the "phenomenological world of the individual, the unique and inevitably private view each person has of the events in which he takes part."³⁹ This private beta press differs from consensual beta press which is based on the merger of private perceptions. In other words, "people who have a common ideology--whether theoretical, political, or professional--also tend to share common interpretations of the events in which they participate."⁴⁰ Stern used the concept

³⁷ George G. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, p. 6.

³⁸ Ibid., p. 7.

³⁹ Ibid.

⁴⁰ Ibid.

of consensual beta press synonymously with climate which he defined as "conditions that represent impediments to a need as well as those that are likely to facilitate its expression."⁴¹ In other words, climate refers to the consensual beta press of an organization.

Stern's first contribution involved the development of the Activities Index, an instrument which measures thirty of the personality needs identified by Murray. Later, Stern developed instruments which measure the press of specific organizations. One of these, the High School Characteristics Index (HSCI),⁴² is concerned with the environment of secondary schools. The methodology used in the development of the HSCI involved transposing the items in the Activities Index to environmental counterparts. The items in the HSCI were selected with reference to various components of secondary school environments:

⁴¹ Ibid.

⁴² See Appendix 2.

Academic

1. Faculty characteristics
2. Program and course content
3. Classroom activities: teaching, examinations, outside preparation
4. Extracurricular activities: chapel, press, special programs

Administrative

1. Organizational structure
2. Rules and regulations
3. Physical plant and facilities
4. Student personnel facilities and practices

Student

1. Student characteristics
2. Community life
3. Extracurricular activities
4. Study patterns⁴³

The instrument consists of thirty press scales⁴⁴ each of which contains ten items.

Stern reported a factor analytic solution which is based on data from 947 students in twelve schools; he derived seven first-order factors from the scale scores: Intellectual Climate, Expressiveness, Achievement Standards, Group Life, Personal Dignity, Orderliness, and Practicalness.⁴⁵ He also derived three second-order factors; the first second-order factor, Development Press, consisted of the first five first-order factors. The second and third second-order factors were identical to the sixth and seventh first-order factors. Stern claimed that the Development Press factor

⁴³ Stern, People in Context ..., p. 14.

⁴⁴ See Appendix 4.

⁴⁵ Stern, People in Context ..., p. 251-255.

"describes a variety of press for facilitating growth and self-enhancement."⁴⁶ He also postulated that the other second-order factors represent a Control Press⁴⁷ which "reflects organizational stability and bureaucratic self-maintenance."⁴⁸ Thus, the HSCI measures two broad aspects of secondary school environments.

The theoretically effective organization is characterized by high scores on Intellectual Climate, Expressiveness, Achievement Standards, Group Life, and Personal Dignity, and low scores on Orderliness and Practicalness. According to Stern, this pattern represents a self-actualizing environment.⁴⁹

Since Stern's empirically derived environmental constructs are based on the transposition of higher-order needs to environmental counterparts and since his operationalization of Murray's model included organizational variables, his work provides a valuable contribution. Also, his theorizing is consistent with other organization theorists who advocate the development of healthy organizations.

Theorists who write in the tradition of providing a humanistic environment by utilizing organic organizational

⁴⁶ Ibid., p. 68.

⁴⁷ Ibid., p. 292.

⁴⁸ Ibid., p. 68.

⁴⁹ Ibid., p. 288-292.

models all base their theorizing on certain common assumptions. McGregor⁵⁰ accepted Maslow's hierarchy of human needs⁵¹ and pointed out that the higher-order egotistic and self-fulfillment needs are difficult to satisfy. He identified two types of egotistic needs:

1. Those that relate to one's self-esteem: needs for self-respect and self-confidence, for autonomy, for achievement, for competence, for knowledge.

2. Those that relate to one's reputation: needs for status, for recognition, for appreciation, for the deserved respect of one's fellows.⁵²

There are also needs for self-actualization which, according to Maslow, refer to:

[...] man's desire for self-fulfillment, namely, to the tendency for him to become actualized in what he is potentially. This tendency might be phrased as the desire to become more and more what one idiosyncratically is, to become everything that one is capable of becoming.⁵³

Argyris accepted a modified version of Maslow's hierarchy; he postulated the existence of physiological, safety, and self-actualization needs. According to Argyris, the needs for self-actualization tend to be the source of human energy in

⁵⁰ Douglas McGregor, The Human Side of Enterprise, New York, McGraw-Hill, 1960, x-246 p.

⁵¹ Abraham H. Maslow, Motivation and Personality, New York, Harper & Row, 1970, xxx-369 p.

⁵² McGregor, op. cit., p. 38.

⁵³ Maslow, op. cit., p. 46.

industrialized societies.⁵⁴ Herzberg et al. agreed and stated:

The factors that lead to positive job attitudes do so because they satisfy the individual's need for self-actualization in his work [...]. Man tends to actualize himself in every area of his life.⁵⁵

This postulate could be applied to all lower-level organizational participants including students. March and Simon's general model of adaptive motivated behavior provides support for this position and suggests that the amount of human energy is variable.⁵⁶ It can be inferred from their model that once an individual has achieved a level of aspiration that has led to psychological success, his tendency is to define a higher aspiration level. Theoretically, there is no limit to human psychological energy; however, the nomothetic arrangements in organizations often constrain the release of human energy.

To summarize, an analysis of organization theory and related psychological theory aimed at identifying specific environmental conditions which provide for the self-

⁵⁴ Chris Argyris, Integrating the Individual and the Organization, New York, John Wiley, 1964, p. 32.

⁵⁵ Frederick Herzberg, Bernard Mausner, and Barbara B. Snyderman, The Motivation to Work, New York, John Wiley, 1959, p. 114.

⁵⁶ James G. March and Herbert A. Simon, Organizations, New York, John Wiley, 1958, p. 47-52.

actualization of lower-level organizational participants has been presented in this section. The review demonstrated that Stern's work provides an explicit operational model of growth-enhancing environments from the point of view of students. While Stern shares an ideological position with other theorists, his work differs from other humanistic organization theorists' in the sense that he used Murray's model rather than Maslow's theory as a basis for his work, thus establishing the foundation for a more sustained analysis of environmental variables. Since the extent to which the formal educational effort contributes to meaningful student growth is dependent on the relative emphasis on student needs, Stern's operationalization of environment or climate in the perspective of needs provides a powerful mode for analyzing the effects of the latent and manifest curricula. In this sense, student perception of environmental variables provides a valid index for the analysis of school effectiveness.

Literature related to the criterion variable of the study, i.e., the environment of educational organizations in the perspective of student growth and development, has been examined in the first two sections. Theory and research relative to leadership in educational organizations will be analyzed in the next two sections.

3. Organizational Leadership.

Of all the concepts used by organization theorists and social psychologists, few have received more attention than leadership. For centuries, man has speculated and theorized about the nature of leadership and leader behavior. More recently, empirical investigations have been added to the effort in an attempt to enlighten the student of organizations.

The interest in leadership and leader effectiveness is a function of the importance of organizations in our society and the nature of organizations. Katz and Kahn, for example, postulated that leadership is necessary in organizations because of the incompleteness of organizational design, the internal dynamics of organizations, changing environmental conditions, and the nature of human membership in organizations.⁵⁷ Because of these factors, the "organization functions under continuing demands for systematic change and under the continuing necessity of motivating the behavior required of its human members."⁵⁸

A survey of the literature on leadership indicates that various approaches have been emphasized as the theory

⁵⁷ Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations, New York, John Wiley, 1966, p. 304-307.

⁵⁸ Ibid., p. 308.

developed. The sharpest change of focus was the departure from attempts to identify the personal traits of effective leaders to a search for behaviors which influence the satisfaction and performance of followers.

The demise of trait-based theory and the contributions of the situationists represented a much-needed rectification. This approach, pioneered by a multi-disciplinary group at Ohio State University, emphasized the fact that the qualities of the leader were variously reacted to by followers as a function of different settings. Hemphill's statement captured the essence of the approach:

[...] there are no absolute leaders, since successful leadership must always take into account the specific requirements imposed by the nature of the group which is to be led, requirements as diverse in nature and degree as are the organizations in which persons band together.⁵⁹

Writing from a different perspective, Argyris presented his version of the situational approach in his concept of "reality-centered leadership." He summarized his position as follows:

⁵⁹ John K. Hemphill, "The Leader and His Group," Educational Research Bulletin, Vol. 28, 1949, p. 225, quoted by Edwin P. Hollander, "Style, Structure, and Setting in Organizational Leadership," Administrative Science Quarterly, Vol. 16, No. 1, March 1971, p. 1.

Effective leadership depends upon a multitude of conditions. There is no one predetermined, correct way to behave as a leader. The choice of leadership pattern should be based upon an accurate diagnosis of the reality of the situation in which the leader is imbedded. If one must have a title for effective leadership, it might be called reality-centered leadership. Reality-centered leadership is not a predetermined set of "best ways to influence people." The only predisposition that is prescribed is that the leader ought to first diagnose what is reality and then use the appropriate leadership pattern.⁶⁰

Several empirical investigations have achieved considerable prominence in the field of leadership. These efforts represent long-range investigations into the nature of leadership and leader behavior by a number of behavioral scientists. The more influential of these investigations were conducted by the Bureau of Business Research at Ohio State University, the Survey Research Center, the Research Center for Group Dynamics, and the Institute for Social Research at the University of Michigan, and by Fiedler and his associates at the University of Illinois. These researchers have all presented classifications of leader behavior which, although they differ in some respects, overlap.

The work at Ohio State University began in 1945 and, following a number of years of effort, resulted in the development of an instrument to measure leader behavior, the

⁶⁰ Chris Argyris, Personality and Organization, New York, Harper & Row, 1957, p. 207.

Leader Behavior Description Questionnaire. Although the various early editions of the instrument contained a number of dimensions, factor analytic studies indicated that most of the variance could be explained in terms of two dimensions: initiating structure and consideration. Halpin defined these as follows:

Initiating structure refers to the leader's behavior in delineating the relationship between himself and members of the work-group, and in endeavoring to establish well-defined patterns of organization, channels of communication, and methods of procedure. Consideration refers to behavior indicative of friendship, mutual trust, respect, and warmth in the relationship between the leader and the members of his staff.⁶¹

A number of assumptions underlie the study of leadership at Ohio State University; these researchers concentrated on the "behavior of leaders"⁶² in formal organizations⁶³ and recognized that the behavior of effective leaders varies from one situation to the other.⁶⁴ While these researchers attempted to depart from trait theory, it is evident from an examination of the content of their instruments that some items are concerned with aspects of the leader's personality.

61 Andrew W. Halpin, The Leadership Behavior of School Superintendents, Chicago, Midwest Administration Center, 1959, p. 4, quoted by Halpin, Theory and Research in Administration, p. 39.

62 Halpin, Theory and Research in Administration, p. 81.

63 Ibid., p. 85.

64 Ibid., p. 83.

Researchers at the Survey Research Center used two concepts to describe leader behavior: employee orientation and production orientation. These two independent dimensions were defined as follows:

Employee orientation is described as behavior by a supervisor which indicates that he feels that the "human relations" aspect of the job is quite important; and that he considers the employees as human beings of intrinsic importance, takes an interest in them, and accepts their individuality and personal needs. Production orientation stresses production and the technical aspects of the job, with employees as means for getting the work done.⁶⁵

Two researchers at the Center, Katz and Kahn, presented a reformulation at a later date which conceptualized leadership in terms of four dimensions,⁶⁶ and Kahn presented still another formulation which utilized four dimensions.⁶⁷ However, Katz and Kahn's latest work indicates a return to the two-dimensional description.⁶⁸

65 David G. Bowers and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly, Vol. 11, No. 2, September 1966, p. 242.

66 D. Katz and R. L. Kahn, "Human Organization and Worker Motivation," in L. R. Tripp (ed.), Industrial Productivity, Madison, Wisconsin, Industrial Relations Research Center, 1951, p. 146-171.

67 R. L. Kahn, "Human Relations on the Shop Floor," in E. M. Hugh-Jones (ed.), Human Relations and Modern Management, Amsterdam, Holland, North-Holland Publishing Co., 1958, p. 43-74.

68 Katz and Kahn, The Social Psychology ..., p. 300-335.

Two of the researchers at the Research Center for Group Dynamics, Cartwright and Zander, described leader behavior in terms of group functions. The following statement identifies their position:

It appears that most, or perhaps all group objectives can be subsumed under one of two headings: (a) the achievement of some specific group goal, or (b) the maintenance or strengthening of the group itself. Examples of member behaviors that serve functions of goal achievement are "initiates action," "keeps members' attention on the goal," "clarifies the issue," "develops a procedural plan," "evaluates the quality of the work done," and "makes expert information available." Examples of behaviors that serve functions of group maintenance are "keeps interpersonal relations pleasant," "arbitrates disputes," "provides encouragement," "gives the minority a chance to be heard," "stimulates self-direction," and "increases the inter-dependence among members."⁶⁹

It is evident that the two dimensions of leader behavior identified in this section are similar to the components of organizational climate. In other words, these factorial cousins are all theoretically related to Barnard's effectiveness and efficiency.⁷⁰

While acknowledging the importance of the situation in theory, researchers have tended to ignore the implications of situational variables for leader behavior. A number of

⁶⁹ Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics: Research and Theory, Evanston, Illinois, Row, Peterson & Co., 1960, p. 496.

⁷⁰ Barnard, op. cit., p. 60.

empirical investigations have been directed at the problem of the relationship between leader behavior and other variables without considering the situational realities. The literature is replete with statements which explain the failure to demonstrate predicted relationships because of situational factors. Inconclusive findings have led some theorists to renew the emphasis on situational aspects.

Korman identified the problem as follows:

What is needed [...] in future concurrent (and predictive) studies is not just recognition of this factor of "situational determinants" but, rather, a systematic conceptualization of situational variance as it might relate to leadership behavior.⁷¹

One theory which does provide for the simultaneous consideration of leadership style and situational variables has been developed by Fiedler; this theory is examined in the next section.

4. The Contingency Model.

Fiedler's work assumes that the effectiveness of individual leaders will vary according to several situational constraints. The basic elements of his theory are presented in the following two sub-sections and related research studies are reviewed in the third sub-section.

⁷¹ Abraham K. Korman, "'Consideration,' 'Initiating Structure,' and Organizational Criteria--A Review," Personnel Psychology, Vol. 19, No. 4, Winter 1966, p. 355.

A. Situational Favorability

Fiedler's empirically derived theory, the contingency model, provides for a simultaneous consideration of leadership style and situational favorability. The basic hypothesis of the theory is that:

The performance of a group depends on both the leader's style of interacting with his group members and on the nature of the group situation in which he and his group find themselves.⁷²

The theory predicts different relationships between leadership style and group performance contingent on whether the situation is highly favorable, moderately favorable, or highly unfavorable.

A significant component of the contingency model is based on the favorability of the group situation which is determined by three situational variables: leader position power, task structure, and group atmosphere or leader-member relationships. The first two variables, position power and task structure, are organizationally determined; the last is interactionally determined.⁷³ Thus, position power and task structure would be expected to remain constant within types of organizations, whereas leader-member relations would be expected to vary from poor to good within types of

⁷² Fred E. Fiedler, A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967, p. 36.

⁷³ Ibid., p. 22-35.

organizations. Combinations of the three situational variables were used to develop the contingency model which is represented in Figure 1.

The first organizationally determined variable, leader position power, refers to "the degree to which the position itself enables the leader to get his group members to comply with and accept his direction and leadership."⁷⁴ It is the potential power which the organization provides for the leader and may be related to French and Raven's concepts of legitimate, reward, and punishment power.⁷⁵ Formal institutional positions are almost always rated high in position power.⁷⁶

The structure of the task faced by the group is another important situational contingency. This variable determines leader influence over productivity in the sense that a structured task enables the leader to impose organizational controls on the work process. The extent to which a task is structured or unstructured is determined by (1) decision verifiability or the degree to which the correctness

⁷⁴ Ibid., p. 23.

⁷⁵ J. R. P. French and B. Raven, "The Bases of Social Power," in Cartwright and Zander (eds.), op. cit., p. 612.

⁷⁶ Fred E. Fiedler, "A Contingency Model of Leadership Effectiveness," in L. Berkowitz (ed.), Advances in Experimental Psychology, Vol. I, New York, Academic Press, 1964, p. 166-173.

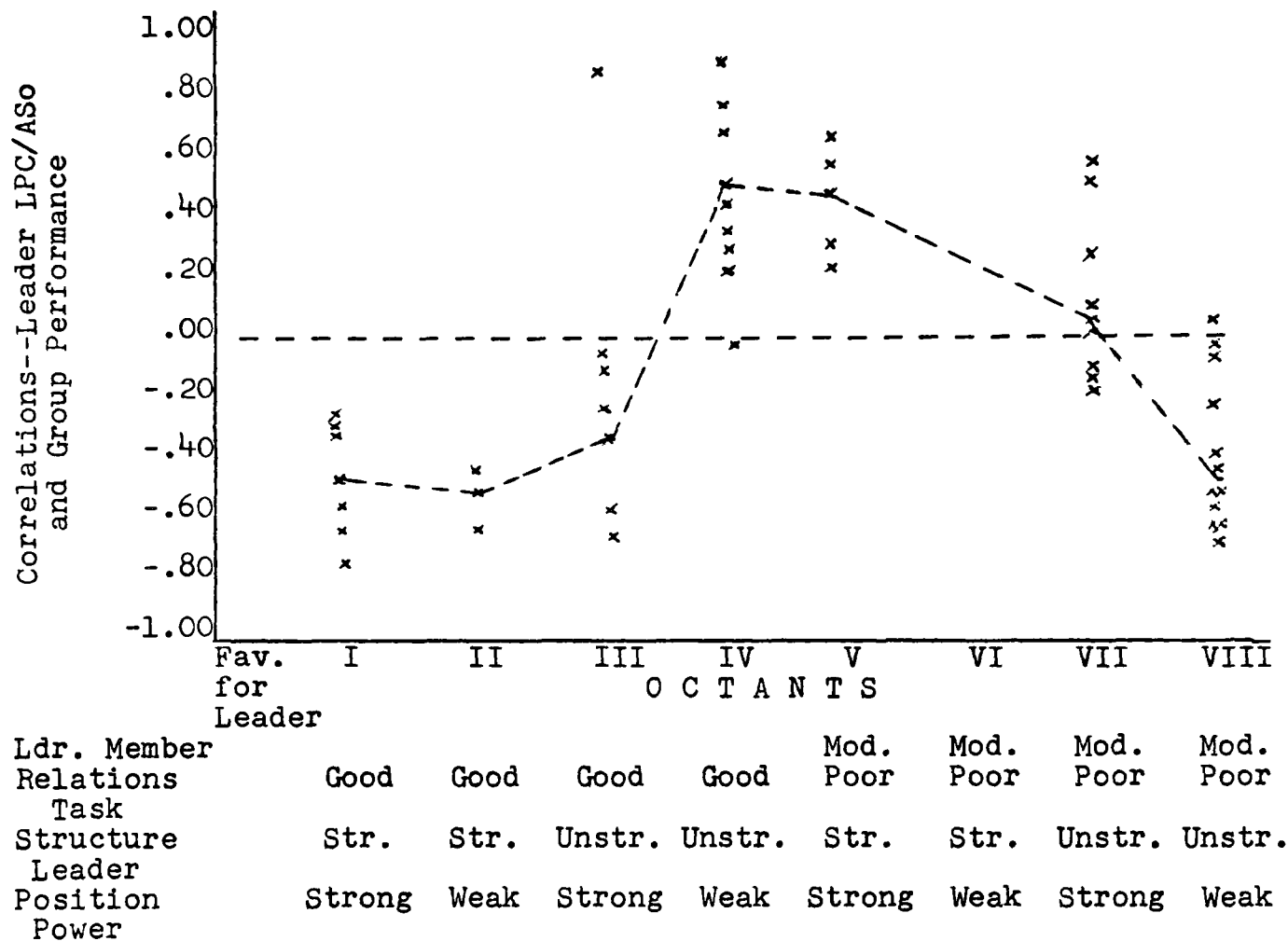


Figure 1.- Contingency Model of Leadership Effectiveness.

Fred E. Fiedler, "Validation and Extension of the Contingency Model of Leadership Effectiveness: A Review of Empirical Findings," Psychological Bulletin, Vol. 67, No. 2, August 1971, p. 131.

of the solution can be demonstrated either by appeal to authority, by logical procedures, or by feedback, (2) goal clarity or the degree to which the requirements of the task are clearly stated or known to the group members, (3) goal path multiplicity or the degree to which the task can be solved by a variety of procedures, and (4) solution specificity or the degree to which there is more than one solution.⁷⁷ A structured task is characterized by high decision verifiability, high goal clarity, goal path simplicity, and high solution specificity.

Leader-member relations or group atmosphere is ~~the~~ most important for research within types of organizations with similar task groups because it is generally accepted that this is the only variable which differs from one organization to another within types of organizations. Furthermore, member acceptance of the leader is generally recognized by theorists as having an important influence on leader effectiveness. Likert accepts this premise in his "principle of supportive relationships" which provides an over-all integrating concept for his theory of leadership effectiveness:

77 Fiedler, A Theory of Leadership ..., p. 25-28.

The leadership and other processes of the organization must be such as to ensure a maximum probability that in all interactions and all relationships each member will, in the light of his background, values and expectations, view the experience as supportive and one that builds and maintains his sense of personal worth and importance.⁷⁸

Other theorists have referred to the same phenomenon.

Simon's "zone of acceptance,"⁷⁹ Barnard's "zone of indifference,"⁸⁰ Bridges' "test of relevance,"⁸¹ Getzels' "transactional style,"⁸² and Blau's "strategic leniency"⁸³ all focus on the problem of follower acceptance of the leader. Hemphill, however, distinguished among attempted, successful and effective leadership acts: attempted leadership acts are accompanied with the intention of initiating structure-in-

⁷⁸ Rensis Likert, New Patterns of Management, New York, McGraw-Hill, 1967, p. 103.

⁷⁹ Herbert A. Simon, Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization, New York, The Free Press, 1957, p. 12.

⁸⁰ Barnard, op. cit., p. 168.

⁸¹ Edwin M. Bridges, "A Model for Shared Decision Making in the School Principalship," Educational Administration Quarterly, Vol. 3, No. 1, Winter 1967, p. 52.

⁸² Getzels et al., op. cit., p. 145-146.

⁸³ Peter M. Blau, "Strategic Leniency and Authority," in Joseph A. Litterer (ed.), Organizations: Structure and Behavior, Vol. I, New York, John Wiley, 1969, p. 373-377.

interaction; successful leadership acts are those which have initiated structure-in-interaction; and effective leadership acts are activities which have contributed to the solution of a problem.⁸⁴ This analysis is useful in the sense that the effectiveness of leadership is not entirely dependent on leader-member relationships. As Fiedler indicated, "There is no reason to believe that the well-liked leader will give better or wiser orders and directions than will the less-liked leader."⁸⁵ Fiedler did, however, agree that "the liked leader's directions, poor or good, are more likely to be followed than those of the disliked leader,"⁸⁶ and that:

The leader who is wholeheartedly accepted or who inspires complete and unquestioning loyalty in his followers needs no signs of rank and no organizationally granted power to get his men to do his bidding.⁸⁷

The empirical evidence supports the claim that leader-member relations is more significant than task structure or position

84 John K. Hemphill, "Administration as Problem-solving," in Andrew W. Halpin (ed.), Administrative Theory in Education, Toronto, Collier-Macmillan, 1958, p. 105-106.

85 Fiedler, A Theory of Leadership ..., p. 31.

86 Ibid.

87 Ibid., p. 29.

power in moderating the relationship between leadership style and group effectiveness.⁸⁸

One issue which deserves attention is the possibility that the perception of leader-member relations differs between leaders and members. Posthuma reported that there was no significant difference between leader's and group members' perceptions of leader-member relationships in experimental groups.⁸⁹ However, Fiedler found that the relationship between the leader's and members' perception of group atmosphere tends to be low.⁹⁰ At the same time, Fiedler reported a study in which the results provided stronger support for the contingency model when the leader rated the group atmosphere than when the members rated group atmosphere.⁹¹ Thus, the leader's perception of group atmosphere appears to be more valid in attempts to test the theory.

⁸⁸ Martin Fishbien, Eva Landy, and Grace Hatch, "A Consideration of Two Assumptions Underlying Fiedler's Contingency Model for Prediction of Leadership Effectiveness," American Journal of Psychology, Vol. 82, No. 4, December 1969, p. 467; J. G. Hunt, "Fiedler's Leadership Contingency Model: An Empirical Test in Three Organizations," Organizational Behavior and Human Performance, Vol. 2, No. 3, August 1967, p. 303-304; and Terence R. Mitchell, "Leader Complexity and Leadership Style," Journal of Personality and Social Psychology, Vol. 16, No. 1, July 1970, p. 170.

⁸⁹ Allan B. Posthuma, Normative Data on the Least-Preferred Co-worker Scale (LPC) and the Group Atmosphere Questionnaire (GA), Organizational Research Technical Report 70-8, University of Washington, Seattle, 1970, p. 13.

⁹⁰ Fiedler, A Theory of Leadership ..., p. 163.

⁹¹ Ibid., p. 116-117.

The contingency model does not predict any direct relationship between leader-member relations and group effectiveness; Fiedler's findings suggest that the performance of a group does not decrease as the conditions become less favorable.⁹² However, it is evident that other theorists do suggest that differences exist between such differential situations. The usefulness of Fiedler's model would be increased if it could be used to predict across octants.

While Fiedler's theory cannot be categorized as a traditional trait theory, his work is related to and possibly derived from this tradition. Since trait theories of leader effectiveness are in relative disfavor,⁹³ it is not surprising that the theory has been the object of attacks⁹⁴ and

92 Fred E. Fiedler, "The Effect of Leadership and Cultural Heterogeneity on Group Performance: A Test of the Contingency Model," Journal of Experimental Social Psychology, Vol. 2, No. 3, July 1966, p. 237-264; and Fiedler, A Theory of Leadership ..., p. 256-257.

93 R. M. Stogdill, "Personal Factors Associated with Leadership: A Survey of the Literature," Journal of Psychology, Vol. 25, No. 1, January 1948, p. 35-71.

94 George Graen, Kenneth Alvares, and James Burdeane Orris, "Contingency Model of Leadership Effectiveness: Antecedent and Evidential Results," Psychological Bulletin, Vol. 74, No. 4, October 1970, p. 285-296; and George Graen, James Burdeane Orris, and Kenneth M. Alvares, "Contingency Model of Leadership Effectiveness: Some Experimental Results," Journal of Applied Psychology, Vol. 55, No. 3, June 1971, p. 196-201, and "Contingency Model of Leadership Effectiveness: Some Methodological Issues," Journal of Applied Psychology, Vol. 55, No. 3, June 1971, p. 205-210.

rebuttals.⁹⁵ However, the theory has been tested and supported in organizations. Hunt presented supportive evidence on the basis of a study of eighty-nine groups in three business organizations.⁹⁶ Hill tested the model with 102 groups in two organizations; his research supported the model.⁹⁷ Thus, the theory appears to have validity for organizational leadership.

B. Leadership Style

A significant component of the contingency model is based on the concept of leadership style which Fiedler defined as "the underlying need-structure of the individual which motivates his behavior in various leadership situations."⁹⁸ Thus, leadership style is distinguished from leader behavior which Fiedler defined as "the particular acts in which a

95 Fred E. Fiedler, "Note on the Methodology of the Graen, Orris, and Alvares Studies Testing the Contingency Model," Journal of Applied Psychology, Vol. 55, No. 3, June 1971, p. 202-204.

96 J. G. Hunt, "Fiedler's Leadership Contingency Model: An Empirical Test in Three Organizations," Organizational Behavior and Human Performance, Vol. 2, No. 3, August 1967, p. 290-308.

97 Walter Hill, "A Situational Approach to Leadership Effectiveness," Journal of Applied Psychology, Vol. 53, No. 6, December 1969, p. 513-517; and "The Validation and Extension of Fiedler's Theory of Leadership Effectiveness," Academy of Management Journal, Vol. 12, No. 1, March 1969, p. 33-47.

98 Fiedler, A Theory of Leadership ..., p. 37.

leader engages in the course of directing and coordinating the work of his group members."⁹⁹ A leader's style is determined by utilizing interpersonal perception scores on the basis that "the way in which one person perceives another will affect his relations with him."¹⁰⁰ The Least Preferred Coworker (LPC) scale¹⁰¹ is used to measure leadership style in Fiedler's theory. Fiedler has identified three distinct leadership styles: low LPC, intermediate LPC, and high LPC.¹⁰²

The LPC scale has a long history dating back to Fiedler's early work with clinicians. The score obtained from the instrument has been difficult to interpret, and Fiedler has modified his position a number of times during the past twenty years. Early interpretations of the score were based on the concept of psychological distance; Fiedler claimed that the person who obtained a low score was "relatively distant and reserved,"¹⁰³ while the individual who received a high score formed "close and intimate relations, and has a tendency to

99 Ibid.

100 Ibid., p. 38.

101 See Appendix 1.

102 Fiedler, A Theory of Leadership ..., p. 51.

103 -----, "The Leader's Psychological Distance and Group Effectiveness," in Cartwright and Zander (eds.), op. cit., p. 591.

become emotionally involved with others."¹⁰⁴ However, this claim was not substantiated in later research.

One tradition of research has been directed at determining relationships between LPC scores and personality variables. The largest of these studies was conducted by Bass et al.¹⁰⁵ who administered instruments measuring eighty-one variables to 163 male college students. The subjects responded to biographical questionnaires, instruments which purported to measure aspects of social desirability and response set, personality inventories, a group behavior questionnaire, and semantic differential scales which measured self-esteem, esteem for their mother and father, esteem for their most preferred coworker and least preferred coworker.

Although linear relationships between LPC scores and the other variables were generally not significant, curvilinear relationships, based on correlations of each of the variables with the absolute deviations of LPC scores, were more in evidence. There were significant curvilinear relationships between LPC scores and Wiggins' Social Desirability scale (.21), the Marlowe-Crowne Social Desirability scale (.16), the F scale (.17), the tendency to use extremes (.17),

¹⁰⁴ Ibid., p. 592.

¹⁰⁵ A. R. Bass, F. E. Fiedler, and S. Krueger, Personality Correlates of Assumed Similarity (ASo) and Related Scores, Urbana, Group Effectiveness Research Laboratory, University of Illinois, 1964, quoted by Fiedler, A Theory of Leadership ..., p. 272-280.

self-esteem (.20), ideal self-esteem (.17), esteem for father (.15), esteem for most preferred coworker (.20), variance of scales for least preferred coworker (-.20), and interaction variance (-.16).¹⁰⁶ While these correlations are low and while some significant results could be expected by chance, the results do provide support for the position that the intermediate LPC individual is different. Fiedler summarized the evidence as follows:

The individual with intermediate LPC scores again seems to differ from high- and low-LPC persons. He appears to be cognitively more complex, less authoritarian or acquiescent, less concerned with socially desirable responses, and more critical and task-oriented than either the high- or low-LPC person. He seems also to be somewhat more concerned with personal competence and somewhat less concerned with personal warmth and industriousness in the selection of his work partners, hence less interested in team work.¹⁰⁷

Fiedler has indicated that the intermediate LPC style is an important area for research.¹⁰⁸

Another research tradition in relation to the interpretation of LPC scores has focused on followers' perceptions and experimenters' observations of leaders who obtained differential scores on the LPC scale. The most common instrumentation in these studies has been the Ohio State

106 Ibid., p. 278-280.

107 Fiedler, A Theory of Leadership ..., p. 51.

108 Ibid., p. 50-51.

Leader Behavior Description Questionnaire or Bales' Interaction Process Analysis or conceptually related questionnaires.

A large number of these early studies provided support for the interpretation of the LPC score as an index of relationship- versus task-orientation; the high LPC individual was believed to be relationship-oriented while the low LPC individual was believed to be task-oriented. Recent organizational studies also support this interpretation. Jones and Johnson administered the LPC scale to fifty-three managers and Likert's Profile of Organization Characteristics, an instrument which measures the administrative climate of organizations, to their subordinates. The results indicated that the high LPC leaders were perceived as having a more participative, human relations, emotionally supportive organization than their low LPC counterparts.¹⁰⁹ Hawley's study in elementary schools resulted in similar findings; he reported a correlation of $-.36$ between LPC scores and Initiating Structure and a correlation of $-.45$ between LPC scores and Assumption of Leader Role in his examination of the relationship between LPC scores and scores on the Leader Behavior Description Questionnaire-XII.¹¹⁰ Graham also found

¹⁰⁹ Halsey R. Jones and Michael Johnson, "LPC as a Modifier of Leader-Follower Relationships," Academy of Management Journal, Vol. 15, No. 2, June 1972, p. 185-196.

¹¹⁰ David E. Hawley, A Study of the Relationship between Leader Behavior and Attitudes of Elementary School Principals, unpublished M.Ed. thesis, University of Saskatchewan, Saskatoon, 1969, p. 78.

that high LPC leaders were more human relations oriented while the low LPC leaders were more task-oriented.¹¹¹

Fiedler agreed with this interpretation for a number of years and has summarized this research tradition on a number of occasions. In an early summary, he stated that:

High LPC leaders behave in a manner which promotes member satisfaction and lowers member anxiety; they are more compliant, more non-directive, and generally more relaxed [...]. They are described by their groups as being higher on the Ohio State "consideration" dimension.¹¹²

He described the low LPC leader on a later occasion:

The low LPC leaders tend to be more concerned with the task. They are "more task- than relationship-oriented" and more punitive toward poor coworkers [...]. They are seen as more efficient and goal-oriented in their leadership behavior.¹¹³

While a large number of studies support the interpretation of LPC scores as an index of relationship- versus task-orientation, some studies have presented contradictory evidence. Reilly's research is one example. He used Bales' Interaction Process Analysis in experimental groups and found that low LPC individuals used the following verbal behaviors more than high LPC leaders: shows solidarity through raising

¹¹¹ William K. Graham, "Description of Leader Behavior and Evaluation of Leaders as a Function of LPC," Personnel Psychology, Vol. 21, No. 4, Winter 1968, p. 457-464.

¹¹² Fiedler, "A Contingency Model ...," p. 155.

¹¹³ -----, A Theory of Leadership ..., p. 45.

the status of others; acknowledges, understands, recognizes; shows agreement, concurrence, compliance; gives opinion, evaluation, analysis, expresses feeling or wish; gives orientation, information, passes communication; draws attention, repeats, clarifies, and asks for opinion, evaluation, analysis, expression of feeling.¹¹⁴ Reilly's study was conducted in a single organization which was characterized by a supportive atmosphere. He recognized the possibility that he might not have been successful in creating stressful situations in his experimental groups.

Other researchers have reported similar findings. Sample and Wilson used the twelve categories of Bales' Interaction Process Analysis with sixteen natural groups performing regular tasks in stressful situations under high- and low-LPC leaders. They found that the two kinds of leaders showed little difference in their observed behavior. However, when the solution of the problem was divided into phases, the two types of leaders behaved differentially. In the planning phase, positive reactions accounted for an average of eleven per cent of the low LPC leaders' behaviors as compared to thirty per cent of the high LPC leaders' behaviors. In the

¹¹⁴ Anthony Joseph Reilly, The Effects of Different Leadership Styles on Group Performance: A Field Experiment, unpublished Ph.D. thesis, Industrial Relations Center, Iowa State University, Ames, Iowa, 1968, v-122 p.

second less stressful phase, the high LPC leaders dropped to eleven per cent positive acts while the low LPC leaders increased to thirty-one per cent positive acts. The differences were significant at the .01 level in both cases.¹¹⁵ Gruenfeld et al. also used Bales' Interaction Process Analysis to analyze the behavior of high- and low-LPC leaders in three experimental groups; the first group supported the leader, the second created a moderately stressful situation, and the third created a highly stressful environment for the leader. They found that high LPC subjects behaved in a less Dominant, more Accepting, more Tension Releasing manner than low LPC subjects thus providing support for early interpretations of the LPC scale. They also found that the major effect of group atmosphere appeared in the propensity of low LPC subjects to increase their attempts at Dominance, while high LPC subjects tended to increase their Tension Release behavior in the moderately stressful situation which can be equivocated with the unfavorable situation in relation to Fiedler's contingency model.¹¹⁶ Their conclusion has important

115 John A. Sample and Thurlow R. Wilson, "Leader Behavior, Group Productivity, and Rating of Least Preferred Coworker," Journal of Personality and Social Psychology, Vol. 1, No. 3, July 1965, p. 266-270.

116 Leopold W. Gruenfeld, David E. Rance, and Peter Weissenberg, "The Behavior of Task-Oriented (Low LPC) and Socially-Oriented (High LPC) Leaders under Several Conditions of Social Support," The Journal of Social Psychology, Vol. 79, No. 1, October 1969, p. 99-107.

implications for the interpretation of LPC scores:

[...] affective leader-member relations is an important situational determinant of the kinds and the incidence of behaviors exhibited by leaders. In a more general sense, this [...] also reinforces a general finding of other researchers, often ignored by some, that a leader's behavior is a function not only of personality, but also of the supportiveness of his subordinates.¹¹⁷

The evidence suggests that the general interpretation of the LPC score in terms of task- and relationship-orientation is misleading. Fiedler has emphasized that only in situations which are unfavorable do we find leader behaviors which correspond to these orientations,¹¹⁸ and the research examined in this section supports his position.

As early as 1961, Bieri¹¹⁹ suggested that the LPC scale could be used as a measure of cognitive complexity. Fiedler has recognized this possibility in a number of publications,¹²⁰ however, he tends not to explore all the

117 Ibid., p. 106.

118 Fred E. Fiedler, "Validation and Extension of the Contingency Model of Leadership Effectiveness: A Review of Empirical Findings," Psychological Bulletin, Vol. 76, No. 2, August 1971, p. 129.

119 J. Bieri, "Complexity-simplicity as a Personality Variable in Cognitive and Preferential Behavior," in D. W. Fiske and S. R. Maddi (eds.), Functions of Varied Experience, Homewood, Ill., Dorsey Press, 1961, p. 355-379.

120 Fiedler, A Theory of Leadership ..., p. 51; "Personality, Motivational Systems, and Behavior of High and Low LPC Persons," Human Relations, Vol. 25, No. 5, November 1972, p. 396; "Validation and Extension of the Contingency Model ...," p. 129.

implications of this interpretation.¹²¹ The evidence that the LPC scale measures cognitive complexity comes from a number of sources.

Weissenberg and Gruenfeld administered the LPC scale and the Embedded Figures Test (EFT), a measure of cognitive complexity, to seventy-three supervisors and found a significant curvilinear relationship between LPC scores and EFT scores; the eta coefficient was .87. Analysis of variance indicated that high EFT scorers had significantly higher LPC scores than medium EFT scorers.¹²²

There is also evidence from the study by Bass et al. that the LPC scale measures cognitive complexity. These researchers reported a significant relationship between LPC scores and the tendency to use extremes (-.25) and between LPC scores and Pettegrew's Category Width Scale (.15), an instrument which measures the individual's tendency to categorize broadly or narrowly.¹²³

Mitchell hypothesized that high- and low-LPC individuals would differ in terms of using stereotypes

121 See Fiedler's interpretation of studies by Mitchell and by Fishbien et al. in Fiedler, "Personality, Motivational Systems" p. 396-397.

122 P. Weissenberg and L. W. Gruenfeld, "Relationships among Leadership Dimensions and Cognitive Styles," Journal of Applied Psychology, Vol. 50, No. 5, October 1966, p. 392-395.

123 Bass et al., op. cit., quoted by Fiedler, A Theory of Leadership . . ., p. 279.

when they rate their least preferred coworker. He found that forty-two per cent of his low LPC subjects in a sample of 119 students rated a real person as their least preferred coworker, while eighty-three per cent of his high LPC subjects rated a real person as their least preferred coworker. Likewise, high LPC subjects rated significantly fewer stereotypes (nineteen per cent as against forty-eight per cent, $p < .025$) as their most preferred coworker.¹²⁴ Thus, the two types utilize different thought processes.

Fishbien et al. examined quantitative differences in cognitive structure between high- and low-LPC respondents by analyzing types of beliefs held by high- and low-LPC individuals about their least preferred coworker; their work provides support for the results reported by Mitchell. They reported that high LPC individuals described their least preferred coworker as bullheaded, talkative, and bossy, while low LPC individuals described their least preferred coworker as unintelligent, unpleasant, obnoxious, self-centered, and egotistical.¹²⁵ Fiedler interprets these results as evidence

¹²⁴ Terence R. Mitchell, "Leader Complexity and Leadership Style," Journal of Personality and Social Psychology, Vol. 16, No. 1, July 1970, p. 168.

¹²⁵ Martin Fishbien, Eva Landy, and Grace Hatch, "A Consideration of Two Assumptions Underlying Fiedler's Contingency Model for Prediction of Leadership Effectiveness," American Journal of Psychology, Vol. 82, No. 4, December 1969, p. 183.

that high- and low-LPC leaders have different need structures.¹²⁶ On the other hand, Fishbien et al. interpreted the findings as evidence that the type of person who is most difficult for the high LPC leader to work with is not the same type of person with whom the low LPC person finds it most difficult to work; the concept "least preferred co-worker" has different meanings for high- and low-LPC individuals providing support for the claim that these individuals differ in terms of cognitive structure.¹²⁷ This interpretation is consistent with Mitchell's position that the low LPC person describes a different type of person than the high LPC scorer.¹²⁸

Fishbien et al. also presented other evidence to support the claim that LPC scores are indices of cognitive complexity. They asked 179 subjects to list their beliefs about least preferred coworkers, indicate how strongly each of the characteristics listed was a quality of their least preferred coworker, and evaluate each of the items as good or bad. The correlation between the resulting scores and LPC scores was .36. A Behavior Description Questionnaire

¹²⁶ Fiedler, "Personality, Motivational Systems . . .," p. 397.

¹²⁷ Fishbien et al., op. cit., p. 184.

¹²⁸ Mitchell, op. cit., p. 168.

containing twelve items modified from Bales' Interaction Process Analysis was used to measure beliefs about least preferred coworkers. The correlation between these scores and LPC scores was .63.¹²⁹ They also found a significant correlation between LPC scores and the number of beliefs with negative evaluative aspects ($r = -.24$). High LPC individuals had significantly more beliefs with positive evaluative aspects and significantly fewer beliefs with negative evaluative aspects.¹³⁰ On the basis of this evidence, the authors concluded that "the LPC score is significantly related to various aspects of an individual's cognitive structure."¹³¹ Jones and Johnson presented supportive evidence for this claim; they found that low LPC subordinates of low LPC leaders viewed downward communication with suspicion, believed that decision-making contributed very little to motivation, and felt that cost and control data were used only for rewarding and punishing. On the other hand, high LPC subordinates of low LPC leaders believed that downward communication should be accepted with caution, that decision processes

129 Fishbien et al., op. cit., p. 177.

130 Ibid., p. 180.

131 Ibid., p. 181.

make some contribution to motivation, and that cost and control data are used to determine rewards.¹³²

Another aspect of Mitchell's research involved administering Scott's measure of cognitive complexity which involves arranging lists of objects (nations, groups, etc.) into categories which belong together and to indicate what the objects have in common. Mitchell used two instruments to tap two of the subject's cognitive domains (nations and groups). The hypothesis that the LPC score would be positively related to the group domain (i.e., the ability to differentiate between group situations) and less so to the nation domain was supported for male subjects in two studies. The correlations between LPC scores and group domain scores was .51 (N = 17) and .49 (N = 49).¹³³ Mitchell also hypothesized that high LPC subjects would be more complex in their thinking about hypothetical-task situations than low LPC individuals. Questionnaires containing fifteen hypothetical-task situations were administered to forty-six students. Each questionnaire contained one of five levels of interpersonal relations, leader position power, and task structure (the three situational elements in Fiedler's contingency model). The results indicated that high LPC individuals were more

¹³² Jones and Johnson, op. cit., p. 193-195.

¹³³ Mitchell, op. cit., p. 169.

complex in utilizing information about various task situations.¹³⁴ Mitchell's interpretation of these results in relation to the contingency model is also interesting: he speculated that high LPC subjects perform better in moderately favorable situations where some aspects of the situation are good and some are bad. In other words, low LPC individuals perform better in settings which are relatively simple (favorable or unfavorable) where differentiating might lead to irrelevant behavior on the part of the leader.¹³⁵

The examination of literature on the relationship between LPC scores and cognitive complexity indicated that the relationship could be supported in a number of ways (i.e., relating LPC scores to other measures of cognitive complexity and analyzing judgments about hypothetical-task situations).

To summarize, the evidence supports the conclusion that the LPC scale measures cognitive complexity; high LPC individuals are more complex in their thinking. The scale also provides a measure of motivational make-up; high LPC individuals are primarily motivated to relate to others while low LPC persons are primarily motivated to achieve task success. Thus, in stressful situations where attainment

¹³⁴ Ibid., p. 171-172.

¹³⁵ Ibid., p. 173.

of these goals is threatened, the two types will behave differentially. However, in non-threatening situations, the two types focus on secondary goals; the high LPC leader attempts to achieve task success while the low LPC individual emphasizes interpersonal relations.

C. Contingency Model Research

A review and analysis of contingency model research is presented in this section. Since the present study is an attempt to test Fiedler's contingency model in school organizations, this review is limited to educational research. Also, since the aim of the study is to test the contingency model and assumptions related to the model, the focus of the review is on research which tested the model rather than on research which has examined the behavior of high- and low-LPC principals. Particular emphasis is placed on aspects of previous research which have implications for testing the contingency model in schools. Theoretical issues related to the problem of the study are also examined in this section.

Two of the early studies were conducted by McNamara. His first study¹³⁶ was aimed at validating the contingency

¹³⁶ Vincent D. McNamara, A Descriptive-Analytic Study of Directive-Permissive Variation in the Supervisory Behavior of Elementary School Principals, unpublished M.Ed. thesis, University of Alberta, Edmonton, 1967, xviii-226 p.

model in elementary schools. He administered the LPC and Group Atmosphere (GA) scales to principals in thirty-two schools. Leader position power and task structure were not measured; the investigator assumed that the principal's position power would be weak and that the task of a school staff would be unstructured. Thus, the researcher judged that elementary school staffs would be in Octants IV or VIII of the contingency model. The indices of school staff effectiveness were based on ratings by teachers within each school and by school system administrators. The sample of schools was trichotimized on the basis of GA scores, and those which had scores of sixty-four or less were considered to be Octant VIII schools, while those which had scores of sixty-nine or higher were considered to be Octant IV schools.

The Spearman rank-order correlations between LPC scores and administrators' ratings of school effectiveness for good GA schools was $-.48$ ($N = 11$) and $.31$ ($N = 12$) for the poor GA schools.¹³⁷ The corresponding correlations between staff ratings of school effectiveness for good and poor GA schools was $-.32$ and $-.34$.¹³⁸ Fiedler has frequently used the ratings of superiors as the index of group effectiveness, and this approach can be accepted as a valid method for

137 Ibid., p. 143.

138 Ibid., p. 152.

testing the theory. However, it is questionable whether teacher ratings of staff group effectiveness can be used to test the theory since it is probable that job satisfaction would influence the rating.¹³⁹

The direction of the correlations for the relationship between principals' LPC scores and administrators' ratings of school effectiveness were opposite to the prediction. On the basis of this evidence, McNamara re-examined his assumption regarding the principal's position power and decided that school staff should be placed in either Octants III or VII on the basis that the principal has high position power.¹⁴⁰ Since the contingency model predicts a negative correlation between LPC scores and effectiveness ratings for Octant III (good GA) situations and a positive correlation for Octant VII (poor GA) situations, McNamara's results provide support for the position that schools are either Octant III or Octant VII situations.

McNamara also examined the relationship of LPC and GA scores to staff satisfaction and principal effectiveness along with the supervisory behavior of high- and low-LPC principals. However, these problems do not provide a test of the contingency model.

139 Fiedler, A Theory of Leadership ..., p. 9.

140 McNamara, A Descriptive-Analytic Study ..., p. 150-151.

A major weakness of McNamara's first study was the failure to examine the validity and reliability of the instruments used to obtain effectiveness data. Also, there was no attempt to determine the interrater reliability of the administrators' ratings of staff effectiveness. Another problem with the report of the study was the failure to report descriptive statistics for the LPC scale. Thus, it is impossible to determine whether the full range of scores was represented in the sample.

McNamara's second study¹⁴¹ was designed to test the contingency model in 419 schools. The LPC and GA scales were administered to principals in each school, and schools were trichotimized on the basis of GA scores. Effectiveness data were obtained from schools in the upper and lower thirds of the GA categories. Two types of effectiveness data were used: for the elementary schools, school system administrators familiar with the schools were asked to rate the effectiveness of school staffs; and, for the high schools, provincial examination results were used as the criterion of school staff effectiveness.

The results of McNamara's second study were difficult to interpret. Many of the correlations between LPC scores

¹⁴¹ Vincent D. McNamara, The Principal's Personal Leadership Style, the School Staff Situation, and School Effectiveness, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, xix-439 p.

and effectiveness scores were low and in the direction opposite to that predicted.¹⁴² The study had a number of methodological weaknesses, and it is possible that the results are a function of these problems. For example, no validity or reliability data were reported for the provincial examination data. Also, the administrators who rated schools on effectiveness were not trained, and the average of the correlations among all pairs of raters was .61.¹⁴³ Thus, the school effectiveness ratings did not provide a sufficiently reliable source of data.

A larger problem with both of McNamara's studies involved the manner in which good and poor GA schools were identified. The investigator did not use any theoretical basis for establishing cut-off scores for the GA data. Also, the report of the second study did not provide descriptive statistics for the GA scale so that it is impossible to determine how his data compare with other data.

One useful result of McNamara's second study involved the examination of the structure of the task faced by school staffs and the position power of principals. McNamara's eight judges all agreed that the task of school staffs is unstructured, and seven of his judges agreed that the position

¹⁴² Ibid., p. 237-256.

¹⁴³ Ibid., p. 115.

power of the principal is high.¹⁴⁴ McKague claimed that the leader position power of the principal is high and that the task is unstructured in schools.¹⁴⁵ Fiedler's categorization of schools in Octants I and V of the contingency model indicates that he agrees that the position power of the principal is high, but that he feels that the task of school staffs is structured.¹⁴⁶ However, the empirical evidence and the judgments of competent educators do not support Fiedler's position regarding task structure. Therefore, it seems reasonable to conclude that the position power of the principal is high and that the task of school staffs is unstructured.

Another variable which Fiedler utilizes to refine his model and which educational researchers have examined is based on differentiating groups into those which are interacting, coacting, and counteracting. The interacting group is characterized by interdependence among group members in the performance of a primary task. In coacting groups, each member performs his duties relatively independently of other team members; each member is on his own. The counteracting

¹⁴⁴ McNamara, The Principal's Personal Leadership Style ..., p. 208.

¹⁴⁵ Terence R. McKague, "LPC - A New Perspective on Leadership," Educational Administration Quarterly, Vol. 6, No. 3, Autumn 1970, p. 11.

¹⁴⁶ Fiedler, "Validation and Extension ...," p. 144.

group consists of individuals in a bargaining-type situation. Fiedler indicated that most groups are a mixture of all three types, but one feature usually predominates.¹⁴⁷

Fiedler claimed that school staffs are coacting groups,¹⁴⁸ and most of the evidence supports his position especially in the case of large schools. McNamara examined this question in his second study. On the basis of visits to forty schools, he concluded that "the reality of educational practice conforms to the model of coacting groups for school staffs."¹⁴⁹ This conclusion was based on his observation that only one staff gave indications of "some degree of instructional co-ordination across grade boundaries."¹⁵⁰ Hawley also examined this assumption and reported that 54.5 per cent of his sample of teachers indicated that school staffs are coacting, while the remainder indicated that staffs are interacting.¹⁵¹ The distinction between types of groups may not be as important as Fiedler originally hypothesized. There are no pure types. Also, Fiedler recently stated that:

147 Ibid., p. 19-20.

148 Ibid., p. 144.

149 McNamara, The Principal's Personal Leadership Style ..., p. 69.

150 Ibid.

151 McKague, op. cit., p. 11.

The data on coaching task groups suggest that the distinction between interacting and coaching task groups might be unnecessary, while the distinction between task groups and training groups might be essential.¹⁵²

Fiedler presented a summary of studies which demonstrates that the results of empirical tests of the model with coaching task groups conform to the contingency model. School staffs are included in the summary.¹⁵³

Another interesting result of McNamara's second study was his finding that most of the variance in school effectiveness was accounted for under low LPC principals.¹⁵⁴ In other words, schools were markedly more or less effective under low LPC principals. He also reported that low LPC principals who had served less than two years were more effective than high LPC principals who had served less than two years; high LPC principals who had served more than two years were more effective than low LPC principals who had served more than two years. These results applied to secondary schools only. McNamara concluded that these results make a case for considering the effects

152 Fiedler, "Validation and Extension . . .," p. 146.

153 Ibid.

154 McNamara, The Principal's Personal Leadership Style . . ., p. 335.

of time on leadership effectiveness.¹⁵⁵ Fiedler claimed that leadership training and experience on the job increase the favorability of the situation for the leader rather than over-all leadership effectiveness. Training and experience increase situational favorability by making the task more structured from the point of view of the leader.¹⁵⁶ However, Likert dealt with experience in a slightly different manner; he has presented evidence based on longitudinal studies in industry which indicates that the effects of initiating variables, one of which is leadership style, do not influence output variables until one and one-half years have elapsed.¹⁵⁷ It is possible that McNamara and Fiedler have identified the same phenomenon.

155 Ibid., p. 321.

156 Martin Chemers, "Cross-Cultural Training as a Means for Improving Situational Favorableness," Human Relations, Vol. 22, No. 6, December 1969, p. 531-546; Louis S. Csoka and Fred E. Fiedler, "The Effect of Military Leadership Training: A Test of the Contingency Model," Organizational Behavior and Human Performance, Vol. 8, No. 3, December 1972, p. 395-407; and Fred E. Fiedler, "Leadership Experience and Leader Performance--Another Hypothesis Shot to Hell," Organizational Behavior and Human Performance, Vol. 5, No. 1, January 1970, p. 1-14, Leadership Experience and Leadership Training--Some New Answers to an Old Problem, Organizational Research Technical Report 72-36, University of Washington, Seattle, 1970, 1-29 p., "Predicting the Effects of Leadership Training and Experience from the Contingency Model," Journal of Applied Psychology, Vol. 56, No. 2, April 1972, p. 114-119, and "The Effects of Leadership Training and Experience: A Contingency Model Interpretation," Administrative Science Quarterly, Vol. 17, No. 4, December 1972, p. 453-470.

157 Likert, op. cit., p. 196-206.

Another contingency model study was conducted by Thomson.¹⁵⁸ He administered the LPC and GA scales to ninety-two principals and selected seven low LPC principals and seven high LPC principals to test the model. He administered the Barrett-Lennard Relationship Inventory to teachers and students in each school. The data from students meet the criterion as an effectiveness test in the contingency model; however, the data from teachers do not, since it was concerned only with the behavior of high- and low-LPC principals. Thomson's analysis of the data from students indicated that low LPC principals were more effective in providing a helping relationship.

The results of Thomson's study also present interpretation difficulties. The major problem involved the manner in which the GA scale was used. The mean GA score for Thomson's ninety-two schools was 55.1.¹⁵⁹ However, McKague reported a mean of 64.0 for GA data from thirty-nine schools.¹⁶⁰

¹⁵⁸ John Gray Thomson, An Empirical Study of the Relationship between Ontario Secondary Principal's Leadership Effectiveness and Helping Relationship in Ontario Secondary Teachers, unpublished Ph.D. thesis, University of Ottawa, Ottawa, 1972, xi-187 p.

¹⁵⁹ Ibid., p. 52.

¹⁶⁰ Terence R. McKague, A Study of the Relationship between School Organizational Behavior and the Variables of Bureaucratization and Leader Attitudes, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, p. 73.

The mean score for the normative sample is 65.¹⁶¹ The discrepancy between the means for Thomson's GA data and similar data reported in other sources probably resulted from the use of different instructions; Thomson asked respondents to "describe the group atmosphere of your present school."¹⁶² On the basis of this instruction, it is probable that principals would use the school as the point of reference rather than the staff group. However, in order to test Fiedler's theory,¹⁶³ it is necessary that the principal rate the atmosphere of the staff group. Thus, although Thomson used schools which had GA scores of 55 or higher,¹⁶⁴ and, although he assumed that his schools had good principal-teacher relationships, it is possible that the atmosphere of his schools varied between poor and good.

One problem which is important to the present study is the relationship between LPC scores and GA scores. A re-analysis of the raw data reported by Thomson¹⁶⁵ indicated that there was a relationship between the two sets of scores.

161 Posthuma, op. cit., p. 12.

162 Thomson, op. cit., p. 107.

163 Fiedler, A Theory of Leadership ..., vii-310 p.

164 Thomson, op. cit., p. 53.

165 Ibid., p. 111-127. (The information needed for matching LPC and GA scores was obtained in a personal communication.)

The Pearson r between principals' LPC scores and principals' GA scores in his sample was .12 ($N = 92$). The eta coefficient between Thomson's LPC and GA scores was .47. The F -ratio for the test of linearity was 2.72. Based on eight and eighty-two degrees of freedom, this ratio is significant beyond the .05 level. Thus, there is a significant curvilinear relationship between LPC scores and GA scores; high- and low-LPC principals generally perceive their school as having good principal-teacher relationships, whereas intermediate LPC principals vary in their perception of leader-member relationships.

The relationship between LPC scores and GA scores is meaningful in relation to the current interpretation of LPC scores. According to the evidence, the low LPC individual is less complex in his thinking than the high LPC person.¹⁶⁶ Also, Mitchell's work indicated that low LPC individuals used less information in their thinking about groups; they are less able to identify problem situations.¹⁶⁷ The results

¹⁶⁶ Martin Fishbien, Eva Landy, and Grace Hatch, "Some Determinants of an Individual's Esteem for His Least Preferred Co-worker: An Attitudinal Analysis," Human Relations, Vol. 22, No. 2, April 1969, p. 173-188; and Weissenberg and Gruenfeld, op. cit., p. 392-395.

¹⁶⁷ Mitchell, op. cit., p. 166-174.

of the analysis indicated that the low LPC principal is more likely to perceive principal-teacher relationships as good; the low LPC principal appears to be less able to identify problem situations. This finding is consistent with the evidence that the low LPC individual is cognitively simple in his thinking about groups.

The results obtained from high LPC principals follow a similar pattern. Previous research suggests that the high LPC individual is cognitively complex¹⁶⁸ and uses more information about group situations.¹⁶⁹ Thus, a high LPC principal should be able to perceive a poor group atmosphere if it exists within his school. The high LPC individual behaves in a relationship-oriented manner in poor group atmosphere situations which could have the effect of improving the group atmosphere. On the basis of this reasoning, one explanation for the results of the analysis is that high LPC principals are able to perceive the reality of a poor group atmosphere and change principal-teacher relationships over time. The fact that all the principals in Thomson's sample were experienced provides support for this interpretation.

168 Fishbien et al., "Some Determinants of an Individual's Esteem ...," p. 173-188; and Weissenberg and Gruenfeld, op. cit., p. 392-395.

169 Mitchell, op. cit., p. 166-174.

The major problems with the three studies analyzed in this section can be attributed to questionable reliability of criterion data and the manner in which the GA scale was used. As the review indicated, the researchers in education have used the median score based on GA data obtained in the study as the cutting score. This procedure has been criticized because it utilizes cutting scores which are dependent on specific situations.¹⁷⁰ Because of this, it is difficult to compare results of studies which applied Fiedler's theory in schools. Normative data are now available for the GA scale so that the problem of an acceptable cutting score appears to be solved; the median GA score for real-life groups is sixty-five.¹⁷¹

The review of research also provided a basis for concluding that schools are either Octant III or Octant VII situations. Thus, the theory predicts that low LPC principals are more effective than high LPC principals in Octant III (good GA) schools while high LPC principals are more effective than low LPC principals in Octant VII (poor GA) schools. Another important consideration for research involves

¹⁷⁰ Terence R. Mitchell, Anthony Biglan, Gerald R. Oncken, and Fred E. Fiedler, "The Contingency Model: Criticism and Suggestions," Academy of Management Journal, Vol. 13, No. 3, September 1970, p. 258.

¹⁷¹ Posthuma, op. cit., p. 12.

the relationship between LPC scores and GA scores; a re-analysis of data from ninety-two schools indicated that, among experienced principals, low LPC/poor GA situations and high LPC/poor GA contexts are almost non-existent.

One issue which is particularly important in the context of this review is the fact that Fiedler used results from small group research to construct the contingency model. Most of the research conducted by Fiedler and others supports the model. However, there are many differences between leadership in small groups and organizational leadership. Lipham stated that:

Leadership roles in structured organizations are, indeed, complex. Thus, the methodology and the findings of leadership studies concerned with small, unstructured, randomly selected groups are likely to be of only limited value when transplanted indiscriminately to large, hierarchial organizations.¹⁷²

The need to test small group theories of leadership in complex organizations is obvious.

The extent to which the influence of one man extends downward in an organization is a problem which particularly deserves analysis in a discussion of differences between leadership in organizations and small groups. Dubin distinguished between the leader's command functions (concerned

¹⁷² James M. Lipham, "Leadership and Administration," in Griffiths (ed.), op. cit., p. 125.

with transmission of hierarchial decisions) and his leadership functions (concerned with making decisions appropriate to the situation). While the command function is independent of personality, the leadership function depends on the person appointed as leader, both for the quality of decisions and for his interpersonal skills. While leaders of large organizations perform impersonal command functions for thousands of subordinates, the leadership function is more restricted in range because it depends on face-to-face contacts.¹⁷³ This position is compatible with Fiedler's theory. In other words, it is the interaction between the leader and his work group (principal and teachers) which influences the output of the staff group.

Stogdill has presented evidence to support the position that the leader has influence. He claimed that the patterns of leadership style seem to be carried from one organization to another by the leader, and that the predilection for a particular leadership style probably influenced the leader's perception of the problems faced by the

¹⁷³ R. Dubin, The World of Work, Englewood Cliffs, N. J., Prentice-Hall, 1958, p. 376-396.

organization.¹⁷⁴ Zaleznick was more forceful than most authors on the issue of the influence of the leader:

The energy and vitality that make organizations move depend upon individual initiative. Leaders with brilliant ideas and the capacity to inspire thought and action in others are the main generators of energy. The effects of their personality induce a contagion to perform that is considerably stronger in directing organizations than depersonalized systems such as interlocking committee structures or participative management. The release of individual energy and the contagion to perform occur within organizational structures. But the impulse and inspiration derive from individual personality.¹⁷⁵

Thus, it seems reasonable to conclude that leaders in complex organizations interact with their environment and influence the output of the organization, at least indirectly.

This conclusion has added validity when the index of group output is organizational climate or environment. Bey argued that the climate of schools is the key to distinguishing between effective and ineffective administrative behavior.¹⁷⁶ Katz and Kahn wrote that one of the problems with

¹⁷⁴ Ralph M. Stogdill, A Predictive Study of Work Patterns, Research Monograph No. 85, Ohio State University, Columbus, 1956, 68 p., quoted by Daniel E. Griffiths and Lawrence Iannoccone, "Administrative Theory, Relationships, and Preparation," Review of Educational Research, Vol. 28, No. 4, October 1958, p. 343.

¹⁷⁵ Abraham Zaleznick, Human Dilemmas of Leadership, New York, Harper & Row, 1966, p. 3-4.

¹⁷⁶ Douglas R. Bey, "A Further Study of School Organization," Phi Delta Kappan, Vol. 37, No. 6, February 1956, p. 217-221.

which the leader must deal is that of the "lack of fit between role requirements and the needs of the person."¹⁷⁷

Bennis claimed that the function of the leader in a problem-solving organization is "to promote conditions for congruence of individual and organizational goals."¹⁷⁸ Miklos hypothesized that effective leader behavior leads to effective climate conditions.¹⁷⁹

An analysis of leadership constructs in relation to theory and research associated with Fiedler's contingency model was presented in this section. The examination of the research applications of Fiedler's work in education indicated that most of the studies have dealt with high- and low-LPC leaders. The review of the literature also indicated that there is a need to examine the intermediate LPC principal in relation to the other types and that there is a need to test the theory in organizational settings. Finally, the theory examined in this section provided a basis for concluding that there is a fundamental relationship between leadership and organizational outputs.

177 Katz and Kahn, The Social Psychology ..., p. 304.

178 Bennis, "Leadership Theory ...," p. 299.

179 E. Miklos, "School Climate and Program Development," The Canadian Administrator, Vol. 4, No. 7, April 1965, p. 25-28.

An analysis of research related to the criterion variable of the study is presented in the next section.

5. Secondary School Climate Studies.

Research related to the criterion variable of the study, organizational climate as perceived by students, is examined in this section. Research which has examined data from Stern's High School Characteristics Index (HSCI) in relation to leadership variables is of particular relevance in the context of this review, while research on the phenomenological environment in general is also relevant.

Two researchers have examined HSCI data in relation to leader behavior. Wright¹⁸⁰ analyzed data from teachers and students in eighteen schools to determine (1) whether the environment of a school as perceived by students relates to the organizational climate of the school as perceived by teachers, and (2) whether certain components of the educational institution (organization, program, human and material resources) relate to teacher perception of climate and student perception of press. Teachers responded to the Organizational Climate Description Questionnaire; students responded to the

¹⁸⁰ William Ronald Wright, Environmental Press as Perceived by High School Students and Its Relationship to Organizational Climate, unpublished Ph.D. thesis, Purdue University, Lafayette, 1970, xi-505 p.

HSCI; and judges rated components of the institutions using a Judges Rating Scale. The results of the analysis indicated that open climate conditions as perceived by students were associated with high press conditions as defined by the researcher. The results of the study are difficult to compare with other HSCI research because the HSCI was not scored on the basis of a factor solution; however, the results do provide support for the position that leadership and environment are related since the Organizational Climate Description Questionnaire measures certain dimensions of leader behavior.

Another leader behavior study was conducted by Olson¹⁸¹ who used a sample of eighty-three schools to examine the extent to which congruence between the needs of the principal as measured by the Activities Index and the environment as measured by the HSCI resulted in effective leader behavior as measured by the Leader Behavior Description Questionnaire. Teachers responded to the latter two instruments while principals responded to the first instrument. The results indicated that educational administrators considered to be more effective on the basis of data from the Leader Behavior Description Questionnaire were significantly more congruent with their environment than administrators classified as less effective.

181 Gary Franklin Olson, Congruence and Dissonance in the Ecology of Educational Administrators as a Basis for Discriminating between Patterns of Leadership Behavior, Normal, Ill., Illinois State University, 1967, 33 p.

The results of these two studies support the position that educational leaders do affect the environments of their schools. However, both researchers utilized theories of leader behavior rather than theories of leadership. Both were influenced by the Ohio State University approach to leader behavior theory. This approach has been criticized because of the failure to consider situational variables. In this sense, the theory used by these two researchers does not reflect current thinking in the field.

There is some evidence in the literature which suggests that there is a relationship between student perception of the environment and other variables. Thus, it is necessary to examine this literature in order to determine whether these variables should be controlled in the study. The three variables are socio-economic status, sex, and school size.

Herr reported that the socio-economic status of parents was negatively related to student perception of press for Abasement and Prudishness and positively related to student perception of press for Sexuality and Achievement.¹⁸² Since Herr's study was conducted in only one school, the

¹⁸² Edwin L. Herr, "Differential Perceptions of 'Environment Press' by High School Students," Personnel and Guidance Journal, Vol. 43, No. 7, March 1965, p. 684.

results cannot be used as conclusive evidence that there is a relationship between socio-economic status and student perception of the environment. However, evidence from a related study provides support for Herr's results. McDill et al. used a climate instrument similar to the HSCI and found a mean rank-order correlation of .53 between socio-economic status and their six climate factors.¹⁸³ One advantage of using socio-economic status as a control variable is that it is a derivative or summarizing variable which symbolizes a variety of values, attitudes, and motivations.¹⁸⁴ In this sense, socio-economic status provides an index of input characteristics of students which affect organizational outputs and which are beyond the influence of administrative variables.

Another variable of concern is the sex of the respondent. Herr reported that girls tended to perceive more intellectual and dependency press than boys. Girls also tended to perceive more press for dominance, emotionality, narcissism, and sexuality, and less press for play and

¹⁸³ Edward L. McDill, Edmund D. Meyers, and Leo C. Rigsby, "Institutional Effects on the Academic Behavior of High School Students," Sociology of Education, Vol. 40, No. 3, Summer 1967, p. 194.

¹⁸⁴ David E. Lavin, The Prediction of Academic Performance: A Theoretical Analysis and Review of Research, New York, Russell Sage Foundation, 1965, p. 123.

aggression than did boys.¹⁸⁵ In other words, girls found the environment of the school studied by Herr to be more congenial. Stern reported that sex did not contribute much to differences in press as measured by the College Characteristics Index between type of university attended.¹⁸⁶ On the basis of this evidence, he decided not to utilize different sex norms for the College Characteristics Index. However, he did find that the five composite scores obtained by a combined factor analysis of the Activities Index and the College Characteristics Index were influenced by the sex of the respondent. Stern concluded that these culture scores should be treated differentially for men and women.¹⁸⁷ Thus, there is some evidence to indicate that sex influences responses to the HSCI.

A third significant variable is the size of the school. Although there are no HSCI studies which provide evidence regarding this variable, the results from College Characteristics studies do provide some clues. Stern used a two-way analysis of variance to test the effects of religious affiliation and size on the climates of thirty-four colleges.

185 Herr, op. cit., p. 684.

186 Stern, People in Context ..., p. 75-76.

187 Ibid., p. 206-208.

He found that size accounted for significant differences in most of the factors measured by the instrument. Stern also reported that differences between types of schools were reduced considerably when schools were grouped according to size. The subdivisions by size were made at enrollments of 450 and 2,000.¹⁸⁸ In one enlightening analysis, Stern found that colleges scoring high on Intellectual Climate had an average student population equal to one-sixth that of the low-scoring colleges.¹⁸⁹

An analysis of studies which examined leader behavior and variables which are related to student perception of the environment has been presented in this section. The evidence suggests that leaders do affect the environment of their schools. There is also a need to examine the possibility that socio-economic status, sex, and school size are related to student perception of the school environment.

In the next section, the relationship between the independent variables, leadership style and leader-member relations, and the dependent variable, student perception of the school environment, is examined.

188 Ibid., p. 97-100.

189 Ibid., p. 146.

6. The Relationship between Fiedler's Theory and Stern's Theory.

In this section, an analysis of the relationship between Fiedler's theory of leadership effectiveness and Stern's theory of organizational environments is presented. The relationship is demonstrated by examining similarities among the constructs used in both theories and by conceptualizing the process of activity in an organization in terms of causal, intervening, and end-result variables.

Both Fiedler and Stern used similar constructs as a basis for their theorizing. Fiedler defined leadership style as "the underlying need-structure of the individual which motivates his behavior in various leadership situations,"¹⁹⁰ and Stern defined a need as "organizational tendencies which appear to give unity and direction to a person's behavior."¹⁹¹ Thus, Fiedler's leadership style is similar to needs in Stern's work; in both theories, needs motivate behavior and are inferred from activity.

Stern postulated that the needs of one individual constitute a press for others in any social interaction.¹⁹²

190 Fiedler, A Theory of Leadership ..., p. 37.

191 Stern, People in Context ..., p. 6.

192 Ibid., p. 7-8.

Thus, the leadership style of the principal may be viewed as creating an environmental press for teachers. Similarly, the needs of the principal and teachers may be viewed as creating environmental press for students. In other words, the leadership style of the principal and the nature of the relationship between the principal and teachers emanates from their needs and creates a press for students. The extent to which environmental conditions which result from principal-teacher interaction provide for student growth determines the effectiveness of a group as a group. This is based on the position that the primary task of a school staff group is the creation of an educational environment which provides for self-actualization. Since the self-actualizing qualities of school environments are indexed by Stern's operationalization of environmental press,¹⁹³ Stern's model provides a valid means of assessing group effectiveness as defined by Fiedler.¹⁹⁴

Likert's analysis of the process of activity in an organization in terms of causal, intervening, and end-result variables¹⁹⁵ also provides a useful framework for demonstrating the relationship between the theories of Fiedler and Stern.

193 Ibid., p. 288-292.

194 Fiedler, A Theory of Leadership ..., p. 9.

195 Likert, op. cit., p. 196-206.

In relation to Likert's generalized formulation of organizational action, the independent variables, leadership style and principal-teacher relations, can be conceptualized as causal and intervening variables, respectively. Student perception of the environment in the perspective of student growth and development, the dependent variable, can be conceptualized as an end-result. Thus, a synthesis of the Fiedler-Stern theories indicates that the leadership style of the principal combined with principal-teacher relations creates an environment for students which can be conceptualized as an index of the effectiveness of a school staff.

7. Statement of the Problem.

The purpose of this study is to determine the effects of the principal's leadership style and principal-teacher relations on the educational environment of the school as perceived by students. The theoretical rationale for the study is based on Fiedler's theory of leadership effectiveness and the Stern need-press model. There is a fundamental relationship between these two theories, and both theories are compatible with a wide range of administrative theory.

In relation to Fiedler's theory, schools differ in terms of the principal's leadership style and group atmosphere. Three leadership styles may be identified: low LPC, intermediate LPC, and high LPC. Also, two types of group atmosphere

or leader-member relationships may be identified: good group atmosphere and poor group atmosphere. Thus, there are six theoretical types of school leadership situations in relation to Fiedler's theory. However, an examination of data available from previous research indicated that two of the theoretical possibilities do not exist in schools; experienced high- and low-LPC leaders do not perceive the atmosphere as poor.

As it applies to school organizations, Fiedler's theory predicts that the low LPC leader is more effective in good group atmosphere schools and that the high LPC principal is more effective in poor group atmosphere schools.

One assumption of the contingency model is that the relationship between LPC scores and member performance is linear. However, there is evidence to support the conclusion that the behavior of intermediate LPC leaders differ from the behavior of high- and low-LPC individuals. The possibility that the different behaviors of the intermediate LPC individual affects group performance has not been examined in empirical research. This study is concerned with examining this problem in an attempt to determine if the differential behaviors of intermediate LPC individuals have an effect on group performance. Since the evidence that the intermediate LPC individuals differ is indirect, the prediction is based on the contingency model.

An important aspect of the contingency model is based on the assumption that situational favorability by itself does not influence group performance. It is on this basis that Fiedler advocates matching leaders with situations rather than changing situational favorability in a positive direction. Theorists such as Likert, Getzels, Simon, and Barnard have presented theories which contradict Fiedler's position; they have postulated that improvements in situational favorability do affect member performance directly. The study is also aimed at examining this aspect of the contingency model. The third hypothesis is also derived from the contingency model.

Thus, the specific questions of the study are as follows:

1. Is there a difference in effectiveness between good group atmosphere staff groups led by high LPC principals and good group atmosphere staff groups led by low LPC principals?
2. Is there a difference in effectiveness between good group atmosphere staff groups led by intermediate LPC principals and good group atmosphere staff groups led by high LPC and low LPC principals?
3. Is there a difference in effectiveness between good atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals and poor group atmosphere staff groups led by intermediate LPC principals?

The hypotheses, which are based on the contingency model, are as follows:

1. Good group atmosphere staff groups led by low LPC principals will have higher Intellectual Climate, Expressiveness, Group Life, Personal Dignity, and Achievement Standards scores and lower Orderliness and Practicalness scores on the basis of student responses to the HSCI than good group atmosphere staff groups led by high LPC principals statistically controlling for the sex of respondents.
2. Good group atmosphere staff groups led by intermediate LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from good group atmosphere staff groups led by high LPC and low LPC principals statistically controlling for the sex of respondents.
3. Good group atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from poor group atmosphere staff groups led by intermediate LPC principals statistically controlling for the sex of respondents.

The possibility that student socio-economic status and school size are related to student perception of school environments will be examined and, if necessary, these variables will be controlled statistically.

CHAPTER II

EXPERIMENTAL DESIGN

In this chapter, information on the design of the study is presented. In the first section, descriptions of the initial and experimental samples along with an explanation of the procedures used in collecting data are given. In the second section, information relative to the instruments used in the study is summarized. The results of the test-retest study are presented in the third section. The plan for the statistical analyses is outlined in the final section.

1. The Sample.

The design of the study required the collection of data in two phases. The first data collection phase was concerned with obtaining data from principals, and the second phase was concerned with obtaining data from students. The samples used in the two phases are referred to as the initial sample and the experimental sample, respectively. Descriptions of the two samples, and an explanation of the procedures used in collecting data are presented in this section.

A. The Initial Sample

The first phase of the study was concerned with obtaining data from principals on characteristics of principals and schools and on the independent variables of the research, i.e., the principal's leadership style and principal-teacher relations. Schools used in the first phase are referred to as the initial sample.

All public school boards in the Province of Ontario which had at least one secondary school with a student population of five hundred or more were selected for inclusion in the initial sample. Seventy of the seventy-six school boards listed in the Directory of Schools 1972-73¹ satisfied this requirement. The researcher forwarded a description of the study to each of the seventy boards requesting permission to conduct research in all English secondary schools which offered comprehensive programs at the fourth-year level, which had a student population of five hundred or more, and which had not had a change in the principalship since September 1970. The decisions to establish these criteria were based on a number of reasons. One of the instruments used in the collection of criterion data, the High School Characteristics Index, was available in the English language only. The decision to

¹ Ministry of Education, Directory of Schools 1972-73, Toronto, the Ministry, 1972, 1-312 p.

delete small schools or schools which offered specialized programs was based on the possibility that these schools could not offer enough programs to meet the needs of most students.² The decision to use only schools which offered fourth-year courses was based on the need to obtain student data from a homogeneous group of students who were familiar with the school. Finally, the decision to delete schools whose principals had less than two years of experience as a principal in the school was based on the evidence that approximately two years are required for a change in administrative variables to affect output variables;³ furthermore, there is evidence which suggests that the first two years of the principalship are less favorable than subsequent years in relation to Fiedler's contingency model.⁴

School board officials were requested to forward a list of schools which satisfied the criteria. A total of sixty-one boards responded to the request within a period of three months. One board indicated that none of its schools

² Leslie R. Gue, "When Is A School Comprehensive?" The Canadian Administrator, Vol. 11, No. 7, April 1972, p. 25-28.

³ Rensis Likert, New Patterns of Management, New York, McGraw-Hill, 1961, p. 196-206.

⁴ Fred E. Fiedler, "The Effects of Leadership Training and Experience: A Contingency Model Interpretation," Administrative Science Quarterly, Vol. 17, No. 4, December 1972, p. 458-460.

were eligible on the basis of the criteria; thus, the population was reduced to sixty-nine boards. Of these, forty-four (63.8 per cent) agreed to participate, and sixteen refused to participate in the study. The reasons given for refusing to take part included heavy demands from other research projects and duplication of research already conducted by other researchers.

Only some of the boards which approved the study forwarded a list of schools which satisfied the criteria. In cases where a list of eligible schools was not forwarded, instruments were forwarded to all schools listed in the Directory of Schools 1972-73. Instruments were also forwarded to all schools in the lists provided by school boards. Three instruments, a Principal and School Characteristics questionnaire, the Least Preferred Coworker (LPC) scale, and the Group Atmosphere (GA) scale,⁵ were forwarded to principals in all participating schools. A total of 211 sets of instruments were mailed to principals, and 181 principals returned questionnaires five of which were incomplete. Thus, a total of 176 (83.4 per cent) returned usable responses, and 111 of these respondents met all the criteria for inclusion in the study. In cases where completed instruments were not received within four weeks, a follow-up letter was sent to the principal.

⁵ See Appendix 1.

B. The Experimental Sample

The experimental sample consisted of schools which were used in the second phase of the study. This phase involved obtaining criterion data from students. Experimental schools were selected on the basis of responses obtained from principals in the first data collection phase. Three levels of leadership style (low LPC, intermediate LPC, and high LPC) and two levels of group atmosphere (good and poor) were used to identify schools for the experimental sample. The low LPC principal was defined as an individual who obtained a score of thirty-six or less on the LPC scale. The intermediate LPC principal was defined as an individual who obtained a score between fifty-four and sixty-four; these scores are within five points of fifty-nine which is the mean score for leaders based on LPC data from 2,014 individuals.⁶ A high LPC principal was defined as an individual who obtained a score of eighty-five or more on the LPC scale. These definitions are consistent with those used by Fiedler⁷ and

⁶ Allan B. Posthuma, Normative Data on the Least-Preferred Co-worker Scale (LPC) and the Group Atmosphere Questionnaire (GA), Organizational Research Technical Report 70-8, University of Washington, Seattle, 1970, p. 11.

⁷ Fred E. Fiedler, A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967, p. 44.

Thomson.⁸ For the purpose of the study, the good group atmosphere school was defined as a school which had a score of sixty-nine or higher on the GA scale, and a poor group atmosphere school was defined as a school which had a score of sixty-one or lower on the GA scale. The mean GA score for real-life groups is sixty-five (N = 907).⁹ These definitions were adhered to in the selection of schools for the experimental sample to the extent that this was possible.

Schools which satisfied the criteria for inclusion in the study were assigned to the six cells of the research design on the basis of LPC and GA scores. In addition, schools which satisfied all the criteria, but departed slightly from the cut-off scores established for LPC scores were assigned to one of the six cells of the design; this was necessary because of the small number of eligible schools. The LPC and GA scores for schools eligible for inclusion in the experimental sample are presented in Table I. The first observation is that only nine of the schools which satisfied all the criteria had poor group atmospheres. Also, high- and low-LPC principals in poor group atmosphere schools were not adequately represented

⁸ John Gray Thomson, An Empirical Study of the Relationship between Ontario Secondary Principal's Leadership Effectiveness and Helping Relationship in Ontario Secondary Teachers, unpublished Ph.D. thesis, University of Ottawa, Ottawa, 1972, p. 50.

⁹ Posthuma, op. cit., p. 12.

Table I.-

Leadership Style (LPC) and Group Atmosphere (GA) Data for Schools Eligible for Inclusion in the Experimental Sample.

Cell	LPC Score	GA Score
Low LPC/ Good GA	16	73
	17	74
	21	77
	33	74
	35	73
	36	74
	43*	71
Intermediate LPC/Good GA	58	70
	60	72
	61	72
	61	74
	64	77
	66*	71
High LPC/ Good GA	85	75
	86	69
	86	75
	87	69
	90	71
	93	69
	95	72
	97	75
	99	71
	104	73
107	74	
Low LPC/ Poor GA	31	59
Intermediate LPC/Poor GA	55	61
	58	61
	63	43
	63	43
	63	59
	64	53
65*	61	
High LPC/ Poor GA	86	61
	114	57

*Indicates an LPC score which departs slightly from pre-defined cut-off points.

for purposes of research.¹⁰ The remaining cells had at least six schools which were eligible for inclusion in the study. Thus, the experimental sample was limited to these four cells. In cases where there were more than six schools in the cell, schools were randomly selected.

Following the selection of schools for the experimental sample, the researcher telephoned the principal of each school to request the cooperation of the school and to establish a time for administering instruments to students. In some cases, the researcher also visited the school to provide additional information regarding the study. Four of the selected schools refused to participate because of involvement in other research. Thus, four additional schools were selected. A letter outlining the research procedures was sent to each of the principals who agreed to participate.

Two instruments, the High School Characteristics Index,¹¹ and a Student Background Information Questionnaire,¹²

¹⁰ The Pearson r between principals' LPC scores and principals' GA scores was .02 ($N = 176$). The eta coefficient between LPC scores and GA scores was .47. The F test of linearity yielded a F -ratio of 5.35 which, with nine and 165 degrees of freedom, is significant beyond the .05 level. Thus, there is a significant curvilinear relationship between LPC scores and GA scores; high- and low-LPC principals generally perceive their schools as having good principal-teacher relationships, whereas intermediate LPC principals vary in their perception of leader-member relationships.

¹¹ See Appendix 2.

¹² See Appendix 3.

were administered to students enrolled in fourth-year courses in each of the twenty-four schools during a five-week period in the spring of 1973. The procedure for obtaining student respondents involved randomly selecting twenty-five males and twenty-five females from all students enrolled in fourth-year courses. In some cases, respondents were selected from all students enrolled in fourth-year courses; in other cases, students were selected from four or five randomly selected fourth-year classes. The researcher administered the instruments in twenty-one schools, and a research assistant administered the instruments in three schools. The assistant observed several administrations prior to administering instruments, and identical instructions and procedures were used in each school. A total of 547 males (91.2 per cent of those selected) and 556 females (92.7 per cent of those selected) responded to the High School Characteristics Index. A total of 1,072 students responded to the Student Background Information questionnaire.

Characteristics of principals and schools along with the number of student respondents in each of the experimental schools are presented in Table II.

2. The Instruments.

Descriptions of the instruments used in the study are presented in this section. The five instruments were as

Table II.-

Characteristics of Principals and Schools in the Experimental Sample (N = 24).

School No.	Characteristics of Principals			School size	No. of Student Respondents	
	LPC score	GA score	Experience as principal in present school		Male	Female
1	16	73	4	1157	24	24
2	17	74	4	1770	24	23
3	21	77	3	1465	25	21
4	33	74	4	960	23	21
5	36	74	4	1500	16	18
6	43	71	3	1170	18	23
7	58	70	7	1248	22	24
8	60	72	7	1939	25	21
9	61	72	6	621	25	23
10	61	74	18	700	25	24
11	64	77	4	1183	20	25
12	66	71	5	1476	22	24
13	55	61	12	1160	24	25
14	58	61	13	850	25	25
15	63	43	3	1063	18	22
16	63	43	4	1474	25	23
17	64	53	4	1300	25	22
18	65	61	3	591	16	25
19	86	69	9	1146	25	24
20	90	71	5	1400	23	21
21	93	69	5	914	24	25
22	95	72	7	1406	23	25
23	97	75	5	1200	24	24
24	99	71	11	975	24	25

follows: a Principal and School Characteristics questionnaire, the Least Preferred Coworker scale, the Group Atmosphere scale, the High School Characteristics Index, and a Student Background Information questionnaire.

A. The Principal and School Characteristics Questionnaire

The Principal and School Characteristics questionnaire¹³ was developed for the study. It consisted of questions regarding the principal's training and experience, school size, and type of program offered. This information was required for selecting schools for the experimental sample. Also, data regarding school size were required for the statistical analysis in order to examine the need to control for school size. The data on school size obtained from the Principal and School Characteristics questionnaire for the schools in the experimental sample were compared with school size data reported in the Directory of Schools 1972-73. Differences between school size data from the two sources ranged from five students to ninety-two students. Since the data reported in the Directory of Schools are based on actual school populations at the beginning of the school year, it could be expected that some differences would exist between these data

¹³ See Appendix 1.

and data obtained later in the year. Thus, the differences are likely due to changes in school population rather than errors of measurement. Therefore, the Principal and School Characteristics questionnaire was used as the source for school size data.

B. The Least Preferred Coworker Scale

The LPC scale¹⁴ was used to measure the leadership style component of the contingency model. An individual's LPC score is obtained by asking the respondent to think of all the people with whom he has worked and to describe the one person with whom he has found it most difficult to work. The LPC scale consists of a set of eight-point bi-polar scale items based on the same format as Osgood's Semantic Differential. The instrument is scored by assigning a value of one to the negative end of each scale and a value of eight to the positive end. The LPC score is obtained by summing the sixteen item scores. The score from the instrument is interpreted as an index of leadership style which Fiedler defines as "the underlying need-structure of the individual which motivates his behavior in various leadership situations."¹⁵

¹⁴ See Appendix 1.

¹⁵ Fiedler, A Theory of Leadership ..., p. 37.

The LPC scale yields split-half reliability coefficients of about .90.¹⁶ Fiedler also reported that the test-retest coefficient for leaders in stable situations is around .6 or .7.¹⁷ Gruenfeld et al. reported a test-retest coefficient of .85 (N = 126) over a five-week period.¹⁸ McNamara obtained a test-retest coefficient of .45 (N = 32) for elementary principals over a period of one and one-half years.¹⁹ The results of a test-retest study conducted in conjunction with the present study are reported in a later section of this chapter.

C. The Group Atmosphere Scale

The GA scale²⁰ was used in the study to measure principal-teacher relations. The instrument consists of bipolar adjective scales based on the same format as the LPC scale. The scale is scored by assigning a value of eight

16 Ibid., p. 44.

17 Ibid., p. 49.

18 Leopold W. Gruenfeld, David E. Rance, and Peter Weissenberg, "The Behavior of Task-Oriented (Low LPC) and Socially Oriented (High LPC) Leaders under Several Conditions of Social Support," The Journal of Social Psychology, Vol. 79, No. 1, October 1969, p. 101.

19 Vincent D. McNamara, The Principal's Personal Leadership Style, the School Staff Situation, and School Effectiveness, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, p. 195.

20 See Appendix 1.

to the positive end of each item and a value of one to the negative end. The GA score is obtained by summing the item scores. According to Fiedler, the instrument measures the extent to which the "leader feels accepted by the group and relaxed and at ease in his role."²¹

Several studies have examined the relationship between GA scores and other variables. Since it could be expected that GA scores would be correlated with other variables on the basis of theory, these studies should provide evidence regarding the construct validity of the GA scale.²²

Fiedler et al. reported correlations ranging from .24 to .30 (N = 30) between leader GA scores and team adjustment scores which were based on followers' responses to questions regarding daily mood, feeling of accomplishment, and state of health.²³ Sashkin found that the leaders' perception of group atmosphere was significantly related to the group

21 Fiedler, A Theory of Leadership ..., p. 32.

22 Lee J. Cronbach and Paul E. Meehl, "Construct Validity in Psychological Tests," in Douglas N. Jackson and Samuel Messick (eds.), Problems in Human Assessment, Toronto, McGraw-Hill, 1967, p. 57-77.

23 Fred E. Fiedler, Gordon E. O'Brien, and Daniel R. Ilgren, "The Effect of Leadership Style upon the Performance and Adjustment of Teams Operating in a Stressful Foreign Environment," Human Relations, Vol. 22, No. 6, December 1969, p. 508-513.

members' reports of helpfulness in solving problems in an experimental situation ($r = .52$, $N = 13$).²⁴

A number of predicted relationships were obtained in educational studies. McNamara reported a correlation of .19 ($N = 21$) between principals' GA scores and staff satisfaction²⁵ and a correlation of .69 ($p < .001$) between principals' GA scores and principals' rating of staff commitment.²⁶ He also found that principals' GA scores were related to years of experience as a principal ($r = .34$, $N = 72$) for elementary principals,²⁷ years of experience as a principal ($r = .48$, $N = 30$) for secondary principals,²⁸ school size ($r = -.35$, $N = 30$) for senior secondary schools,²⁹ sociometric choice of the principal by the staff ($r = .25$, $N = 26$),³⁰ staff cohesiveness ($r = .51$, $N = 26$), and conflict ($r = -.32$, $N = 26$).³¹ These results are meaningful because they are

²⁴ Marshall Sashkin, "Leadership Style and Group Decision Effectiveness: Correlational and Behavioral Tests of Fiedler's Contingency Model," Organizational Behavior and Human Performance, Vol. 8, No. 3, December 1972, p. 355.

²⁵ Vincent D. McNamara, A Descriptive-Analytic Study of Directive-Permissive Variation in the Supervisory Behavior of Elementary School Principals, unpublished M.Ed. thesis, University of Alberta, Edmonton, 1967, p. 104.

²⁶ Ibid., p. 134.

²⁷ -----, The Principal's Personal Leadership Style ..., p. 155.

²⁸ Ibid., p. 153.

²⁹ Ibid., p. 155.

³⁰ Ibid., p. 218.

³¹ Ibid., p. 220.

theoretically predictable. However, as the correlations in Table III indicate, an attempt to relate principals' GA scores to other variables was not successful in demonstrating predicted relationships with the data obtained in this study. It was expected that school size would be negatively related to GA scores and that experience of the principal would be positively related to GA scores.

Fiedler reported that the corrected split-half reliability of the scale was .90.³² McNamara reported a test-retest coefficient of .42 (N = 31) for elementary principals over a period of one and one-half years.³³ The test-retest coefficient obtained in this study is reported in a later section.

D. The High School Characteristics Index

The High School Characteristics Index (HSCI)³⁴ was used to measure the environment of secondary schools as perceived by students.

32 Fiedler, A Theory of Leadership ..., p. 163.

33 McNamara, The Principal's Personal Leadership Style ..., p. 195.

34 See Appendix 2.

Table III.-

Pearson Product-Moment Correlations between Principals' Group Atmosphere Scores and Principal and School Characteristics (N = 176).

	Experience as a principal in present school	Experience in education before becoming a principal	School size
Principals' Group Atmosphere scores	.05	.13	.02

$$.95^{r_{174}} = .148$$

Murray's need-press model³⁵ served as the theoretical basis for the development of the HSCI. The instrument consists of thirty scales³⁶ which represent external environmental counterparts to the thirty personality needs used by Stern in the development of the Activities Index, an instrument which measures personality needs. The HSCI was developed by transposing each of the items in the Activities Index to environmental counterparts. Each of the thirty scales in the HSCI consists of ten items making a total of 300 items.³⁷

Stern derived seven first-order factors based on data obtained from 947 students in twelve secondary schools. He claimed that the first five first-order factors represent a Development Press which describes conditions that facilitate growth and development and that the other two first-order factors deal with Control Press which refers to organizational control and maintenance.³⁸ The seven first-order factors were defined as follows:

35 Henry A. Murray, Explorations in Personality, New York, Oxford University Press, 1938, xiv-761 p.

36 See Appendix 4.

37 George C. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, xxvi-402 p.

38 Ibid., p. 68.

I. Development Press.

1. Intellectual Climate. This factor reflects the qualities of a staff and plant specifically devoted to scholarly activities in the humanities, arts, and social sciences. It also suggests a measure of social commitment and selflessness based on idealism.
2. Expressiveness. This factor suggests a non-conforming environment which encourages open emotional expression, high activity, aesthetic experiences, and expressions of dependence on others for assistance.
3. Achievement Standards. This environment is characterized by high standards of achievement, an emphasis on striving for success through personal effort and on planned, organized, purposeful activities. The score also reflects a concern with appearance and dress.
4. Group Life. Schools high on this factor are characterized by fun-loving, friendly, actively outgoing environments which provide for mutually supportive group activities of a warm friendly nature.
5. Personal Dignity. This scale reflects a concern for the maintenance of a high level of self-determination and personal responsibility among students while providing for expressions of dependency and defensiveness. A high score indicates that the climate is non-authoritarian and that student conduct is regulated by means other than administrative fiat. There is a minimum of coercion and students are treated with respect.

II. Control Press.

6. Orderliness. This factor reflects an emphasis on organization and structure in the academic environment along with administrative concern for the physical well-being of students.
7. Practicalness. This factor suggests an emphasis on practical activities, heterosexual interests and activities, along with assertive or manipulative control.³⁹

39 Ibid., p. 251-255.

The seven first-order factors were used as the dependent variables in this study.⁴⁰

Table IV contains reliability coefficients, validity coefficients, and correlations for the seven first-order HSCI factors based on data from 947 students. Table V gives correlations for the seven first-order factors based on data obtained in the present study.

E. The Student Background Information Questionnaire

The Student Background Information questionnaire⁴¹ was designed to obtain information regarding the socio-economic status of students.

The instrument contained two open-ended questions in which the respondents were asked to describe their father's job. These descriptions were coded into the seven broad categories of the Blishen Occupational Class Scale.⁴²

The Occupational Class Scale was constructed from data obtained in the decennial census of 1951.⁴³ The occupations reported in the 1951 census were arranged according to

⁴⁰ The procedures for scoring the HSCI are outlined in Appendix 15.

⁴¹ See Appendix 3.

⁴² Bernard R. Blishen, "The Construction and Use of an Occupational Class Scale," in B. R. Blishen, F. E. Jones, and J. Porter (eds.), Sociological Perspectives, Toronto, Macmillan of Canada, 1965, p. 453-457.

⁴³ Ibid., p. 449.

Table IV.-

Reliability Coefficients, Validity Coefficients, and
Intercorrelations for the Seven First-Order
HSCI Factors.

HSCI Factors	1	2	3	4	5	6	7
Reliability Coefficients KR ₂₀	.89 ^a	.84	.84	.97	.87	.84	.74
Validity Coefficients	.83 ^a	.85	.74	.79	.82	.98	.90
1. Intellectual Climate	-	.79 ^b	.68	.58	.74	.26	.14
2. Expressiveness		-	.66	.62	.76	.23	-.01
3. Group Life			-	.40	.62	.18	.23
4. Personal Dignity				-	.54	.25	-.32
5. Achievement Standards					-	.46	.12
6. Orderliness						-	-.03
7. Practicalness							-

a George G. Stern, People in Context: Measuring Person - Environment Congruence in Education and Industry, New York, John Wiley, 1970, p. 255.

b Ibid., p. 254.

Table V.-
Intercorrelations among the Seven First-Order HSCI
Factors (N = 1102).

HSCI Factors	1	2	3	4	5	6	7
1. Intellectual Climate	-	.81	.70	.41	.70	-.01	.41
2. Expressiveness		-	.70	.54	.72	-.06	.30
3. Group Life			-	.29	.63	-.09	.42
4. Personal Dignity				-	.43	-.01	-.24
5. Achievement Standards					-	.25	.36
6. Orderliness						-	-.04
7. Practicalness							-

income and the years of schooling required. The average income and average number of years of schooling were then determined for each occupation, and standard scores were computed for both variables. The two standard scores were combined and the 343 occupations included in the list were ranked according to the combined scale. The resulting list of occupations was divided into seven classes. The relative prestige rating of various occupations was used as the criterion for arriving at the seven occupational classes. Thus, the divisions were somewhat arbitrary in the sense that the sizes of the intervals, in terms of the range of standard scores, were unequal.⁴⁴

Blishen reported one attempt to determine the validity of the scale. The seven occupational classes were compared with a similar scale developed by Tuchman which included a ranking of occupations according to prestige. Tuchman's study included eighteen occupations which could be compared with similar categories in the Occupational Class Scale. The rank correlation between the two groups was .91.⁴⁵ Anderson used the Occupational Class Scale and reported a correlation of -.10 (N = 1890) between alienation from school and socioeconomic status (individual level), a correlation of -.61

⁴⁴ Ibid., p. 449-450.

⁴⁵ Ibid., p. 450.

(N = 18) between alienation from school and socio-economic status (school means), a correlation of $-.18$ (N = 1890) between bureaucratization and socio-economic status (individual level), and a correlation of $-.90$ (N = 18) between bureaucratization and socio-economic status (school means).⁴⁶

These results provide support for the construct validity of the Occupational Class Scale.

3. The Test-Retest Study.

A test-retest study was conducted as part of the research. LPC and GA scales were mailed to sixty randomly selected principals six weeks after the first set of instruments was received by the researcher. Thus, the period of time between the two administrations was approximately seven weeks. A total of forty-six sets of instruments was returned, eleven of which were incomplete. Thus, thirty-five principals provided usable responses.⁴⁷

The Pearson product-moment correlation between the two sets of LPC scores was $.64$, and between the two sets of GA scores the coefficient was $.67$.

⁴⁶ Barry D. Anderson, A Methodological Note on Contextual Effects Studies in Education, paper presented at the Canadian Educational Research Association Meeting, May 1972, p. 7.

⁴⁷ Raw data obtained in the test-retest study are given in Appendix 8. Descriptive information for the test-retest sample and data is given in Appendix 11 and Appendix 12.

4. Plan for the Statistical Analysis.

The first statistical treatment involves examining the relationship between the seven HSCI factor scores and socio-economic status scores. If there is a substantial relationship between these variables, the plan involves adjusting HSCI scores for individuals using socio-economic status scores as the predictors.

The three hypotheses of the research are tested by means of a priori orthogonal contrasts. The coefficients for the contrasts are as follows:

	<u>Low LPC/ Good GA</u>	<u>Intermediate LPC/Good GA</u>	<u>Intermediate LPC/Poor GA</u>	<u>High LPC/ Good GA</u>
H ₁	-1	0	0	1
H ₂	1	-2	0	1
H ₃	1	1	-3	1

The statistical treatment for the analysis is multivariate analysis of variance using sex as a blocking variable and the seven HSCI factor school mean scores for males and females as the variates.

CHAPTER III

ANALYSIS OF DATA

The results of the analysis of data are reported in this chapter. Descriptive statistics and the results of analyzing data relative to the assumptions for analysis of variance are presented in the first section. The results of testing the three hypotheses of the study are given in the second section. A summary of the findings of the study is given in the final section.

1. Preliminary Analysis.

In this section, the results of the preliminary analysis of data are reported. First, the relationship between student perception of school environmental variables and student socio-economic status is reported. This is followed by an examination of the relationship between student perception of school environmental factors and school size. Descriptive statistics are also presented in this section.

There was some evidence from related research which suggested that the socio-economic status of parents would affect student perception of school environmental

variables.¹ However, as the correlations in Table VI indicate, the data² obtained in this study did not provide any support for this hypothesis. Thus, there was no need to statistically control for socio-economic status in the analysis of the hypotheses of the research.

Some of Stern's research with the College Characteristics Index, an instrument which measures environmental variables at the college level, indicated that there was a significant relationship between size of the student population and the quality of educational environments.³ The correlations reported in Table VII which are based on the within cells sums of cross products and variances indicate that the linear relationship between size of the student population and the seven HSCI factors is minimal. The results do not rule out the possibility of significant curvilinear relationships. However, the results do not provide

1 Barry D. Anderson, Bureaucratization and Alienation: An Empirical Study in Secondary Schools, unpublished Ph.D. thesis, University of Toronto, Toronto, 1970, p. 235; Edwin L. Herr, "Differential Perceptions of 'Environmental Press' by High School Students," Personnel and Guidance Journal, Vol. 43, No. 7, March 1965, p. 684; and Edward L. McDill, Edmund D. Myers, and Leo C. Rigsby, "Institutional Effects on the Academic Behavior of High School Students," Sociology of Education, Vol. 40, No. 3, Summer 1967, p. 194.

2 The mean score for data obtained from the Blishen Occupational Class Scale was 3.79, and the standard deviation was 1.63 (N = 1072).

3 George G. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, p. 97-100.

Table VI.-

Pearson Product-Moment Correlations between High School Characteristics Index Scores and Blishen Occupational Class Category (N = 1072).

HSCI Factors	Blishen Occupational Class Category
1. Intellectual Climate	-.01
2. Expressiveness	.01
3. Group Life	-.03
4. Personal Dignity	-.03
5. Achievement Standards	.02
6. Orderliness	.06
7. Practicalness	.02

Table VII.-

Pearson Product-Moment Correlations Between High School Characteristics Index Scores and School Size (N = 24).

HSCI Factors	School Size
1. Intellectual Climate	.28
2. Expressiveness	.10
3. Group Life	.00
4. Personal Dignity	.07
5. Achievement Standards	.11
6. Orderliness	-.32
7. Practicalness	.00

a basis for using school size as a covariate. One possibility for the failure to replicate Stern's results with colleges is the smaller range in the student populations of secondary schools as compared with colleges.

Means and standard deviations for the eight cells of the research design are presented in Tables VIII, IX, X, and XI. It is evident that the variance in student perception of school environmental factors is much greater in low LPC/good GA schools than in the other three types. Thus, staff groups led by low LPC principals in good GA schools vary more than other staff groups. McNamara reported similar results in his study in which the index of effectiveness was student achievement in provincial examinations and supervisors' ratings of staff effectiveness.⁴

The Bartlett-Box test for homogeneity of group dispersions yielded an F-ratio of 1.33 which, with 196 and 1891 degrees of freedom, is significant beyond the .05 level. The low LPC/good GA schools appear to have accounted for the significant result. The effect of heterogeneity of variance-covariance matrices is often ignored by multivariate

⁴ Vincent D. McNamara, The Principal's Personal Leadership Style, the School Staff Situation, and School Effectiveness, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, p. 335.

Table VIII.-

Means and Standard Deviations for the Seven Factors of the High School Characteristics Index for Males and Females in Low LPC/Good GA Schools (N = 12).

HSCI Factors	Males		Females	
	Mean	S.D.	Mean	S.D.
1. Intellectual Climate	35.43	6.63	36.41	7.83
2. Expressiveness	28.62	5.63	28.45	7.20
3. Group Life	25.72	4.67	24.80	5.58
4. Personal Dignity	32.25	5.45	31.74	5.62
5. Achievement Standards	35.97	4.25	35.95	4.22
6. Orderliness	15.27	.95	15.60	2.45
7. Practicalness	23.11	1.58	23.19	1.30

Table IX.-

Means and Standard Deviations for the Seven Factors of the High School Characteristics Index for Males and Females in Intermediate LPC/Good GA Schools (N = 12).

HSCI Factors	Males		Females	
	Mean	S.D.	Mean	S.D.
1. Intellectual Climate	35.73	1.38	36.49	2.65
2. Expressiveness	29.02	2.42	29.58	3.02
3. Group Life	25.52	1.93	25.42	1.04
4. Personal Dignity	32.09	2.08	33.76	2.11
5. Achievement Standards	36.78	1.90	37.76	2.06
6. Orderliness	16.34	.62	15.73	1.42
7. Practicalness	23.59	1.55	23.95	.88

Table X.-

Means and Standard Deviations for the Seven Factors of the High School Characteristics Index for Males and Females in Intermediate LPC/Poor GA Schools (N = 12).

HSCI Factors	Males		Females	
	Mean	S.D.	Mean	S.D.
1. Intellectual Climate	32.45	3.19	34.28	3.41
2. Expressiveness	27.28	2.63	27.35	2.79
3. Group Life	23.16	4.24	22.61	3.88
4. Personal Dignity	29.47	1.64	29.71	1.34
5. Achievement Standards	34.90	3.81	35.79	3.38
6. Orderliness	16.78	1.84	17.14	1.45
7. Practicalness	23.24	1.14	23.89	1.43

Table XI.-

Means and Standard Deviations for the Seven Factors of the High School Characteristics Index for Males and Females in High LPC/Good GA Schools (N = 12).

HSCI Factors	Males		Females	
	Mean	S.D.	Mean	S.D.
1. Intellectual Climate	35.28	3.32	35.31	2.14
2. Expressiveness	29.30	2.57	28.97	2.30
3. Group Life	27.58	3.52	27.10	2.59
4. Personal Dignity	32.44	2.11	31.07	3.76
5. Achievement Standards	36.53	2.06	36.84	2.04
6. Orderliness	16.42	.92	15.99	1.00
7. Practicalness	22.90	1.31	23.80	1.22

statisticians, and the multivariate F-test for the equality of mean vectors is fairly robust under departures from its assumptions.⁵ At the same time, it must be recognized that the departure could affect the results because of the small number of observations in each cell.

2. Results of Testing the Hypotheses.

The three hypotheses of the research are as follows:

1. Good group atmosphere staff groups led by low LPC principals will have higher Intellectual Climate, Expressiveness, Group Life, Personal Dignity, and Achievement Standards scores and lower Orderliness and Practicalness scores on the basis of student responses to the HSCI than good group atmosphere staff groups led by high LPC principals statistically controlling for the sex of respondents.
2. Good group atmosphere staff groups led by intermediate LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from good group atmosphere staff groups led by high LPC and low LPC principals statistically controlling for the sex of respondents.
3. Good group atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from poor group atmosphere staff groups led by intermediate LPC principals statistically controlling for the sex of respondents.

⁵ William W. Cooley and Paul H. Lohnes, Multivariate Data Analysis, Toronto, John Wiley, 1971, p. 228.

The hypotheses were tested using a priori orthogonal contrasts with sex as a blocking variable. The statistical treatment was multivariate analysis of variance. The residual variance-covariance matrix was used as the error term; none of the interactions between the four leadership/group atmosphere combinations and sex were significant.⁶

The multivariate F-ratios for the three hypotheses and the blocking variable are reported in Table XII. The corresponding univariate F-ratios for the first and third hypotheses are presented in Table XIII and Table XIV; interpreted with caution since it is a post hoc procedure.

The test of the first hypothesis indicates that the difference in effectiveness between staff groups led by high- and low-LPC principals in good GA schools approaches but does not reach the .05 level of statistical significance; staff groups led by high LPC principals tend to be slightly more effective than staff groups led by low LPC principals. Fiedler's contingency model predicts a difference in effectiveness between staff groups led by high- and low-LPC principals. The trend of the results for this hypothesis suggests that secondary schools with good group atmosphere are moderately favorable leadership situations.

⁶ The multivariate F-ratios for the three interaction hypotheses were .40, .61, and .29.

Table XII.-

F-Ratios for Multivariate Test of Equality of High School Characteristics Index Mean Vectors.

Hypotheses ^a	df ₁	df ₂	F	p
H ₁	7	37	2.22	.055
H ₂	7	37	1.43	.225
H ₃	7	37	3.80	.003
H _{block}	7	37	1.88	.101

a H₁: Staff groups led by high LPC versus low LPC principals in good GA schools.

H₂: Staff groups led by intermediate LPC versus high LPC and low LPC principals in good GA schools.

H₃: Staff groups led by high LPC, intermediate LPC, and low LPC principals in good GA schools versus staff groups led by intermediate LPC principals in poor GA schools.

Table XIII.-

F-Ratios for Univariate Test of Equality of High School Characteristics Index Mean Scores Between Staff Groups Led by High LPC Principals in Good GA Schools and Staff Groups Led by Low LPC Principals in Good GA Schools.

HSCI Factor	df ₁	df ₂	MS	F	p
1. Intellectual Climate	1	43	2.38	.13	.72
2. Expressiveness	1	43	2.16	.15	.70
3. Group Life	1	43	25.96	2.03	.16
4. Personal Dignity	1	43	.34	.03	.86
5. Achievement Standards	1	43	3.15	.35	.56
6. Orderliness	1	43	3.51	1.77	.19
7. Practicalness	1	43	.24	.14	.71

Table XIV.-

F-Ratios for Univariate Test of Equality of High School Characteristics Index Mean Scores between Staff Groups Led by High LPC, Intermediate LPC, and Low LPC Principals in Good GA Schools and Staff Groups Led by Intermediate LPC Principals in Poor GA Schools.

HSCI Factor	df ₁	df ₂	MS	F	p
1. Intellectual Climate	1	43	52.41	2.95	.09
2. Expressiveness	1	43	25.25	1.73	.20
3. Group Life	1	43	88.77	6.94	.01
4. Personal Dignity	1	43	62.40	5.58	.02
5. Achievement Standards	1	43	15.15	1.66	.20
6. Orderliness	1	43	10.30	5.18	.03
7. Practicalness	1	43	.18	.11	.74

The variances between high- and low-LPC principals in the good GA schools differed significantly for three HSCI factors. The F-ratios for testing differences between variances for Intellectual Climate, Expressiveness, and Personal Dignity were 8.40, 7.99, and 5.30, respectively. The F-ratio required for significance with five and five degrees of freedom is 5.05. The low LPC/good GA schools were significantly more variable on these factors.

The multivariate F-ratio for the second hypothesis is not significant; staff groups led by high-or low-LPC principals in good GA schools do not differ in effectiveness from staff groups led by intermediate LPC principals in good GA schools. This result is consistent with Fiedler's contingency model, although Fiedler has hypothesized that the intermediate LPC individual differs from high- and low-LPC persons.⁷ The results of the analysis do not provide any basis for concluding that the intermediate LPC principal in a good GA school has any influence which differs from high- or low-LPC principals on staff performance.

The multivariate F-ratio for the third hypothesis is significant beyond the .05 level; staff groups led by intermediate LPC principals in poor group atmosphere schools are less effective than staff groups led by the three leadership

⁷ Fiedler, A Theory of Leadership ..., p. 50-51.

types in good GA schools. The univariate F-ratios reported in Table XIV indicate that the significant differences are accounted for by Group Life, Personal Dignity, and Orderliness. Staff groups led by intermediate LPC principals in poor GA schools have lower scores for Group Life and Personal Dignity and higher scores for Orderliness. In other words, staff groups led by intermediate LPC principals in poor GA schools have lower scores for Developmental Press and higher scores for Control Press. These results contradict Fiedler's position with regard to differences in effectiveness between groups led by individuals whose leadership situations vary in favorability; Fiedler claimed that there are no differences in effectiveness between situations which vary in favorability. However, many theorists have postulated that group climate does affect group performance. At the same time, it must be recognized that the differences reported for this hypothesis cannot be attributed to group atmosphere alone; there could be a unique interaction between intermediate LPC leaders and poor GA situations which does not occur when the intermediate LPC individual is in a good GA situation.

3. Summary.

The results of testing the three hypotheses of the study are as follows:

1. Staff groups led by high LPC principals in good GA schools do not differ significantly in effectiveness from staff groups led by low LPC principals in good GA schools when the index of effectiveness is student perception of the school environment. However, staff groups led by high LPC principals tended to be more effective than their low LPC counterparts providing some support for the position that the secondary school provides a moderately favorable leadership situation for principals with more than two years of experience.
2. Good group atmosphere staff groups led by intermediate LPC principals do not differ in effectiveness from good group atmosphere staff groups led by high LPC or low LPC principals when the criterion of effectiveness is student perception of the school environment.
3. Staff groups led by high LPC, intermediate LPC, and low LPC principals in good GA schools are more effective than staff groups led by intermediate LPC principals in poor group atmosphere schools. Staff groups in the intermediate LPC/poor GA schools have significantly lower scores for Group Life and Personal Dignity and significantly higher scores for Orderliness.

CHAPTER IV

DISCUSSION OF RESULTS

A discussion and interpretation of the results of the study are presented in this chapter. The results of testing the three hypotheses of the research are examined in the first three sections. Some implications of the study for a theory of organizational leadership are presented in the fourth section.

1. Differences between High LPC Principals and Low LPC Principals in Good GA Schools.

The first hypothesis of the research predicted that good GA staff groups led by low LPC principals would be more effective than good GA staff groups led by high LPC principals. This hypothesis is similar to the hypotheses tested in other educational studies in secondary schools¹ and may be considered as a traditional test of Fiedler's contingency model which predicts that low LPC leaders are more effective in highly favorable or highly unfavorable situations while high LPC leaders are more effective in

¹ Vincent D. McNamara, The Principal's Personal Leadership Style, the School Staff Situation, and School Effectiveness, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, xix-439 p.; and John Gray Thomson, An Empirical Study of the Relationship between Ontario Secondary Principal's Leadership Effectiveness and Helping Relationship in Ontario Secondary Teachers, unpublished Ph.D. thesis, University of Ottawa, Ottawa, 1972, xi-187 p.

moderately favorable situations.² The assumption on which the first hypothesis was based was that a good GA secondary school constituted a highly favorable leadership context, while a poor GA secondary school constituted a moderately favorable leadership situation.³ On the basis of the theory, low LPC principals in good GA situations would be expected to behave in a relationship-oriented manner, while high LPC principals would be expected to behave in a task-oriented manner.⁴ Fiedler predicted that the differential behaviors of the two types of leaders affects staff performance.

The results of the statistical analysis indicated that staff groups led by high LPC principals in good GA schools did not differ in effectiveness from staff groups led by low LPC principals in good GA schools. In the multivariate test, where the seven indices of effectiveness were considered together, there was a tendency for staff groups led by high LPC principals to have slightly higher scores for both the Developmental Press and Control Press

2 Fred E. Fiedler, A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967, vii-310 p.

3 Fred E. Fiedler, "Validation and Extension of the Contingency Model of Leadership Effectiveness: A Review of Empirical Findings," Psychological Bulletin, Vol. 76, No. 2, August 1971, p. 144.

4 -----, "Personality, Motivational Systems, and Behavior of High and Low LPC Persons," Human Relations, Vol. 25, No. 5, November 1972, p. 392-393.

variables. This result is inconsistent in the sense that an effective staff group would be expected to have higher scores for the Developmental Press variables and lower scores for the Control Press variables.⁵ However, the trend of the results provides some support for Fiedler's recent claim that secondary schools offer a moderately favorable, but not highly favorable leadership situation for experienced principals.⁶ This reasoning is based on the tendency for staff groups led by high LPC principals to have slightly higher scores for the Developmental Press factors, and the fact that the Developmental Press variables account for most of the variance in the HSCI.⁷ This trend of the data is in the direction opposite to that predicted. The problem of determining situational favorableness, a priori, has been recognized and emphasized by Fiedler. He stated that:

⁵ George G. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, p. 288-292.

⁶ Fred E. Fiedler, "The Effects of Leadership Training and Experience: A Contingency Model Interpretation," Administrative Science Quarterly, Vol. 17, No. 4, December 1972, p. 453-470.

⁷ Stern, op. cit., p. 254.

The basic hypothesis of the contingency model [...] is not tied to the definition of the favorableness dimension in terms of group climate, position power and task structure [...]. The main question is always how to order situations in terms of their favorableness.⁸

The direction of the results for the first hypothesis is consistent with other leadership theories. Etzioni has postulated that the effective dual leadership combination in organizations similar to schools is the instrumental orientation for the head of the organization and the expressive orientation for the ranks immediately below.⁹ In good GA situations, the expressive orientation is reflected in good relationships among teachers and, in good GA situations, high LPC leaders behave in a task-oriented manner¹⁰ which would satisfy the instrumental needs of the organization. Thus, it appears that the high LPC/good GA combination could satisfy Etzioni's criteria for effective dual leadership. The direction of the results for the first hypothesis also provides indirect support for Likert's

⁸ Terence R. Mitchell, Anthony Biglan, Gerald R. Oncken, and Fred E. Fiedler, "The Contingency Model: Criticism and Suggestions," Academy of Management Journal, Vol. 13, No. 3, September 1970, p. 260.

⁹ Amitai Etzioni, "Dual Leadership in Complex Organizations," American Sociological Review, Vol. 30, No. 5, October 1965, p. 694.

¹⁰ Fiedler, "Personality, Motivational Systems ...," p. 393.

theory. Jones and Johnson used Likert's Profile of Organization Characteristics and reported that high LPC leaders had a more goal-oriented, participative, emotionally supportive organization than their low LPC counterparts.¹¹ Likert has postulated that this type of organization is more effective.¹²

The failure to provide conclusive support for the first hypothesis of the study provides support for the critics¹³ of Fiedler's contingency model. It also raises the question of the applicability of the contingency model, as Fiedler has presented it, to organizational leadership. The model was developed on the basis of data from small group research of an experimental nature. However, leadership in small groups is different from leadership in

11 Halsey R. Jones and Michael Johnson, "LPC as a Modifier of Leader-Follower Relationships," Academy of Management Journal, Vol. 15, No. 2, June 1972, p. 185-186.

12 Rensis Likert, New Patterns of Management, New York, McGraw-Hill, 1961, vii-279 p.

13 George Graen, Kenneth Alvares, and James Burdeane Orris, "Contingency Model of Leadership Effectiveness: Antecedent and Evidential Results," Psychological Bulletin, Vol. 74, No. 4, October 1970, p. 285-296; and George Graen, James Burdeane Orris, and Kenneth M. Alvares, "Contingency Model of Leadership Effectiveness: Some Experimental Results," Journal of Applied Psychology, Vol. 55, No. 3, June 1971, p. 196-201; "Contingency Model of Leadership Effectiveness: Some Methodological Issues," Journal of Applied Psychology, Vol. 55, No. 3, June 1971, p. 205-210.

real-life, complex organizations.¹⁴ In this context, the organization of secondary schools deserves some attention. Secondary schools are complex organizations in which there are usually two vice-principals and a number of departments supervised by department heads. The instructional staffs of most secondary schools are highly trained in various subject areas. All these factors would decrease the power and influence of the principal. On the basis of similar reasoning, Fiedler recently presented evidence which supports the position that secondary schools are highly unfavorable leadership situations for inexperienced principals and moderately favorable situations for experienced principals¹⁵ of the type used in this study.

The nature of the LPC scale also helps to explain the failure to obtain significant results. The LPC scale taps the motivational make-up of the individual¹⁶ along with his cognitive structure.¹⁷ In other words, it is concerned

¹⁴ James M. Lipham, "Leadership and Administration," in Daniel E. Griffiths (ed.), Behavioral Science and Educational Administration, The Sixty-third Yearbook of the National Society for the Study of Education, Part II, Chicago, the Society, 1964, p. 125.

¹⁵ Fiedler, "The Effects of Leadership Training ...," p. 459.

¹⁶ -----, "Personality, Motivational Systems ...," p. 393-394.

¹⁷ Martin Fishbien, Eva Landy, and Grace Hatch, "Some Determinants of an Individual's Esteem for His Least Preferred Co-Worker: An Attitudinal Analysis," Human Relations, Vol. 22, No. 2, April 1969, p. 173-178; and Terence R. Mitchell, "Leader Complexity and Leadership Style," Journal of Personality and Social Psychology, Vol. 16, No. 1, July 1970, p. 170.

with underlying need processes.¹⁸ Given the complexity of secondary schools in terms of organizational structure, it is not surprising that one facet of the principal's personality has only a minimal influence on staff performance.

The differences in variance for three of the HSCI factors, Intellectual Climate, Expressiveness, and Personal Dignity, were significant between low LPC/good GA schools and high LPC/good GA schools; the low LPC/good GA schools were more variable on these three factors. Thus, low LPC/good GA schools differ from one another while high LPC/good GA schools are similar to one another. The content of the three HSCI factors suggests that low LPC/good GA schools differ from one another to a greater extent than high LPC/good GA schools in terms of the quality of the staff and plant which is devoted to scholarly activity in the humanities, arts, and sciences, in the extent to which non-conformity, and open emotional expression along with expressions of dependence on others is permitted, and in the extent to which the school is controlled by administrative fiat.

While it is possible that the differences in variance are accounted for by other factors, it does seem probable that the low LPC principal does account for some of the

18 Fiedler, A Theory of Leadership ..., p. 37.

differences in variance. A similar finding was reported in another study in which the criterion of effectiveness was student achievement in provincial examinations and supervisors' ratings of school effectiveness.¹⁹ Since the result is consistent with previous research and since three of the HSCI factors differed significantly, the conclusion that the low LPC principal accounts for some of the variation among the low LPC/good GA schools appears to be warranted.

The significant differences in variance between the two types of schools is consistent with the interpretation of the LPC score. According to the evidence, low LPC individuals are less complex in their thinking about groups and problem situations.²⁰ They also have a tendency to use extremes²¹ and to focus more attention on some individuals in group situations.²² Thus, it seems possible that a low LPC principal would have a greater effect on school activities which have high priority in his educational

19 McNamara, The Principal's Personal Leadership Style ..., p. 335.

20 Mitchell, op. cit., p. 170.

21 A. R. Bass, F. E. Fiedler, and S. Krueger, Personality Correlates of Assumed Similarity (ASo) and Related Scores, Urbana, Illinois, Group Effectiveness Research Laboratory, University of Illinois, 1964, quoted by Fiedler, A Theory of Leadership ..., p. 278-280.

22 William K. Graham, "Description of Leader Behavior and Evaluation of Leaders as a Function of LPC," Personnel Psychology, Vol. 21, No. 4, Winter 1968, p. 461.

thinking. In other words, because of his greater tendency to use extremes, the low LPC principal would be expected to adopt a more rigid position on such matters as student control and academic excellence.

The over-all result of the analysis of data indicated that the significant differences occurred when leader-member relations were varied along with leadership style. In other words, the leader-member relations variable appears to account for more variance in school environment than leadership style. This evidence provides support for the position that the low LPC principal is unable to diagnose problems in interpersonal relationships since some of the low LPC/good GA schools were as ineffective as school in the intermediate LPC/good GA category. In other words, it is possible that some of the staff groups which were in the low LPC/good GA group should have been in the poor GA category. This is significant in relation to the over-all results of the study and strengthens the argument that leadership style, by itself, has a minimal influence on staff performance and that the leader-member relations variable has a differentiating effect.

The results of the statistical analysis relative to the first hypothesis were examined in this section. The evidence provided only minimal support for Fiedler's

contingency model as a useful theoretical approach to organizational leadership in secondary schools.

2. Differences between Intermediate LPC Principals in Good GA Schools and High LPC and Low LPC Principals in Good GA Schools.

The second hypothesis predicted that good GA staff groups led by low LPC principals would not differ in effectiveness from good GA staff groups led by high- and low-LPC principals. This prediction was based on an assumption inherent in the contingency model, and the hypothesis was an attempt to evaluate the assumption.

There is considerable evidence that the behavior of intermediate LPC persons differs from the behavior of high- and low-LPC individuals. Bass et al. reported that the intermediate LPC individuals gave less socially desirable responses, were less authoritarian, were more critical of others, and preferred to be followers rather than leaders.²³ Fiedler agreed that the intermediate LPC score represents a third leadership style which is different from the high- and low-LPC styles.²⁴

The results of the statistical analysis supported the contingency model prediction; staff groups led by

²³ Bass et al., op. cit., p. 277-278.

²⁴ Fiedler, A Theory of Leadership ..., p. 51.

intermediate LPC principals do not differ in effectiveness from staff groups led by high- and low-LPC principals. In one sense, the results for the second hypothesis can be considered as an extension of the results for the first hypothesis; the LPC score of the principal appears to have very little effect on staff performance in cases where the principal perceives a pleasant principal-teacher relationship.

Two concepts deserve consideration in relation to the evidence that intermediate LPC leaders in good GA schools do not differ in effectiveness from their high- and low-LPC counterparts. The first of these, the complexity of secondary school organizations, was discussed in the previous section; the nature of secondary school organizations is such that the needs of the principal, as measured by the LPC scale, do not appear to constitute a powerful press for teachers. However, this does not mean that the behavior of intermediate LPC principals is similar in all respects to the behavior of high- and low-LPC leaders. It is possible that the behavior of these individuals differs, and that controlled, small group research would result in significant findings.

Another consideration in the context of the result for the second hypothesis is that the test-retest reliability coefficient of the LPC scale was low. Thus, given the size

of the standard error of measurement of the LPC scale, it is possible that there was some overlap in true scores between low LPC and intermediate LPC cells and between high LPC and intermediate LPC cells.

An interpretation of the results of testing the second hypothesis was presented in this section. The results were explained in terms of the complexity of secondary school organizations and in relation to Fiedler's contingency model. The possibility that the LPC score of the principal has little effect on the performance of good GA staff groups was reinforced by the results of the statistical analysis for the second hypothesis.

3. Differences between High LPC, Intermediate LPC, and Low LPC Principals in Good GA Schools and Intermediate LPC Principals in Poor GA Schools.

The third hypothesis was aimed at testing differences in effectiveness between high LPC, intermediate LPC, and low LPC principals in good GA schools and intermediate LPC principals in poor GA schools. Fiedler's contingency model was used as the basis for predicting no significant difference between the two groups of schools. In other words, the prediction was based on Fiedler's position that group

effectiveness is not influenced by the location of the group on the favorability dimension of the contingency model.²⁵

The direction of the results for the third hypothesis indicated that students in intermediate LPC/poor GA schools perceived a lower Developmental Press and a higher Control Press than students in the low LPC/good GA, intermediate LPC/good GA, and high LPC/good GA schools. This result is consistent with Stern's position; he has postulated that ineffective secondary schools are characterized by a lower Developmental Press and a higher Control Press.²⁶ Thus, the results provide support for the theoretical validity of Stern's work on organizational environments along with indicating that good GA staff groups led by high LPC, intermediate LPC, and low LPC principals provide more opportunities for self-actualization than their counterparts in intermediate LPC/poor GA schools.

The univariate analysis of variance indicated that three of the HSCI factors, Group Life, Personal Dignity, and Orderliness, differed significantly between the two groups of schools; the intermediate LPC/poor GA schools had significantly lower scores for Group Life and Personal Dignity

25 Fiedler, A Theory of Leadership ..., p. 256-257.

26 Stern, People in Context ..., p. 288-292.

and significantly higher scores for Orderliness. Thus, the low LPC/good GA, intermediate LPC/good GA, and high LPC/good GA schools are characterized by fun-loving, friendly, actively outgoing environments which provide for mutually supportive group activities and which emphasize the maintenance of a high level of self-determination and personal responsibility among students. The staffs of these schools accomplish these goals with a minimum of coercion and students are treated with respect. There is also a minimum of student control; these schools do not emphasize organization and structure in the academic environment to the extent that the intermediate LPC/poor GA schools stress this aspect of school life.

The content of the three significant HSCI factors suggests that these particular variables are concerned with the non-cognitive components of the school environment. To be more specific, the content of the factors indicates that they are primarily concerned with the quality of interpersonal relationships between staff and students in the perspective of a school experience which is characterized by dignity and respect. Generally, the types of activities which the factors measure are not given high official priority in lists of educational objectives. In other words, the types of activity which differentiate between the two

groups of schools are primarily latent rather than manifest. Thus, the results demonstrate the importance of examining the effects of administrative variables on the latent aspects of organizational life and the importance of using a multi-faceted conceptualization of organizational outputs.

It is possible to categorically attribute the results for this hypothesis to either leadership style or group atmosphere. However, it could be argued that since the intermediate LPC leader did not have differential effects on staff performance in good GA schools, that the variation in group atmosphere accounts for most of the differences between the two groups of schools. At the same time, it is possible that there is a unique interaction between intermediate LPC leaders and poor GA situations which also accounts for some of the differences in the criterion variable. In this context, it is important to recognize that the style of the leader influences his perception of group atmosphere; among experienced leaders, only the intermediate LPC individuals perceive the group atmosphere disparately.

One aspect of the rationale for the study involved the utilization of Likert's formulation of the process of activity in an organization in terms of causal, intervening, and end-result variables. Within this framework, leadership

style was conceptualized as a causal variable, leader-member relations as an intervening variable and student perception of the school environment as an end-result variable. Likert has presented evidence to support the position that causal variables account for only a small proportion of the variance in output variables;²⁷ the results of this study follow a similar pattern--the leadership style of principals appears to have very little effect on organizational outputs. Likert has also presented evidence which indicates that the relationship between causal and intervening variables is substantial and that the association between intervening variables and output measures is also high.²⁸ In other words, the relationship between causal and end-result variables is mediated by intervening variables. There is a remarkable resemblance between the results of the present research and Likert's generalized model of the administrative process. Leadership style and leader-member relations were related in the sense that high- and low-LPC leaders usually perceived that the principal-teacher relationship was good, whereas intermediate LPC principals perceived that the quality of their relationship with

27 Likert, New Patterns of Management, p. 196-206.

28 -----, The Human Organization: Its Management and Value, New York, McGraw-Hill, 1967, p. 82.

teachers was either good or poor. Also, significant differences in organizational outputs occurred only when the intervening variable, leader-member relations, was allowed to vary along with leadership style. Thus, according to this interpretation, the results of the study present more support for Likert's theory than for Fiedler's contingency model.

This interpretation has important implications for Fiedler's concept of organizational engineering. The essence of this concept is that group effectiveness can be improved by assigning low LPC leaders to highly favorable or highly unfavorable situations and high LPC leaders to moderately favorable situations. The strategy is based on the assumption that the favorableness dimension is independent of group performance so that changing this component would not increase group effectiveness unless it result in an appropriate match with the style of the leader.²⁹ However, the results of this study indicated that leader-member relations was associated with differences in environments. Thus, the appropriate change strategy for secondary schools would involve improving leader-member relationships rather than matching principals with situations on the basis of their leadership style.

²⁹ Fiedler, A Theory of Leadership ..., p. 255-260.

The results of testing the third hypothesis were discussed in this section. The findings indicated that the contingency model requires modification in relation to organizational leadership, and that Likert's theoretical model was more appropriate for interpreting the findings than Fiedler's contingency model.

4. Implications of the Study for a Theory of Organizational Leadership.

In this concluding section, the results of the study are examined in relation to the broader question of an adequate theory of organizational leadership. Suggestions for a reconceptualization of Fiedler's theory will be offered along with possibilities for future research in the area of organizational leadership.

Organizations are complex social entities about which relatively little is known. As far as leadership is concerned, there is a need to examine educational organizations in terms of their structural properties with particular emphasis on the manner in which superordinates influence organizational processes. An adequate theory of organizational behavior relative to leadership will likely have to include a framework for considering all role incumbents whose organizational position carries with it the potentiality for influencing organizational processes. Within

this framework, there is also a need to consider the possibility that different personality types are required for particular organizational roles.

The synthesis of the trait approach and the situational approach which is inherent in Fiedler's theory could be extended in attempts to understand organizational leadership. One point of attack is to search for instruments which might serve as valid substitutes for the LPC scale. The low test-retest reliability of the LPC scale is a matter of serious concern. An alternative is to choose more reliable instruments which are correlated with the LPC scale. The most promising possibilities are instruments which measure belief systems, cognitive complexity, and motivational processes. One possibility for research in this area is to factor analyze data from a number of these instruments in an attempt to discover relevant personality or leadership constructs.

Another important area for research involves relationships among leaders, followers, and situations. The significance of relationships between leaders and followers was demonstrated in this study and is recognized by many organization theorists. There is a need to develop theoretical approaches to the structure and functioning of groups which will provide a means of understanding influence

processes. This increased sensitivity to the processes of action, interaction, and exchange will require the use of concepts from many disciplines.

Another consideration for future work in the area of organizational leadership involves the manner in which organizational processes are conceptualized. Fiedler's contingency model contains elements and concepts which could prove useful in future theory building. However, Fiedler's position that intervening or situational variables do not affect organizational outputs directly does not appear to generalize to organizational leadership in secondary schools. Likert's model appears to have more validity for organizational leadership. His model provides a meaningful framework for organizational functioning and a reconceptualization of Fiedler's work in terms of causal, intervening, and end-result variables warrants serious consideration.

SUMMARY AND CONCLUSIONS

This study was aimed at examining the effect of principal-teacher interaction on the educational environments of secondary schools. The rationale for the study was based on a synthesis of theoretical frameworks developed by Fiedler and Stern. Fiedler's basic hypothesis is that the effectiveness of a particular leadership style is dependent on the favorability of the situation for the leader. He has identified three leadership styles: high LPC, intermediate LPC, and low LPC. The favorability of the leadership situation in schools is determined by the atmosphere of the staff group; it varies from good to poor. According to Fiedler's theory, the contingency model, high LPC leaders are more effective than low LPC principals in situations which are moderately favorable, and low LPC individuals are more effective than high LPC leaders in highly favorable or highly unfavorable contexts. Stern's empirically derived environmental constructs served as the measure of effectiveness in relation to Fiedler's model. The selection of Stern's work was based on the position that organizations have manifest and latent functions and that the primary task of a school staff involves the creation of a developmental educational environment.

Along with providing a traditional test of Fiedler's contingency model, the research attempted to examine Fiedler's claim that intermediate LPC scores represented a third leadership style in relation to his assumption that there is a linear relationship between leadership style and group performance and his position, which is in conflict with other theorists, that the favorability of the situation does not influence group performance. Thus, the three questions of the research were as follows:

1. Is there a difference in effectiveness between good group atmosphere staff groups led by high LPC principals and good group atmosphere staff groups led by low LPC principals?
2. Is there a difference in effectiveness between good group atmosphere staff groups led by intermediate LPC principals and good group atmosphere staff groups led by high LPC and low LPC principals?
3. Is there a difference in effectiveness between good group atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals and poor group atmosphere staff groups led by intermediate LPC principals?

An examination of literature relative to student perception of school environmental variables indicated that three variables, sex, socio-economic status, and school size, could affect responses to the HSCI. However, the linear relationships between socio-economic status scores and HSCI scores and between school size and HSCI scores were not substantial. The sex factor was retained as a control

variable and it accounted for a substantial proportion of the variance in responses. Thus, the three hypotheses, predicted on the basis of Fiedler's contingency model, were as follows:

1. Good group atmosphere staff groups led by low LPC principals will have higher Intellectual Climate, Expressiveness, Group Life, Personal Dignity, and Achievement Standards scores and lower Orderliness and Practicalness scores on the basis of student responses to the HSCI than good group atmosphere staff groups led by high LPC principals statistically controlling for the sex of respondents.
2. Good group atmosphere staff groups led by intermediate LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from good group atmosphere staff groups led by high LPC and low LPC principals statistically controlling for the sex of respondents.
3. Good group atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from poor group atmosphere staff groups led by intermediate LPC principals statistically controlling for the sex of respondents.

The collection of data was carried out in two phases. Fiedler's LPC scale, GA scale, and a Principal and School Characteristics questionnaire were mailed to 211 secondary school principals, 176 of which returned responses. Of these 176, a total of 111 schools satisfied the criteria

for inclusion in the study. Twenty-four schools were selected on the basis of responses obtained in the first phase of the study. In the second phase of the study, two instruments, the HSCI and a Student Background Information questionnaire were administered to fourth-year students in each of the twenty-four schools.

The three hypotheses of the research were analyzed by means of a priori orthogonal contrasts with sex as a blocking variable. The statistical treatment was multivariate analysis of variance using school means for males and females as the unit of analysis. The Bartlett-Box test for equality of dispersions resulted in a significant F -ratio. Thus, it is possible that the failure to satisfy one of the assumptions for the analysis could have influenced the results, and this must be recognized as a limitation of the study.

The conclusions of the study were as follows:

1. Staff groups led by high LPC principals in good GA schools do not differ significantly in effectiveness from staff groups led by low LPC principals in good GA schools when the index of effectiveness is student perception of the school environment. However, staff groups led by high LPC principals tended to be more effective than their low LPC counterparts providing some support for the position that the secondary school provides a moderately favorable leadership situation for principals with more than two years of experience.

2. Good group atmosphere staff groups led by intermediate LPC principals do not differ in effectiveness from good group atmosphere staff groups led by high LPC or low LPC principals when the criterion of effectiveness is student perception of the school environment.
3. Staff groups led by high LPC, intermediate LPC, and low LPC principals in good GA schools are more effective than staff groups led by intermediate LPC principals in poor group atmosphere schools. Staff groups in the intermediate LPC/poor GA schools have significantly lower scores for Group Life and Personal Dignity and significantly higher scores for Orderliness.

The results of the research provided only marginal support for Fiedler's contingency model. Contrary to Fiedler's position that leadership style and leader-member relations are independent and that leader-member relations and group productivity are independent, the results indicated that leadership style predicted leader-member relations and that the leader-member relations variable, which was possibly contaminated with leadership style, predicted group performance. Therefore, the results of the analysis provided a basis for conceptualizing organizational leadership in terms of causal, intervening, and end-result variables, rather than in terms of an interaction between the leader and the situation. The results of the research provide a basis for challenging Fiedler's model and his strategy of fitting leaders to situations rather than changing situational variables such as leader-member relationships.

Thus, although the research did not provide strong support for Fiedler's contingency model, the study did indicate that Fiedler's concepts can be reformulated to provide a meaningful conceptualization of this aspect of organizational life.

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The article challenged a number of educational myths and practices and emphasized the importance of re-examining basic assumptions and unintended results of the formal educational effort.

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Bloom interpreted data from a number of sources and found that environmental variables have a crucial influence on the development of human characteristics. He particularly emphasized the far-reaching consequences of differential environments during the formative stages of human development.

Bowers, David G., and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly, Vol. 11, No. 2, September 1966, p. 238-263.

This paper presented a review of the conceptual frameworks which resulted from several programs of research on leadership. The authors also described a reconceptualization which attempts to integrate early formulations.

Cartwright, Dorwin, and Alvin Zander (eds.), Group Dynamics: Research and Theory, Evanston, Illinois, Row, Peterson & Co., 1960, xii-826 p.

This work included a number of articles on group processes, leadership, and group effectiveness. Fiedler's article describing his preliminary research on interpersonal behavior was of particular relevance to this study.

Fiedler, Fred E., A Theory of Leadership Effectiveness, New York, McGraw-Hill, 1967, vii-310 p.

The author presented an explanation of the contingency model of leadership effectiveness. He analyzed research which resulted in the development of the theory and described validation studies. The book also included a description of instruments used in testing the theory.

-----, "Personality, Motivational Systems, and Behavior of High and Low LPC persons," Human Relations, Vol. 25, No. 5, November 1972, p. 391-412.

This article organized research on the LPC scale. The evidence supported the conclusion that the scale is a measure of motivational makeup and that high- and low-LPC persons exhibit different behaviors in stressful and pleasant situations.

-----, "The Effects of Leadership Training and Experience: A Contingency Model Interpretation," Administrative Science Quarterly, Vol. 17, No. 4, December 1972, p. 453-470.

In this article, Fiedler re-examined the effect of leadership training and experience on the effectiveness of principals and other leaders. The research illustrated that training and experience increase the favorability of a situation for the leader rather than leader effectiveness.

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The author reviewed a large number of small group and organizational studies which were designed to test the contingency model. School-based research is included in

the review. The article also dealt with the implications of the validation studies for the contingency model.

Fishbien, Martin, Eva Landy, and Grace Hatch, "Some Determinants of an Individual's Esteem for His Least Preferred Co-Worker: An Attitudinal Analysis," Human Relations, Vol. 22, No. 2, April 1969, p. 173-188.

These researchers investigated the relationship between LPC scores and beliefs and attitudes. A number of relationships were demonstrated which supported the conclusion that the LPC scale measures aspects of cognitive structure.

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Likert, Rensis, New Patterns of Management, New York, McGraw-Hill, 1961, vii-279 p.

The author presented a theory of organization and administration which is based on humanistic assumptions. His ordering of organizational variables into three sets, causal, intervening, and end-result, provided an integrating framework for the theories of Fiedler and Stern.

-----, The Human Organization: Its Management and Value, New York, McGraw-Hill, 1967, ix-258 p.

This work described longitudinal evidence which supports Likert's earlier theorizing and demonstrates the relationships among causal, intervening, and end-result variables.

Lewin, Kurt, A Dynamic Theory of Personality, New York, McGraw-Hill, 1935, ix-286 p.

The author interpreted a number of experimental investigations some of which examined the influence of environmental forces on development.

March, James G., and Herbert A. Simon, Organizations, New York, John Wiley, 1958, xi-262 p.

This work examined participation in organizations from the point of view of decision-making and demonstrated the effects of high control on organizational participants.

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McKague, Terence R., A Study of the Relationship between School Organizational Behavior and the Variables of Bureaucratization and Leader Attitudes, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, xix-180 p.

This thesis examined the relationship between principals' LPC scores and school organizational climate as measured by the Organizational Climate Description Questionnaire and between bureaucratic structure and organizational climate. There were substantial relationships between LPC scores and organizational climate scores in good group atmosphere schools. However, the remainder of the correlations were low.

McNamara, Vincent D., The Principal's Personal Leadership Style, the School Staff Situation, and School Effectiveness, unpublished Ph.D. thesis, University of Alberta, Edmonton, 1968, xix-439 p.

The researcher tested Fiedler's contingency model in a large number of elementary and secondary schools using superordinate's ratings and student achievement as the criteria of school staff effectiveness. The study also examined the manner in which certain variables in Fiedler's theory applied to schools. In general, the research did not support the relationships predicted by the contingency model.

-----, A Descriptive-Analytic Study of Directive-Permissive Variation in the Supervisory Behavior of Elementary School Principals, unpublished M.Ed. thesis, University of Alberta, Edmonton, 1967, xviii-226 p.

The purpose of this study was to test the applicability of Fiedler's contingency model to elementary school organizations. The research examined the supervisory behavior of principals, staff satisfaction, and school effectiveness in relation to principals' LPC scores. The results provided support for Fiedler's theory.

Mitchell, Terence R., "Leader Complexity and Leadership Style," Journal of Personality and Social Psychology, Vol. 16, No. 1, July 1970, p. 166-174.

This well-designed study presented evidence that the LPC scale measures cognitive complexity. The relationship between LPC scores and cognitive structure was demonstrated by examining relationships between LPC scores and scores on Scott's measure of cognitive complexity, differences in attitudes between high- and low-LPC individuals, and the thinking of high- and low-LPC individuals about hypothetical-task situations.

-----, Anthony Biglan, Gerald R. Oncken, and Fred E. Fiedler, "The Contingency Model: Criticism and Suggestions," Academy of Management Journal, Vol. 13, No. 3, September 1970, p. 253-268.

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This study examined the relationship between LPC scores and helping relationship scores of principals and the validity of the contingency model for secondary schools using helping relationship scores of teachers as the criterion of school staff effectiveness. Students in schools with low LPC principals perceived their teachers as having higher helping relationship scores.

Scobey, Mary-Margaret, and Grace Graham (eds.), To Nurture Humaneness: Commitment for the 70's, Washington, Association for Supervision and Curriculum Development, 1970, x-257 p.

This book of readings was devoted to the theme of humanizing schools, a problem which the authors feel is an educational imperative. The problem was examined from both philosophical and practical vantage points.

Sergiovanni, Thomas J., and Robert J. Starratt, Emerging Patterns of Supervision: Human Perspectives, New York, McGraw-Hill, 1971, ix-309 p.

The authors examined organizational theory and curriculum theory and derived conceptual models of the human organization and the human curriculum both of which are viewed as necessary prerequisites for student self-actualization.

Stern, George G., "Measuring Noncognitive Variables in Research on Teaching," in N. L. Gage (ed.), Handbook of Research on Teaching, Chicago, Rand-McNally, 1963, p. 398-447.

Stern presented a survey of techniques for measuring noncognitive variables along with research which examined the effects of environment on student learning.

-----, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, xxvi-402 p.

The book gave a summary of twenty years of research with the need-press model. The book also included a description of procedures used in the development of instruments and an analysis of press studies in a number of organizations.

Wright, William Ronald, Environmental Press as Perceived by High School Students and Its Relationship to Organizational Climate, unpublished Ph.D. thesis, Purdue University, Lafayette, 1970, xi-505 p.

Wright found that schools with open climates as measured by the Organizational Climate Description Questionnaire also had high press conditions as measured by the High School Characteristics Index.

APPENDIX 1

LETTER AND INSTRUMENTS MAILED TO PRINCIPALS
IN THE INITIAL SAMPLE

APPENDIX 1

University of Ottawa
Faculty of Education
Graduate Studies
Ottawa, Ontario

The purpose of this letter is to request your participation in a research project which I am conducting as part of the requirements for a Ph.D. in educational administration. Your school board has given me permission to solicit your support.

The study is concerned with examining the effects of the principal's leadership and related variables on the educational environment of secondary schools. The first phase of the study involves obtaining information from approximately 400 secondary school principals in Ontario. Certain schools will be selected for further study in the second phase of the study.

As a participant in the first phase, you are asked to respond to the enclosed instruments and return them in the envelope which is provided. You can be certain that your responses will be treated with strict confidence.

Your assistance with this important aspect of my program will be deeply appreciated.

Yours sincerely,

Encl.

Parnell Garland

PRINCIPAL AND SCHOOL CHARACTERISTICS

Please check or write in the appropriate response.

1. Your sex. _____ Male _____ Female
2. Your age. _____ 20-29 _____ 30-39 _____ 40-49
 _____ 50-59 _____ 60-69 _____ 70 or older
3. Degrees held. _____
4. If you are presently taking part-time studies (summers or evenings) which lead to a university degree, please indicate the degree toward which you are working. _____
5. Total years of experience as a principal in your present school, including this year. _____
6. Total years of experience as a principal in schools other than your present school. _____
7. Total years of experience in education before becoming a principal. _____
8. Total number of students enrolled in your school. _____
9. Total number of full-time teachers on your staff. _____
10. Approximate percentage of classes given in English. _____
11. Please indicate the type of program your school offers.
 _____ Academic _____ Vocational
 _____ Technical _____ Commercial
12. If your school began operations since September 1969, please indicate when your school began accepting students.
 _____ Month _____ Year

School _____ Date _____

APPENDIX 2

HIGH SCHOOL CHARACTERISTICS INDEX

HIGH SCHOOL CHARACTERISTICS INDEX

Form 960

by George G. Stern

There are 300 statements in this booklet. They are statements about high school life. They refer to the curriculum, to high school teaching and classroom activities, to rules, regulations and policies, to student organizations, activities and interests, to features of the buildings and grounds, etc. The statements may or may not be characteristic of your high school because high schools differ from one another in many ways. You are to decide which statements are characteristic of your high school and which are not. Your answers should tell us what you believe is true about your high school rather than what you might personally prefer. You won't *know* the answers to many of these statements, because there may not be any really definite information on which to base your answer. *Your response will simply mean that in your opinion the statement is probably true or probably false about your high school.*

Do not omit any item.

DIRECTIONS

On the special answer sheet print your name, and the other information requested. Then, as you read each statement in the booklet, *blacken* space

T – when you think the statement is generally TRUE or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

F – when you think the statement is generally FALSE or not characteristic of your high school, is something which is not likely to occur, is not the way people typically feel or act.

Be sure to fill in the whole answer space with a heavy black mark, using any #2-1/2 or softer pencil. Do not use ball point or ink.

YOU MUST ANSWER EVERY ITEM.

Work rapidly, going through the entire list of statements as quickly as you can. Occasionally compare item numbers from the booklet with the answer sheet space to see that they correspond. Please do not make any stray marks on the answer sheet or in this booklet. Erase all errors and stray marks completely.

Legend: T — True. Generally true or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

F — False. Generally false or not characteristic of your high school, is something which is not likely to occur, is not the way people typically feel or act.

- 1 Teachers are very interested in student ideas or opinions about school affairs.
2. There is a lot of competition for grades
- 3 Grades are read out in class so that everybody knows who got the high and low marks
- 4 There are very few clubs and student group activities to which students may belong
5. School property is seldom damaged by students.
- 6 The students here come from many different kinds of homes.
- 7 Most classes are very well planned.
- 8 Teachers often try to get students to speak up freely and openly in class.
- 9 Teachers go out of their way to make sure that students address them with due respect
- 10 There is a recognized group of student leaders at this school.
- 11 Most teachers are not very interested in what goes on in the local government of the community
- 12 Students here learn that they are not only expected to have ideas but to do something about them
- 13 Classroom discussions are often very exciting, with a lot of active student participation
- 14 Competition is keen for parts in student plays.
- 15 In English classes, students are encouraged to be imaginative when they write
- 16 A great many students are involved in intramural sports and other athletic activities
- 17 Many teachers and students are concerned with literary, musical, artistic, or dramatic activities outside the classroom
- 18 In most classes there is very little joking and laughing
- 19 Formal dances are seldom held here
- 20 Many of the upperclassmen help new students get used to school life.
- 21 No one needs to be afraid of expressing a point of view that is unusual or not popular in this school
- 22 Students seldom change places during class
- 23 Students really get excited at an athletic contest
- 24 It's important here to be a member of the right club or group
- 25 Many students are interested in books and movies dealing with psychological problems
- 26 The school library is very well supplied with books and magazines on science.
- 27 Students sometimes get a chance to hear music in the lunchroom or during other free periods.
- 28 There is lots of dating among students during the week—at the soda fountain, movies, lunch hours, etc.
- 29 Teachers here are genuinely concerned with student's feelings.
30. There is a lot of emphasis on preparing for college.
31. You need permission to do *anything* around here.
32. Students generally manage to pass even if they don't work hard during the year.
- 33 In gym class, everyone has to do the same exercises, no matter how good or bad they are at it.
- 34 There is a lot of school spirit.
- 35 In this school, very few students walk around with a chip on the shoulder
- 36 Courses, assignments, tests and texts frequently change from year to year.
- 37 Teachers clearly explain what students can get out of their classes and why it is important
- 38 When students think a teacher's decision is unfair, they try to get it changed.
- 39 Most students look up to their teachers and admire them.
- 40 Student elections produce a lot of interest and strong feeling
41. Daily newspapers are seldom read.
- 42 The teachers are seldom calm and even-tempered, when disciplining students
- 43 Students put a lot of energy into everything they do — in class and out.
- 44 When students do a project or put on a show, everybody knows about it.
- 45 What one wants to do or be later in life is a favorite topic around here.
- 46 Club initiations and class rivalries sometimes get a little rough
- 47 This school offers many opportunities for students to get to know important works of art, music, and drama.
- 48 Students are always coming up with new fads and expressions
- 49 Students take a great deal of pride in their personal appearance
- 50 There are collections for the needy at Christmas or other times.

Legend: T — True. Generally true or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

F — False. Generally false or not characteristic of your high school, is something which is not likely to occur, is not the way people typically feel or act.

51. Everyone has the same opportunity to get good marks because the tests are marked very fairly.
52. Many teachers get very upset if students happen to report to class a little late.
53. There is a lot of student enthusiasm and support for the big school events.
54. Students try hard to be good in sports, as a way to gain recognition.
55. Many students enjoy reading and talking about science fiction.
56. When students get together they seldom talk about scientific topics.
57. There is practically no one here who would feel comfortable participating in modern dance or ballet.
58. Boys and girls seldom sit at separate tables in the school cafeteria.
59. Outside of class most teachers are friendly and find time to chat with students.
60. Quite frequently students will get together in their own time and talk about things they have learned in class.
61. Students are seldom kept waiting when the office sends for them.
62. Most teachers give a lot of home work.
63. Once you've made a mistake, it's hard to live it down in this school.
64. It is easy to make friends in this school because of the many things that are going on that anyone can participate in.
65. Most students can easily keep out of trouble, in this school.
66. Many students have lived in different parts of the state, states, or other countries.
67. A lot of students who get just passing grades at mid-term really make an effort to earn a higher grade by the end of the term.
68. Pupils are often expected to work at home on problems which they could not solve in class.
69. Students rarely express opinions different from the teacher's.
70. Students are expected to report any violation of rules and regulations to their teacher or the principal.
71. There are some pretty strong feelings expressed here about political parties and elections.
72. The way people feel around here is always fairly evident.
73. Few students here would ever work or play to the point of being completely worn out.
74. Teachers provide opportunities for students to develop their skills and talents directing the work of others.
75. Teachers here warn students to be down to earth in planning for their future, and discourage daydreaming about adventure and making a lot of money.
76. Fire drills and civil defense drills are held regularly.
77. Few students would be interested in an educational film about writers and poets.
78. Students frequently do things on the spur of the moment.
79. Looking and acting "right" is very important to teachers and students here.
80. Students seldom send their teachers cards or little gifts on special occasions.
81. The principal and teachers are usually understanding if a student does something wrong and will give him the benefit of the doubt.
82. Many teachers require students to recopy notes or papers to make them neat.
83. There are lots of dances, parties, and other social activities.
84. This school offers very few really practical courses.
85. Teachers here like students to use a lot of imagination when they write compositions, and give good marks to those who do.
86. Few students would be interested in hearing a talk by a famous scientist.
87. Few student lockers are decorated with pictures, pennants, etc.
88. Many students here really enjoy dancing.
89. The person who is always trying to "help out" is likely to be regarded as a nuisance.
90. Assemblies or discussions on serious subjects are not held very often here.
91. The teachers very often make you feel like a child.
92. Popularity, pull and bluff get students through many courses.
93. Students are usually made to answer to the principal of the school as well as the teacher when they have done something wrong.
94. Few students stay around after school for different activities or sports.
95. The desks are all cut up from doodling with knives and pencils.
96. This school has the same activities each year.
97. Activities in most student organizations are carefully and clearly planned.
98. Students don't hesitate to voice their complaints around here.
99. Students almost always wait to be called on before speaking in class.
100. There are several cliques and groups, and if you're not in one you're pretty much on your own.

Legend: T — True. Generally true or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

F — False. Generally false or not characteristic of your high school, is something which is not likely to occur, is not the way people typically feel or act.

101. Boy-girl relationships here are simple and rarely become really romantically involved.
102. Students can get into very heated arguments with one another, and be the best of friends the next day.
103. There are so many things to do here that students are busy all the time.
104. Most students here would not like to dress up for a dance or costume party.
105. Most students are more concerned with the present than the future.
106. Many students here drive cars.
107. Students seldom read books which deal with political and social issues.
108. Teachers insist that much time be spent in planning activities before doing them.
109. Most students here enjoy such activities as dancing, skating, diving, and gymnastics.
110. Students often run errands or do other personal services for the principal and teachers.
111. Students are sometimes punished without knowing the reason for it.
112. At this school the motto seems to be "a place for everything and everything in its place"
113. Having a good time comes first with most students here.
114. No-one here has much interest in history, music, and other such impractical courses.
115. There is little interest in modern art and music.
116. Few students are planning careers in science.
117. Little effort is made in the cafeteria to serve lunches that are tasteful and appealing to the eye.
118. Students here spend a lot of time talking about their boy-friends or girl-friends.
119. Students here are encouraged to be on their own and to make up their own minds.
120. A lot of students like checkers, chess, puzzles, crossword puzzles, and other such games.
121. Students are made to take the blame for things whether they did them or not.
122. Few students try hard to get on the honor roll.
123. Students have to get up in front of the class to recite no matter how embarrassed they might be.
124. There are many parties or dances sponsored by the school.
125. Lots of kids rip out pages and mark up their school books.
126. New ideas are always being tried out here.
127. Assignments are usually clear so everyone knows what to do.
128. When students do not like a school rule, they really work to get it changed.
129. Teachers refer to other teachers by their first names in the presence of students.
130. Student leaders at this school expect you to go along with what they say.
131. There is no really active current events club in this school.
132. Most students respond to ideas and events in a pretty cool and mild-mannered way.
133. Teachers here have little interest in what they are doing.
134. Students in this school like to draw attention to themselves.
135. Going to school here tends to make students more practical and realistic.
136. The school nurse is very active in trying to prevent illness by frequent check-ups, making sure everyone has had vaccinations, etc.
137. Student groups seldom meet to discuss current social problems and issues.
138. Students often start things without thinking about how they will develop or where they may end.
139. Students who are not neatly dressed are likely to have this called to their attention.
140. There is a lot of interest here in projects for collecting packages of food or clothing to help out others.
141. If a student thinks out a report carefully teachers will give him a good mark, even if they don't agree with him.
142. Most teachers in this school like to have their boards cleaned off after each lesson.
143. New jokes and funny stories get around the school in a hurry.
144. Students may not talk about how much money a family has or what they do for a living, but everyone knows who's who.
145. Although many students may attend church here, there is little real interest in the basic meaning of religion.
146. This school has very good science teachers.
147. Most of the teachers here try to decorate their classrooms so that the students will find them more pleasant to be in.
148. Boys and girls often get together between classes, during lunch hour, etc.
149. Most teachers prefer that students work out their own problems.
150. School spirit seems to be more important than learning at this school.

Legend: T — True. Generally true or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

F — False. Generally false or not characteristic of your high school, is something which is not likely to occur, is not the way people typically feel or act.

151. Teachers seldom make you feel you're wasting their time in the classroom.
152. Examinations here really test how much a student has learned.
153. When a student fails a test, he has to take a note home to his parents.
154. Students seldom get out and support the school athletic teams.
155. Student arguments often turn into fights.
156. Most students dress and act pretty much alike.
157. Classroom interruptions by the public address system, knocks at the door, etc., are infrequent in this school.
158. When the assignments really get tough, many students just won't do them.
159. Teachers seldom get annoyed when students disagree with them during classroom discussion.
160. There are no favorites at this school; everyone gets treated alike.
161. Student discussions on national and international news are encouraged in class.
162. An open display of emotion (such as crying, swearing, etc.) would embarrass most teachers.
163. Students get so wrapped up in various activities that they often lose all sense of time or of other things going on around them.
164. It is easy to obtain student speakers for activities or meetings.
165. There is little sympathy here for ambitious day-dreams about the future.
166. Quite a bit of smoking and drinking goes on among students.
167. When students get together, they seldom talk about classical music or art.
168. New ideas are met with immediate enthusiasm in this school.
169. Students seldom receive compliments when they come to school with new clothing, a new haircut or hairdo, etc.
170. Students try in all sorts of ways to be friendly, especially to newcomers.
171. Some of the teachers treat questions in class as if the students were criticizing them personally.
172. The school building and grounds often look a little untidy.
173. Everyone has a lot of fun at this school.
174. Many students enjoy working with their hands and are pretty good at making or repairing things.
175. Student newspapers and magazines often carry short stories and poems by students.
176. Science labs here have very good equipment.
177. Nothing much is said to students who happen to be chewing on pencils, rubber bands, paper clips, gum, or something.
178. There are several popular spots where a crowd of boys and girls can always be found.
179. Most of the teachers are not interested in student's personal problems.
180. Teachers do little more than repeat what's in the textbook in most classes here.
181. Those in charge are not very patient with students.
182. Most students around here expect to go on to college.
183. Students are made to explain *why* they did something when the teacher doesn't like what they've done.
184. There is little interest in school clubs and social groups.
185. When students dislike a teacher, they let him know it.
186. Very few of the teachers have been here for a long time.
187. In most classes, the presentation of material is well planned and illustrated.
188. Everyone prefers the easy teachers, and tries hard to avoid the tough ones.
189. Students here frequently refer to their teachers by their first names or nicknames.
190. Knowing the right people is important in getting in on all of the activities.
191. Most students take an active part in school elections.
192. Graduation is a pretty matter-of-fact, unemotional event.
193. Teachers put a lot of energy and enthusiasm into their teaching.
194. School activities are given a lot of space in the local newspapers.
195. Many students hope to achieve future fame and/or wealth.
196. Students with bad colds or anything that's "catching" are quickly sent home so that they don't pass on what they have to others.
197. Classes in history, literature, and art are among the best liked here.
198. Students who tend to say or do the first thing that occurs to them are likely to have a hard time here.
199. Teachers insist that students come to school well-dressed and well-groomed.
200. Students really support fund drives such as the March of Dimes, Community Chest, Red Cross, CARE, etc.

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201. There always seems to be a lot of little quarrels going on.
202. Many student lockers are messy, some even dirty.
203. It's easy to get a group together for games, going to the movies, etc., after school.
204. Most students and their families think of education as a preparation for earning a good living.
205. Teachers welcome the student's own ideas on serious matters.
206. A student who spends some of his spare time in a science lab is likely to be regarded as a little odd.
207. A lot has been done with pictures, draperies, colors, and decoration to make the school building pleasing to the eye.
208. Most students would like to go steady.
209. One nice thing about this school is the personal interest taken in the students.
210. Most of the teachers are deeply interested in their subject-matter.
211. When you get into trouble with one teacher around here, the other teachers soon know about it.
212. In this school there are very few contests in such things as speaking, chess, essays, etc.
213. Tests are given almost every day in many classes.
214. Most students get together often in particular soda fountains or snack bars.
215. There are frequent fights in the lunchroom or on the school grounds.
216. The school is especially proud of its long history.
217. Most students follow a regular plan for study and play.
218. No one gets pushed around at this school without fighting back.
219. If students apologize for a wrong-doing, teachers are more willing to help them.
220. You have to act like all of the others in order to be in with the group.
221. Strong positions are taken here regarding civil liberties and minority groups.
222. Students here can be wildly happy one moment and hopelessly sad the next.
223. Classes are boring.
224. Most students like to "clown" around at this school.
225. Teachers encourage students to think about exciting and unusual careers.
226. Everyone here is "safety-first" conscious, making sure that nobody will get hurt.
227. Teachers frequently urge students to consider the influence of history on current events.
228. There is much shouting and yelling in the halls and cafeteria.
229. Good manners and making a good impression are important here.
230. Many of the teachers in this school are actively interested in charities and community services.
231. Teachers always seem to think students are up to something and make the worst of even small happenings.
232. Classrooms are always kept very clean and tidy.
233. Students here don't do much except go to classes, study, and then go home again.
234. Many teachers here stress the practical uses of their subjects in helping students to get a good job.
235. Long, serious discussions are common among the students.
236. Many students here make models of scientific gadgets, and enter them in local or state science fairs.
237. In this school style is more important than dressing for personal comfort.
238. Some of the most popular students have a knack for making witty comments that some people would not consider in good taste.
239. The teachers go out of their way to help you.
240. There is a lot of interest here in learning for its own sake, rather than just for grades or for graduation credits.
241. Students don't argue with the teacher, they just admit that they are wrong.
242. Pupils seldom take part in extra projects in Science, English, History, etc.
243. Everyone knows who the smart students are because they are in different classes from the others.
244. Many projects are assigned in which small groups of students work together (either in or out of school).
245. The wash rooms are always a mess because the students throw paper around.
246. Many of the teachers have lived in this community all their lives.
247. It is hard to prepare for examinations because students seldom know what they will be tested on.
248. The principal here is willing to hear student complaints.
249. Students seldom make fun of teachers or the school.
250. A lot of kids around here argue just for the sake of winning the argument.

Legend: T — True. Generally true or characteristic of your high school, is something which occurs or might occur, is the way people tend to feel or act.

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251. Both teachers and students here are actively concerned about ways to make this world a better place in which to live.
252. Students tend to hide their deeper feelings from each other.
253. Class discussions are usually vigorous and intense.
254. There is little interest here in student dramatic or musical activities.
255. For most students, future goals emphasize job security, family happiness, and good citizenship.
256. Few students bother with rubbers, hats, or other special protection against the weather.
257. There are copies of many famous paintings in the school halls and classrooms.
258. Students frequently speak up in class without worrying about what they're going to say.
259. Teachers are always carefully dressed and neatly groomed.
260. When someone is out sick for a while his classmates let him know that he is missed.
261. If students do their work well they get a good mark, whether or not the teacher likes them.
262. Offices and rooms are clearly marked.
263. Most students take their school work very seriously.
264. Learning to work with others is emphasized in this school.
265. Students are seldom encouraged to think about developing their own personal values and a philosophy of life.
266. There are frequent science displays around the school.
267. There are no comfortable seats in this school where students can sit and relax.
268. Most of the students here start dating very young.
269. It doesn't matter who you are, at this school you are expected to be "grown up" and able to handle your own affairs.
270. Many students here would rather talk about poetry or religion, instead of the movies or sports.
271. There is a lot of apple-polishing and buttering-up of teachers around here.
272. There are awards or special honors for those who do the best work or get the best grades.
273. Teachers often ask a lot of very personal questions.
274. Open houses or carnivals are held each year and everyone has to help out with them.
275. Teachers seldom use physical punishment.
276. You never know what is going to happen next at this school.
277. Clear and usable notes are usually given by most teachers.
278. It is always very difficult to get a group of students to decide something here without a lot of argument.
279. Students can feel free to disagree with their teachers openly.
280. The student leaders here really get away with a lot.
281. The expression of strong personal belief is pretty rare around here.
282. Very few things here arouse much excitement or feeling.
283. The teachers really push each student to the limit of his ability.
284. Student parties are colorful and lively.
285. Quite a few faculty members have had varied and unusual careers.
286. Rough games and sports are an important part of intramural athletics.
287. Most students are not interested in television programs dealing with social and political problems.
288. Students frequently do things together here after school without planning for them ahead of time.
289. Students think about wearing the right clothes for different things — classes, social events, sports, and other affairs.
290. Students in this school have a reputation for being very friendly with each other.
291. Many teachers seem moody and hard to figure out.
292. Most teachers in this school prefer to march their students from place to place, instead of letting them go by themselves.
293. Every year there is a carnival, picnic, or field day.
294. Most students are interested in jobs in business, engineering, management, and other practical areas.
295. One frequently hears students talking about differences between our own way of life and that of people in other countries.
296. Some subjects in this school stress the history and importance of great inventions and inventors and how they have influenced the world today.
297. Students here enjoy opportunities to attend concerts and art exhibits on school time.
298. Nearly everyone here tries to have a date for the weekends.
299. Counseling and guidance services are really personal, patient, and extensive.
300. Clear and careful thinking are most important in getting a good mark on reports, papers, and discussions.

APPENDIX 3

STUDENT BACKGROUND INFORMATION
QUESTIONNAIRE

APPENDIX 3

STUDENT BACKGROUND INFORMATION

1. What is (or was) the specific job title of your father's job (e.g. - grocery store owner, taxi driver-owner, captain for airline company, etc.)?

2. Describe briefly the type of work that your father has done during most of his lifetime.

APPENDIX 4

NEED-PRESS SCALE DEFINITIONS

APPENDIX 4

NEED-PRESS SCALE DEFINITIONS*

1. Aba Abasement-Ass Assurance: self-depreciation versus self-confidence.
2. Ach Achievement: striving for success through personal effort.
3. Ada Adaptability-Dfs Defensiveness: acceptance of criticism versus resistance to suggestion.
4. Aff Affiliation: group-centered social orientation.
5. Agg Aggression-Bla Blame Avoidance: hostility versus its inhibition.
6. Cha Change-Sam Sameness: flexibility versus routine.
7. Cnj Conjunctivity-Dsj Disjunctivity: planfulness versus disorganization.
8. Ctr Counteraction: restriving after failure.
9. Dfr Deference-Rst Restiveness: respect for authority versus rebelliousness.
10. Dom Dominance-Tol Tolerance: ascendancy versus forbearance.
11. E/A Ego Achievement: striving for power through social action.
12. Emo Emotionality-Plc Placidity: expressiveness versus stolidness.
13. Eny Energy-Pas Passivity: effort versus inertia.
14. Exh Exhibitionism-Inf Inferiority Avoidance: attention-seeking versus shyness.

* George G. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, p. 16.

15. F/A Fantasied Achievement: daydreams of extraordinary public recognition.
16. Har Harm Avoidance-Rsk Risktaking: fearfulness versus thrill-seeking.
17. Hum Humanities, Social Science: interests in the humanities and the social sciences.
18. Imp Impulsiveness-Del Deliberation: impetuosity versus reflection.
19. Nar Narcissism: vanity.
20. Nur Nurturance: helping others.
21. Obj Objectivity-Pro Projectivity: objective detachment versus superstition (Activities Index) or suspicion (Environment Indexes).
22. Ord Order-Dso Disorder: compulsive organization of details versus carelessness.
23. Ply Play-Wrk Work: pleasure seeking versus purposefulness
24. Pra Practicalness-Impr Impracticalness: interest in practical activity versus indifference to tangible personal gain.
25. Ref Reflectiveness: introspective contemplation.
26. Sci Science: interests in the natural sciences.
27. Sen Sensuality-Pur Puritanism: interest in sensory and aesthetic experiences versus austerity or self-denial.
28. Sex Sexuality-Pru Prudishness: heterosexual interests versus asceticism.
29. Sup Supplication-Aut Autonomy: dependency versus self-reliance.
30. Und Understanding: intellectuality.

APPENDIX 5

LEAST PREFERRED COWORKER (LPC) AND GROUP
ATMOSPHERE (GA) ITEM SCORES FOR PRINCIPALS
IN THE INITIAL SAMPLE

LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES																GA ITEM SCORES									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
1	7	7	5	6	6	2	1	1	6	6	7	7	8	6	6	3	8	7	7	6	7	7	7	7	7	7
2	3	2	7	2	1	5	2	2	2	2	2	1	7	3	1	2	7	2	7	7	7	8	8	7	8	7
3	6	6	7	2	2	8	6	5	1	3	5	2	8	3	7	3	7	7	7	6	7	7	7	7	7	7
4	6	6	2	1	2	4	4	5	2	4	7	5	4	3	6	4	6	5	6	6	5	5	6	5	7	7
5	6	6	2	5	4	2	2	2	2	3	3	4	2	3	4	1	8	7	7	7	7	7	7	7	7	7
6	5	6	5	6	5	4	6	4	7	7	2	6	7	7	5	3	7	7	7	7	8	8	8	8	7	8
7	4	5	3	5	3	3	3	4	4	4	3	4	5	5	2	3	7	7	8	7	7	6	8	7	8	7
8	3	3	2	4	3	5	2	2	3	5	3	3	8	7	6	5	7	6	6	6	7	6	6	7	7	7
9	2	4	1	2	8	1	2	2	2	2	2	1	1	1	1	3	7	7	7	8	8	7	8	7	7	7
10	8	8	7	6	6	7	7	7	7	7	3	8	7	1	7	8	7	7	8	7	8	7	7	7	7	8
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7	7	7	7	7	7	8	8	7	8
12	4	5	5	2	2	1	1	1	1	1	4	1	8	1	5	1	6	6	5	8	7	6	6	6	3	7
13	7	7	4	2	5	7	3	7	5	5	5	4	1	1	6	6	6	6	6	6	6	6	6	6	6	6
14	7	7	5	5	6	1	3	7	7	5	3	6	1	1	5	6	7	7	8	7	7	8	7	8	8	7
15	6	7	2	7	7	4	4	7	6	6	5	2	7	2	8	6	7	7	8	8	5	6	7	8	6	7
16	1	3	2	1	1	3	2	1	1	1	1	3	3	3	8	2	8	7	7	7	8	7	7	7	8	8
17	3	2	3	3	3	4	2	3	3	3	3	3	3	2	2	2	7	7	7	8	7	7	7	7	7	7
18	6	5	5	2	4	7	2	1	2	1	6	2	8	6	6	2	5	5	5	6	7	7	7	7	7	7
19	1	4	5	4	2	4	4	1	5	5	2	4	3	3	2	2	7	5	7	8	6	7	7	6	8	5
20	4	4	4	5	2	4	3	3	5	5	4	4	7	8	5	3	7	6	5	5	5	6	6	6	6	6
21	7	8	5	3	7	6	6	6	6	6	7	6	6	6	7	7	7	7	7	7	7	6	8	8	7	7
22	3	3	7	3	7	4	3	2	2	2	4	3	3	2	2	2	8	7	7	7	7	7	7	7	7	8
23	3	4	2	6	6	1	3	2	6	7	1	2	1	2	2	2	7	7	5	5	6	7	7	7	7	6
24	6	6	4	2	2	2	4	5	5	5	4	5	4	2	6	7	6	6	5	5	5	6	7	7	5	5
25	6	6	7	4	5	5	3	4	4	4	2	7	2	2	5	4	8	6	7	6	7	6	6	6	8	7
26	4	4	3	4	4	4	3	2	2	4	5	4	7	7	6	2	5	6	6	6	7	7	8	6	6	7
27	4	4	4	4	4	4	5	5	5	4	1	1	8	4	8	8	7	5	6	6	6	8	7	8	7	6
28	4	4	4	5	4	4	4	4	4	4	5	4	5	5	6	3	7	7	7	7	7	6	6	6	7	7
29	7	5	2	2	6	2	3	3	1	4	4	4	6	7	5	2	4	5	4	5	4	4	4	4	4	5
30	6	3	6	4	3	2	3	5	2	2	3	8	7	8	6	2	7	7	7	7	7	7	8	8	8	8

APPENDIX 5

LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES																GA ITEM SCORES									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
31	7	7	5	3	7	2	7	6	4	2	6	6	8	6	7	4	7	7	6	7	7	7	7	7	7	7
32	7	7	7	2	7	2	6	7	2	4	5	6	1	1	6	7	7	6	6	7	6	6	5	7	6	6
33	6	7	6	7	7	5	5	5	5	3	8	2	7	5	7	6	7	6	7	6	7	6	7	7	6	6
34	4	4	7	2	7	3	2	4	4	3	4	3	2	2	5	2	6	6	6	5	6	6	7	7	6	6
35	5	5	3	2	5	2	4	4	3	2	6	3	7	4	4	3	6	6	6	7	6	6	7	7	6	6
36	5	5	4	4	3	3	3	3	3	3	4	3	4	5	3	3	7	6	6	6	7	7	7	6	6	6
37	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	8	7	8	8	8	7	7	7	7	7
38	7	4	4	2	2	3	3	4	2	3	4	3	2	2	6	3	7	5	7	6	6	6	7	7	7	6
39	6	5	5	6	2	6	3	3	3	6	7	6	6	2	6	2	7	6	7	7	8	7	6	7	7	8
40	4	6	7	4	7	5	6	6	6	5	2	6	8	2	5	7	7	5	6	6	7	7	8	7	7	7
41	2	5	2	2	6	5	3	5	2	2	6	1	7	7	4	6	7	4	4	5	6	7	5	5	7	6
42	7	5	5	5	2	2	3	4	5	5	6	4	4	7	5	4	7	6	6	7	7	7	6	7	7	7
43	7	7	6	1	6	4	5	5	7	7	5	4	5	8	6	3	8	7	7	7	7	8	8	8	7	8
44	5	5	5	5	3	6	2	2	2	3	4	3	8	4	5	5	6	6	7	6	7	6	7	7	8	6
45	6	5	5	5	6	7	5	5	4	3	4	4	2	4	2	3	7	7	6	5	6	7	7	7	7	6
46	3	5	3	3	7	2	5	5	3	3	5	2	7	6	2	2	5	5	4	3	3	5	3	5	5	5
47	5	3	5	5	5	3	3	3	3	4	5	3	6	6	4	3	7	7	7	7	6	7	7	7	7	6
48	6	6	5	1	5	3	1	1	5	3	2	4	4	3	1	2	8	7	7	7	7	7	8	8	7	7
49	3	3	4	2	2	7	2	2	3	3	5	4	3	3	2	2	7	7	8	8	7	7	8	7	8	7
50	3	4	3	2	6	2	4	5	3	2	2	1	7	3	6	2	7	6	6	5	6	5	7	7	6	6
51	5	5	3	5	6	3	2	2	5	5	3	6	3	7	4	6	8	8	8	8	8	8	8	8	8	8
52	3	3	3	3	2	7	4	4	3	4	3	4	7	5	4	4	7	6	7	6	6	7	6	6	7	6
53	6	6	4	2	7	6	4	4	2	5	5	5	6	2	6	5	8	7	7	7	7	8	7	7	7	7
54	6	6	2	2	7	2	2	4	2	2	1	2	4	5	1	2	6	7	6	5	5	6	7	7	6	6
55	7	7	5	4	3	7	2	2	5	5	2	4	2	2	3	1	8	7	7	7	7	8	8	8	6	8
56	6	8	4	8	4	1	4	4	5	5	4	5	2	8	4	1	7	7	6	5	6	8	5	5	8	7
57	6	5	2	3	7	5	2	3	2	2	3	2	3	2	2	2	2	2	2	2	4	3	2	2	3	4
58	5	4	3	2	6	3	1	3	2	2	4	3	3	2	3	2	8	7	7	8	8	8	8	8	8	8
59	3	3	3	2	7	2	2	3	5	4	6	1	7	7	3	2	7	6	6	7	7	7	7	7	7	7
60	2	2	2	2	3	2	3	3	3	3	3	3	2	2	2	2	7	6	7	6	7	5	7	7	7	7

APPENDIX 5

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LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES																GA ITEM SCORES									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
61	8	8	8	8	5	8	8	8	8	7	7	8	8	3	8	4	6	5	6	5	6	5	5	6	7	6
62	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	8	5	6	5	6	7	6	7	7	7
63	7	7	7	3	7	7	7	7	5	5	6	6	7	1	6	7	8	7	7	7	8	7	6	7	8	7
64	3	3	2	1	3	3	4	2	3	2	4	2	4	7	4	3	7	6	7	6	7	6	7	6	7	7
65	1	1	1	1	1	1	2	3	1	1	2	2	2	2	1	1	7	7	7	5	6	7	7	7	7	7
66	6	6	5	1	8	2	2	5	2	3	2	1	8	2	7	4	8	8	7	8	8	8	7	7	8	8
67	3	3	2	3	1	1	4	4	4	4	1	2	7	5	4	1	7	7	7	7	6	7	7	7	6	6
68	7	7	6	7	6	4	5	6	7	7	6	7	2	2	7	7	8	6	6	6	8	7	7	8	6	7
69	8	8	6	1	6	8	3	3	2	5	4	6	8	1	8	4	8	7	7	7	7	8	8	8	7	7
70	3	5	3	3	7	2	6	6	3	3	5	1	6	6	5	2	7	6	7	7	7	7	7	7	8	8
71	7	7	7	2	6	5	2	5	4	3	2	5	4	3	5	4	7	6	6	6	7	6	8	8	7	7
72	7	6	5	2	5	5	4	4	2	3	5	5	4	2	5	4	7	7	7	7	7	7	7	7	7	7
73	1	1	1	1	1	5	5	5	1	1	1	1	4	1	1	1	5	4	6	8	7	4	6	6	6	7
74	1	1	1	1	1	1	1	1	1	1	1	1	8	1	1	1	7	6	6	5	7	7	8	7	6	7
75	3	4	3	2	2	7	4	4	3	3	3	5	2	2	2	2	8	7	5	5	6	7	7	8	7	6
76	7	7	7	4	5	5	2	4	2	4	4	4	5	3	6	4	7	4	7	6	6	5	5	5	7	7
77	6	5	6	6	6	3	4	4	1	2	7	4	5	6	5	4	7	6	5	6	6	6	7	7	7	7
78	1	1	5	3	7	5	7	7	8	6	6	6	7	8	7	6	8	6	7	7	7	8	7	7	7	7
79	7	7	7	6	7	2	6	6	6	7	4	7	2	3	6	3	6	7	6	5	6	6	7	5	7	6
80	6	7	4	1	7	6	6	6	7	4	1	6	7	2	7	4	8	8	8	8	8	8	8	8	8	8
81	5	5	7	7	2	4	5	5	7	8	1	6	5	3	6	4	7	7	8	6	7	6	8	8	7	7
82	3	2	1	3	7	3	2	2	2	3	4	3	4	2	3	4	8	7	7	7	8	7	8	8	7	7
83	5	5	4	2	3	4	4	5	3	4	3	3	7	6	4	3	7	7	5	5	7	7	7	7	4	6
84	7	6	5	6	6	2	5	5	3	4	6	6	6	6	4	2	7	6	6	5	6	6	6	6	6	6
85	4	3	2	3	3	3	1	1	4	5	2	3	8	5	3	2	7	7	6	6	7	7	7	7	5	6
86	5	5	4	1	5	3	4	5	5	5	5	2	7	4	5	2	8	7	6	7	7	7	8	8	7	6
87	6	6	7	3	3	8	1	2	7	7	3	8	7	2	8	1	8	6	8	7	6	7	7	6	6	6
88	5	4	6	4	4	3	2	3	5	5	5	5	7	6	4	3	7	7	8	7	6	7	7	8	7	7
89	2	2	2	1	2	7	1	3	1	2	7	2	7	1	2	1	7	7	7	6	8	7	7	7	7	8
90	6	6	4	2	2	7	3	5	5	5	5	6	6	5	5	3	8	7	7	7	7	7	7	8	7	8

APPENDIX 5

LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES																GA ITEM SCORES									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
91	7	7	6	5	5	2	1	5	3	2	2	1	5	1	6	3	7	6	6	7	7	6	7	8	7	7
92	2	2	4	3	3	4	4	3	2	3	4	4	4	3	3	4	7	5	7	7	8	7	7	7	8	7
93	5	5	5	2	4	2	2	2	5	5	3	5	4	1	6	2	7	7	6	7	7	7	8	8	6	7
94	6	6	4	6	8	6	5	7	6	5	7	6	8	5	7	3	7	7	8	7	8	6	6	3	8	8
95	6	4	3	3	6	1	3	2	3	5	3	5	6	5	5	3	7	6	6	5	5	6	5	7	6	6
96	6	6	3	2	4	4	3	3	1	4	2	3	3	8	3	2	7	7	6	6	7	7	7	7	6	6
97	7	7	7	7	2	4	3	2	5	5	3	6	4	8	2	2	7	7	7	7	8	7	7	6	7	7
98	7	7	2	1	3	1	2	3	7	7	1	5	1	1	4	1	7	7	7	7	7	7	7	7	8	8
99	8	8	3	2	7	5	5	5	3	5	7	3	6	1	6	3	7	7	8	7	7	7	8	7	8	7
100	7	7	4	3	4	7	4	5	5	4	3	4	8	2	4	5	7	8	7	7	7	7	8	8	6	8
101	5	5	1	1	8	4	4	2	4	2	5	2	8	8	6	1	6	5	7	6	6	6	6	6	7	6
102	5	4	2	3	1	1	3	4	3	3	6	4	6	5	4	3	6	6	7	6	6	6	7	7	7	7
103	6	6	5	3	4	4	3	3	5	6	5	5	2	3	5	2	7	7	7	6	7	7	7	7	7	7
104	4	5	6	3	3	3	3	3	4	5	6	3	6	5	2	3	6	4	3	5	7	5	5	5	6	7
105	6	3	6	4	3	2	2	2	5	4	6	3	7	7	6	3	8	7	6	8	7	7	7	7	8	7
106	3	4	3	2	2	3	3	3	1	2	5	3	7	3	5	5	7	6	7	6	7	6	7	8	7	7
107	4	4	4	2	7	1	2	5	2	2	5	3	7	7	3	1	7	5	4	6	7	7	7	6	7	6
108	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	8	7	7	7	7	7	8	8	8	7
109	5	3	4	4	4	2	1	1	2	2	6	4	6	7	4	1	7	7	6	6	7	7	7	7	7	6
110	5	6	2	1	7	2	3	3	3	4	2	6	8	1	7	1	7	7	7	6	8	7	7	7	8	8
111	3	6	3	3	4	6	4	4	4	3	5	3	6	3	4	4	6	6	5	6	7	6	5	6	6	6
112	3	3	1	4	3	3	3	2	1	2	4	2	7	2	1	2	7	6	6	6	7	7	7	6	6	6
113	7	7	2	3	7	4	3	5	3	2	4	3	8	7	5	3	7	5	6	6	6	7	6	5	6	6
114	6	6	2	2	3	5	2	2	5	5	3	3	3	2	3	3	8	7	8	7	8	8	8	8	8	8
115	2	4	3	1	3	2	2	3	2	4	1	1	3	3	4	4	6	6	8	8	7	7	7	6	8	7
116	8	8	8	7	5	1	3	3	7	4	5	8	7	1	4	1	8	8	8	8	8	8	8	8	8	8
117	1	1	1	1	3	1	3	1	1	1	1	1	2	1	1	1	8	8	7	7	8	7	8	8	8	8
118	3	4	2	2	1	5	3	4	6	5	1	4	5	7	4	3	7	7	8	8	7	6	6	7	6	7
119	5	4	3	3	3	2	2	2	5	3	7	4	8	6	6	3	7	7	6	6	6	7	7	6	6	6
120	4	4	3	3	3	6	5	5	3	4	4	5	4	3	4	4	6	5	6	6	6	6	6	5	7	7

LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES										GA ITEM SCORES															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
121	7	7	8	7	8	5	6	6	8	8	8	8	3	7	6	7	6	5	5	5	5	6	6	6	5	
122	1	2	7	7	6	4	1	1	1	3	4	4	8	7	3	1	7	7	7	7	7	7	7	7	7	
123	7	6	4	1	2	2	4	7	4	4	2	4	1	1	6	2	7	7	6	5	7	7	8	8	6	
124	5	4	4	3	6	3	3	4	3	3	7	7	3	3	6	3	6	5	6	5	6	6	6	5	6	
125	6	4	1	1	1	6	1	1	1	5	4	4	8	5	6	8	5	6	7	8	8	5	5	8	6	
126	2	2	2	1	2	2	2	2	5	4	4	4	8	2	2	2	2	7	7	7	7	8	7	7	7	
127	7	5	5	2	3	6	4	5	2	5	3	4	7	3	7	1	7	6	8	6	5	8	8	7	5	
128	6	7	1	1	3	4	7	5	1	1	5	2	3	7	5	4	6	4	5	7	5	6	6	8	5	
129	3	2	5	2	4	3	5	3	1	2	6	2	2	1	5	3	8	8	8	8	8	7	7	8	8	
130	2	7	8	6	8	7	7	7	8	7	8	7	3	8	8	6	7	8	7	7	7	8	7	8	7	
131	6	4	3	2	8	2	7	7	6	2	3	7	1	1	4	7	8	7	8	6	6	8	7	6	7	
132	5	5	3	5	6	6	3	4	2	2	6	1	6	2	7	3	7	4	6	6	5	7	3	7	7	
133	7	7	6	5	1	2	5	5	5	5	2	5	5	5	1	5	0	8	7	8	7	7	8	7	8	
134	1	1	2	2	2	1	3	3	8	1	3	2	7	7	1	1	7	7	6	7	7	7	7	6	7	
135	5	4	4	4	6	4	4	4	4	4	5	4	4	6	3	3	6	6	6	6	6	6	7	6	6	
136	7	7	7	7	5	7	7	7	3	4	7	5	7	2	7	7	7	6	5	6	6	7	6	6	6	
137	4	5	5	3	5	4	4	4	5	5	5	4	4	4	5	4	5	5	5	5	6	6	7	6	7	
138	5	3	2	1	4	1	2	2	1	1	3	1	7	1	5	5	7	6	7	7	6	7	7	7	8	
139	7	7	4	4	6	6	5	7	3	3	4	4	3	2	6	4	7	7	7	7	7	7	7	6	6	
140	7	7	5	6	1	7	5	6	6	2	2	2	2	2	7	2	8	8	7	7	7	7	8	7	7	
141	4	4	5	4	1	1	5	5	1	1	5	5	3	2	5	3	7	5	8	7	8	6	7	5	8	
142	8	8	6	7	8	8	6	7	8	8	8	6	7	8	8	8	8	8	8	8	8	8	8	7	7	6
143	6	8	7	3	2	2	7	8	7	7	7	8	2	3	6	7	7	6	6	6	6	7	7	6	6	
144	3	3	2	3	6	2	2	2	7	7	4	2	6	6	3	2	7	7	7	7	7	7	8	7	7	
146	6	7	5	5	2	1	4	6	3	5	2	5	8	7	5	2	8	6	7	8	7	8	7	7	7	
145	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	6	4	5	5	6	6	6	6	6	
147	5	5	3	4	3	5	4	4	5	4	5	6	5	5	4	2	7	7	6	6	6	6	6	6	7	
148	6	7	3	3	5	4	3	5	2	2	4	6	7	5	3	5	7	6	6	6	7	6	5	6	6	
149	4	4	3	2	1	4	2	3	1	1	2	1	3	2	3	2	7	5	6	7	7	7	7	7	7	
150	7	7	3	1	7	8	8	7	2	1	5	3	2	1	7	1	7	6	5	4	5	6	6	6	6	

LEAST PREFERRED COWORKER (LPC) AND GROUP ATMOSPHERE (GA) ITEM
SCORES FOR PRINCIPALS IN THE INITIAL SAMPLE

PRINCIPAL NUMBER	LPC ITEM SCORES																GA ITEM SCORES									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10
151	6	5	3	4	6	2	3	4	5	5	2	4	8	2	6	6	8	5	7	8	8	7	7	7	8	8
152	1	1	1	1	1	1	1	1	1	1	1	4	5	8	4	1	7	6	7	7	7	7	7	7	8	7
153	7	7	3	3	3	6	4	4	6	6	4	2	7	4	5	5	8	7	7	7	8	7	7	7	7	7
154	3	6	3	2	8	2	3	5	6	3	2	3	2	6	2	6	7	6	5	7	7	7	7	7	6	7
155	3	6	7	2	2	1	3	4	5	2	5	4	7	2	5	6	7	7	6	6	7	8	6	6	7	7
156	5	6	7	7	7	2	2	7	7	7	1	5	2	1	7	4	7	6	7	7	7	7	7	7	7	7
157	5	6	4	2	3	5	4	4	5	5	5	5	5	5	3	6	7	7	7	6	6	6	7	7	8	7
158	2	3	2	3	3	2	2	2	3	4	2	4	3	5	4	2	8	7	7	6	7	7	7	7	7	7
159	4	6	5	6	8	3	7	6	6	5	3	3	2	3	4	3	7	6	7	6	7	7	7	6	7	7
160	7	7	5	3	7	5	2	2	5	4	1	3	3	3	3	2	7	6	6	6	6	7	7	6	6	5
161	4	3	2	2	2	4	3	2	2	5	2	5	7	2	6	2	7	7	8	7	7	7	8	7	8	7
162	2	4	3	2	2	5	4	3	2	1	5	3	3	2	3	3	6	4	3	6	7	7	4	5	6	6
163	1	1	2	1	5	2	1	1	1	1	8	1	8	7	4	2	7	7	7	7	7	7	7	7	7	7
164	2	2	2	2	2	2	1	1	2	1	6	2	7	2	1	8	8	7	8	7	7	8	8	8	8	8
165	6	6	1	5	4	5	2	2	2	3	5	6	4	5	5	2	7	7	6	7	8	7	8	8	7	8
166	4	6	3	6	6	2	5	6	6	5	4	2	6	6	4	5	8	6	5	7	6	7	6	7	6	6
167	6	6	4	1	7	2	4	5	2	3	7	5	7	1	6	3	8	7	7	6	6	7	7	7	7	7
168	1	1	2	2	2	2	2	1	1	1	1	2	2	1	2	1	7	6	7	8	8	6	6	7	8	5
169	5	7	7	1	1	2	6	6	1	1	5	1	7	1	6	3	6	7	7	6	7	6	7	7	7	7
170	5	5	2	5	4	4	3	3	4	3	3	3	7	3	5	4	6	6	7	5	6	6	7	7	7	6
171	7	7	6	8	8	8	6	7	7	7	7	7	8	8	8	6	8	6	8	8	8	7	7	8	7	8
172	7	7	7	6	4	4	4	4	5	5	6	6	6	5	7	6	8	8	8	7	7	8	8	8	8	8
173	6	6	5	3	6	3	3	3	3	3	6	5	7	3	5	4	7	7	4	3	7	5	5	5	7	4
174	6	6	7	3	7	3	1	3	3	3	7	5	6	6	3	3	8	7	6	8	6	7	7	6	8	7
175	8	8	5	4	8	7	6	4	4	6	2	1	1	2	7	3	7	4	5	3	6	6	6	6	3	5
176	4	6	3	7	8	3	6	3	5	6	6	4	8	8	5	3	7	6	7	7	7	7	8	7	6	6

APPENDIX 5

APPENDIX 6

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR
SCORES FOR INDIVIDUALS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C1

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	27.1111	21.0000	17.1111	34.0000	31.7778	15.5556	26.0000
2	1	51.0000	37.0000	31.0000	40.0000	47.0000	17.0000	24.0000
3	0	26.0000	25.0000	19.0000	29.0000	29.0000	19.0000	15.0000
4	0	25.0000	21.0000	16.0000	27.2222	32.0000	17.0000	21.0000
5	0	33.0000	23.7778	17.0000	26.0000	23.0000	18.0000	17.0000
6	0	43.0000	31.0000	30.0000	37.0000	32.0000	11.4444	20.0000
7	0	38.0000	31.0000	35.0000	25.0000	44.0000	16.0000	32.0000
8	0	27.7778	23.0000	26.0000	21.0000	34.6349	14.7778	27.4444
9	0	40.0000	32.0000	23.0000	25.0000	35.0000	15.0000	26.0000
10	0	22.0000	18.0000	18.0000	26.0000	16.0000	13.0000	20.0000
11	1	46.5000	29.0000	34.5000	34.0000	42.1746	21.3333	27.0000
12	1	20.0000	16.0000	14.0000	16.0000	22.0000	14.0000	22.0000
13	0	27.0000	16.0000	14.0000	25.0000	23.0000	17.0000	27.0000
14	1	38.0000	26.0000	19.0000	22.0000	41.0000	16.0000	25.0000
15	1	27.0000	22.0000	18.0000	15.0000	36.0000	20.0000	27.0000
16	1	23.0000	25.0000	19.4444	27.7778	27.0000	16.0000	23.0000
17	0	33.0000	26.0000	21.0000	22.0000	32.0000	10.0000	26.0000
18	1	35.0000	27.0000	24.0000	32.6667	40.1111	16.5556	26.0000
19	1	25.0000	26.0000	24.0000	27.0000	28.0000	14.0000	19.0000
20	0	49.0000	32.0000	26.0000	19.0000	36.0000	15.0000	31.0000
21	1	22.0000	19.0000	19.0000	18.0000	27.0000	14.0000	21.0000
22	0	25.0000	17.0000	13.0000	24.0000	21.0000	13.0000	18.0000
23	1	23.0000	29.0000	10.0000	34.0000	39.0000	14.0000	25.0000
24	1	33.0000	24.0000	18.0000	38.0000	23.0000	8.0000	13.0000
25	0	46.0000	36.4444	22.4444	24.5556	38.0000	16.0000	35.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 01

STUDENT NUMBER	SEX (C=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	26.4444	24.5556	19.1111	31.2222	35.0000	20.0000	18.4444
27	0	22.0000	23.0000	10.0000	41.0000	29.2222	9.2222	14.0000
28	1	39.2222	30.8889	26.0000	25.7778	40.6667	13.0000	28.7778
29	1	29.0000	27.0000	21.0000	28.0000	37.0000	14.0000	26.0000
30	1	25.7500	23.0000	13.0000	30.0000	27.0000	15.0000	15.7500
31	1	32.0000	24.0000	24.0000	19.0000	30.0000	12.0000	31.0000
32	0	26.0000	21.0000	24.0000	25.0000	27.8889	20.8889	18.0000
33	0	26.0000	17.0000	19.0000	25.5556	26.2500	8.5000	22.0000
34	1	33.0000	28.0000	25.0000	28.0000	29.0000	20.0000	26.0000
35	1	26.0000	32.0000	15.0000	35.0000	36.0000	18.4444	22.0000
36	0	33.6667	24.0000	18.0000	23.0000	26.0000	17.2222	23.0000
37	0	25.0000	18.0000	15.0000	31.0000	21.0000	12.0000	18.0000
38	0	34.0000	27.0000	21.0000	34.0000	34.6667	10.6667	19.0000
39	1	25.1071	26.4286	20.0000	10.7619	19.7619	11.5000	22.3214
40	1	43.0000	31.5556	34.0000	25.0000	38.5556	15.0000	28.0000
41	1	17.0000	19.0000	13.0000	30.0000	22.0000	14.0000	19.0000
42	0	18.0000	18.0000	12.0000	20.0000	26.0000	9.0000	11.0000
43	1	26.0000	23.0000	23.0000	29.0000	26.0000	14.0000	24.0000
44	1	19.0000	15.0000	12.0000	26.0000	20.0000	18.0000	23.0000
45	0	15.0000	16.0000	11.0000	22.0000	28.0000	16.0000	25.0000
46	1	23.0000	15.0000	18.0000	27.0000	26.0000	14.0000	21.0000
47	0	10.0000	16.0000	10.0000	28.0000	15.0000	13.0000	14.0000
48	0	30.4444	30.0000	27.0000	38.6667	29.0000	8.0000	21.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 02

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	47.0000	43.0000	42.8889	49.0000	48.0000	15.0000	22.0000
2	0	43.0000	28.0000	29.6667	42.0000	39.0000	15.0000	25.0000
3	0	42.0000	34.0000	29.0000	43.0000	42.0000	19.0000	27.0000
4	0	47.0000	33.0000	27.0000	37.0000	41.0000	15.0000	22.0000
5	1	56.0000	37.0000	27.0000	51.0000	44.0000	18.0000	20.0000
6	0	50.0000	42.0000	39.0000	39.0000	49.0000	16.0000	27.0000
7	1	33.0000	31.0000	34.0000	37.0000	37.0000	20.0000	19.0000
8	1	25.0000	22.0000	12.0000	31.0000	25.6190	17.3333	10.0000
9	0	35.0000	20.0000	16.0000	34.0000	27.0000	21.0000	23.0000
10	1	43.0000	34.0000	33.0000	35.0000	35.0000	13.0000	26.0000
11	1	19.0000	23.0000	27.0000	25.0000	21.0000	13.0000	20.0000
12	0	50.0000	41.0000	40.0000	41.0000	40.0000	14.0000	30.0000
13	1	32.3333	28.0000	27.0000	35.0000	39.0000	10.0000	21.0000
14	1	48.6667	46.7778	43.0000	37.0000	46.7778	13.0000	30.0000
15	1	53.0000	42.0000	37.0000	42.0000	41.0000	14.0000	29.0000
16	1	42.0000	40.0000	35.0000	46.0000	39.0000	11.0000	26.0000
17	0	22.0000	20.0000	15.0000	19.0000	28.0000	24.0000	22.0000
18	1	38.0000	38.0000	34.0000	35.0000	41.0000	11.0000	23.0000
19	0	44.0000	27.0000	33.0000	28.0000	28.0000	13.0000	27.0000
20	0	37.0000	30.0000	38.0000	32.0000	34.3333	7.3333	28.0000
21	1	45.0000	33.0000	31.0000	32.8889	41.8889	10.0000	27.0000
22	1	46.0000	28.0000	33.0000	23.0000	33.0000	14.0000	27.0000
23	1	33.0000	26.0000	22.0000	22.0000	28.0000	13.0000	21.0000
24	0	53.0000	36.0000	38.0000	44.0000	48.0000	19.0000	24.0000
25	1	28.4444	20.0000	20.0000	28.0000	29.4444	15.4444	16.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 02

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	44.8889	31.0000	30.4444	32.5556	36.0000	13.0000	31.0000
27	0	26.0000	23.0000	30.0000	38.0000	37.0000	15.0000	17.0000
28	0	41.0000	24.0000	26.0000	27.0000	31.0000	15.0000	26.0000
29	0	34.0000	24.0000	25.0000	33.0000	28.0000	16.0000	20.0000
30	1	48.0000	37.0000	34.0000	12.0000	43.0000	18.0000	31.0000
31	1	47.0000	30.0000	30.0000	18.0000	42.0000	12.0000	30.0000
32	0	27.0000	24.0000	23.0000	32.0000	25.0000	12.0000	16.0000
33	0	32.5556	31.1111	30.0000	40.8889	43.3333	14.8889	27.0000
34	0	37.0000	34.0000	26.0000	39.0000	41.0000	13.0000	27.0000
35	0	40.0000	32.0000	28.0000	30.0000	41.0000	17.0000	27.0000
36	0	28.2222	20.0000	24.5556	13.6667	30.0000	20.0000	23.6667
37	1	36.0000	31.0000	27.0000	26.0000	39.0000	14.0000	23.0000
38	0	27.0000	23.0000	24.0000	39.0000	28.0000	8.0000	24.0000
39	0	30.0000	16.0000	23.0000	23.0000	29.0000	19.0000	28.0000
40	0	31.0000	19.0000	27.0000	14.0000	33.0000	13.0000	28.0000
41	1	47.0000	32.0000	40.0000	18.0000	44.6667	15.0000	34.0000
42	0	46.0000	33.0000	24.0000	43.0000	32.0000	11.0000	23.0000
43	1	25.0000	21.0000	29.0000	42.0000	35.0000	17.0000	18.0000
44	1	34.0000	24.0000	25.0000	24.0000	36.0000	16.0000	23.0000
45	0	41.0000	35.0000	27.0000	45.7778	52.0000	22.0000	25.0000
46	1	34.0000	28.0000	28.0000	30.0000	34.0000	14.0000	22.0000
47	0	33.5556	27.1667	26.1667	23.0000	32.0000	14.0000	22.5556

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCCRES FOR INDIVIDUALS

SCHOOL NUMBER 03

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	58.0000	45.0000	37.0000	43.0000	40.0000	6.0000	28.0000
2	0	63.7778	44.2500	39.0000	49.6667	52.1111	24.4444	25.0000
3	0	49.0000	46.0000	36.0000	51.0000	44.0000	8.0000	26.0000
4	0	42.0000	29.0000	20.0000	27.0000	34.0000	18.0000	28.0000
5	0	40.0000	27.0000	23.0000	30.0000	36.0000	14.0000	19.7778
6	0	59.7778	41.7778	41.0000	41.0000	47.7778	20.0000	30.0000
7	0	56.0000	44.0000	41.0000	36.0000	47.0000	13.0000	32.0000
8	1	46.0000	43.0000	27.0000	46.0000	45.0000	16.0000	25.0000
9	1	42.0000	31.0000	23.0000	24.0000	38.0000	10.0000	30.0000
10	1	42.4444	36.4444	35.0000	32.0000	40.0000	9.0000	29.0000
11	0	40.8889	37.3333	34.6667	36.0000	41.3333	15.0000	29.5556
12	0	50.0000	42.0000	34.0000	41.0000	37.0000	4.0000	21.0000
13	0	46.0000	43.0000	36.0000	56.0000	45.0000	13.0000	20.0000
14	0	53.0000	34.0000	31.0000	29.0000	46.0000	19.0000	28.0000
15	0	48.6667	39.0000	34.0000	47.0000	41.5556	18.0000	21.0000
16	1	59.6667	45.0000	41.0000	38.0000	48.5556	14.3333	29.0000
17	1	46.1111	35.6667	20.6667	34.1111	33.0000	10.3333	24.2500
18	1	34.0000	33.0000	34.0000	39.0000	27.0000	11.2222	27.0000
19	0	46.8611	38.8889	30.5556	46.0000	48.0000	10.5556	21.6389
20	0	45.0000	46.0000	38.0000	44.0000	48.0000	18.0000	24.0000
21	0	54.0000	41.0000	31.0000	52.0000	37.0000	10.0000	22.0000
22	0	48.0000	42.0000	37.0000	39.0000	40.0000	9.0000	31.0000
23	1	52.0000	53.0000	35.0000	50.0000	45.0000	9.0000	28.0000
24	0	41.0000	36.0000	34.0000	27.0000	47.0000	17.0000	29.0000
25	0	42.0000	39.0000	35.0000	48.8889	42.3889	9.5000	23.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 03

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	34.0000	36.0000	31.0000	30.0000	23.0000	11.0000	20.0000
27	0	45.5992	44.6667	27.0833	39.7302	44.0278	15.6667	23.9683
28	0	45.0000	47.0000	40.0000	51.0000	41.0000	6.0000	20.0000
29	1	55.0000	41.0000	36.0000	35.0000	49.0000	16.0000	29.0000
30	0	50.0000	37.0000	35.0000	43.0000	41.0000	13.0000	26.0000
31	0	57.0000	41.0000	34.0000	48.0000	45.0000	14.0000	20.0000
32	1	33.0000	37.0000	23.0000	43.0000	36.0000	13.0000	20.0000
33	0	56.0000	40.8889	32.8889	42.0000	40.0000	15.0000	21.0000
34	1	41.0000	30.0000	25.0000	37.0000	40.0000	17.0000	27.0000
35	1	47.0000	43.0000	36.0000	47.0000	45.0000	23.0000	17.0000
36	1	68.0000	51.0000	44.0000	41.0000	56.0000	15.0000	29.0000
37	1	74.0000	55.0000	41.0000	50.0000	48.0000	10.2222	26.0000
38	1	71.5556	54.0000	43.0000	51.7778	48.0000	12.1111	17.2222
39	1	46.0000	40.0000	32.0000	37.0000	49.2222	15.3333	25.0000
40	1	46.3333	40.0000	31.0000	40.0000	30.5556	16.1111	26.3333
41	1	18.0000	22.0000	14.0000	17.0000	14.0000	11.0000	21.0000
42	1	59.3056	44.5000	29.5556	51.0833	41.6349	10.3571	21.3333
43	0	43.0000	40.0000	32.0000	51.0000	37.0000	13.0000	23.0000
44	0	39.0000	39.0000	34.0000	45.0000	44.0000	20.0000	23.0000
45	1	61.0000	47.0000	41.0000	53.0000	42.7778	8.0000	22.0000
46	1	70.0000	53.0000	41.0000	54.0000	47.6667	12.0000	25.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHGCL NUMBER 04

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	30.0000	26.6667	22.0000	30.5556	20.0000	11.0000	23.0000
2	1	43.7778	33.0000	26.0000	45.0000	51.0000	26.0000	21.7778
3	0	23.0000	23.0000	12.0000	39.0000	23.0000	22.0000	15.0000
4	0	32.0000	23.0000	20.0000	23.0000	28.0000	11.0000	25.0000
5	0	34.0000	31.7778	19.7778	34.0000	29.0000	15.0000	23.0000
6	0	39.4444	32.5556	25.0000	34.5556	42.1111	19.0000	20.0000
7	0	31.7778	25.2222	15.7778	31.0000	32.0000	17.0000	26.0000
8	0	13.0000	11.0000	14.0000	32.0000	25.0000	22.0000	9.0000
9	0	27.0000	24.0000	21.0000	33.0000	30.0000	15.0000	21.0000
10	0	33.0000	25.0000	18.0000	42.0000	34.0000	17.0000	20.0000
11	1	30.0000	14.0000	14.0000	41.1111	21.6190	15.6190	25.2222
12	0	36.0000	26.6667	24.0000	45.6667	32.0000	15.6667	19.0000
13	1	43.0000	30.0000	22.0000	31.5556	32.3333	6.4444	25.6667
14	1	23.0000	23.6667	16.0000	29.0000	32.0000	13.0000	18.0000
15	1	36.0000	21.0000	22.0000	31.0000	40.0000	21.0000	19.0000
16	1	30.0000	23.0000	27.0000	36.0000	40.0000	23.0000	24.0000
17	0	38.0000	25.0000	19.0000	27.5556	33.0000	13.0000	20.4444
18	1	25.3333	20.3333	23.0000	30.0000	24.3333	19.0000	25.0000
19	1	39.0000	23.0000	19.0000	30.0000	40.0000	24.0000	18.0000
20	1	52.0000	35.0000	36.0000	46.0000	44.0000	14.0000	20.0000
21	1	29.0000	16.0000	15.0000	26.0000	35.0000	16.0000	21.0000
22	0	38.0000	30.0000	31.0000	43.0000	36.0000	13.0000	25.0000
23	1	38.5556	29.0000	27.0000	31.0000	32.5556	14.5556	24.5556
24	0	30.0000	27.0000	20.0000	40.0000	34.0000	16.0000	22.0000
25	0	31.0000	26.0000	29.0000	32.0000	36.0000	14.0000	28.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C4

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	37.5556	34.0000	18.0000	54.0000	45.6667	22.6667	16.5556
27	1	35.0000	27.0000	31.0000	21.5556	25.0000	10.0000	20.0000
28	0	27.0000	25.0000	25.0000	32.0000	34.0000	19.0000	24.0000
29	0	30.3333	23.0000	18.6667	31.0000	24.7143	11.7143	24.0000
30	1	29.0000	26.0000	17.0000	40.0000	39.0000	13.0000	20.0000
31	0	34.0000	27.0000	26.0000	30.0000	43.7778	19.7778	23.0000
32	1	29.0000	19.0000	18.4444	25.0000	38.0000	23.0000	30.0000
33	0	36.0000	22.0000	15.0000	44.0000	35.0000	14.0000	19.0000
34	1	28.0000	24.0000	16.0000	37.0000	34.0000	14.0000	26.0000
35	0	42.0000	29.0000	27.0000	27.0000	36.0000	15.0000	25.0000
36	1	19.0000	20.0000	16.0000	26.0000	31.0000	10.4444	18.0000
37	1	25.0000	32.0000	14.0000	35.0000	32.0000	19.0000	23.0000
38	1	27.0000	21.0000	14.0000	46.0000	29.0000	13.0000	16.0000
39	0	41.0000	33.0000	28.0000	30.0000	44.0000	19.0000	27.0000
40	0	40.6984	28.0000	22.8730	27.9722	36.0357	25.8333	22.9167
41	1	30.0000	27.0000	16.0000	34.0000	38.0000	25.0000	24.0000
42	1	31.0000	20.0000	14.0000	45.0000	35.0000	19.0000	18.0000
43	0	36.0000	29.0000	27.0000	25.0000	25.0000	14.0000	24.0000
44	0	41.0000	22.0000	22.5556	26.0000	34.2222	18.0000	30.7778

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C5

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	32.0000	32.0000	24.0000	27.0000	38.0000	11.0000	21.0000
2	0	33.0000	29.0000	26.0000	41.0000	42.0000	21.0000	25.0000
3	1	38.4444	30.4444	26.0000	37.0000	39.0000	18.0000	26.0000
4	0	16.0000	13.0000	14.0000	27.0000	21.0000	13.0000	17.0000
5	0	25.2222	24.0000	28.0000	40.0000	41.0000	16.5556	14.2222
6	0	34.0000	25.0000	28.0000	23.8333	32.0000	11.0000	22.5000
7	0	18.0000	18.0000	16.0000	14.0000	23.0000	17.0000	21.0000
8	1	43.2063	30.4444	31.4444	30.4444	39.3333	14.3333	20.4286
9	0	22.0000	19.0000	22.0000	37.0000	26.9167	12.6667	16.0000
10	1	46.0000	23.0000	23.4444	21.0000	30.0000	9.0000	27.0000
11	1	26.0000	21.0000	18.0000	40.0000	34.0000	21.0000	15.0000
12	1	34.0000	21.0000	22.0000	24.0000	32.0000	18.0000	22.7778
13	0	41.0000	29.0000	30.0000	19.0000	32.0000	14.2222	24.0000
14	0	41.0000	31.0000	34.0000	24.0000	44.3333	13.3333	23.0000
15	0	35.6667	35.1111	24.1111	34.0000	36.5556	11.0000	22.0000
16	0	40.5278	33.3333	22.6667	32.7778	39.1111	19.0000	20.6667
17	1	23.0000	15.5000	20.5000	31.0000	24.0000	20.0000	18.0000
18	0	29.0000	24.0000	24.0000	30.0000	24.0000	12.0000	21.0000
19	0	24.0000	25.0000	35.0000	16.6667	27.3333	15.3333	20.3333
20	1	16.0000	15.0000	14.0000	7.0000	19.0000	12.0000	20.0000
21	1	47.0000	37.0000	28.0000	40.0000	50.0000	23.0000	30.0000
22	1	24.0000	21.0000	15.0000	32.0000	30.0000	17.0000	19.0000
23	0	40.0000	28.0000	27.0000	37.0000	44.8889	17.0000	21.0000
24	0	36.5556	26.0000	31.7778	22.2500	40.8889	15.0000	22.7778
25	0	35.0000	21.0000	29.0000	26.0000	38.0000	14.0000	17.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

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HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C5

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	33.0000	28.0000	35.0000	20.0000	44.0000	7.0000	31.0000
27	1	20.0000	13.0000	15.0000	23.0000	27.0000	15.0000	20.0000
28	0	34.6667	30.0000	29.0000	23.0000	29.4444	13.4444	20.0000
29	0	22.0000	15.4444	10.0000	24.0000	27.0000	12.0000	17.0000
30	1	38.0000	20.0000	27.0000	18.0000	34.0000	17.0000	25.0000
31	1	45.0000	40.0000	22.0000	27.0000	37.0000	15.0000	21.0000
32	1	36.0000	30.0000	25.0000	35.0000	37.0000	12.0000	29.0000
33	1	43.0000	27.0000	36.0000	22.0000	49.0000	26.0000	32.0000
34	1	26.0000	22.0000	18.4444	16.0000	30.0000	17.0000	20.0000

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
 5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

APPENDIX 6

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHQCL NUMBER 06

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	30.0000	25.0000	24.0000	24.0000	38.0000	18.0000	21.0000
2	0	22.0000	23.0000	17.0000	25.0000	32.0000	18.0000	19.0000
3	1	33.0000	27.0000	22.0000	41.0000	43.0000	15.0000	19.0000
4	0	31.0000	26.0000	23.0000	23.0000	39.0000	20.0000	26.7778
5	1	26.0000	23.0000	18.0000	28.0000	31.0000	19.0000	19.0000
6	1	26.3333	22.2183	19.5556	28.6032	27.0833	19.1270	21.9167
7	0	38.0000	31.3333	27.4444	36.3333	42.6667	15.0000	20.5556
8	0	56.0000	35.0000	42.0000	27.5556	47.0000	14.3333	31.0000
9	1	33.0000	19.0000	19.0000	40.0000	32.4286	11.4286	10.0000
10	1	30.0000	20.0000	19.0000	33.0000	37.0000	19.0000	16.0000
11	1	51.0000	36.0000	37.0000	35.0000	46.0000	19.0000	33.0000
12	1	33.3333	29.0000	17.0000	32.0000	46.0000	20.0000	24.0000
13	0	37.0000	30.0000	32.0000	42.0000	38.0000	10.0000	20.0000
14	0	20.0000	18.0000	18.0000	21.0000	34.0000	23.0000	20.0000
15	0	42.2222	34.6667	33.6667	37.3333	35.3333	10.0000	24.0000
16	0	28.0000	20.0000	21.0000	32.0000	40.0000	17.0000	27.0000
17	0	32.0000	32.4444	30.0000	36.7778	34.0000	12.0000	25.0000
18	0	47.0000	31.0000	30.0000	44.6667	63.0000	18.0000	24.3333
19	1	44.4444	35.0000	18.0000	24.0000	45.6667	15.6667	27.0000
20	1	31.0000	20.0000	13.0000	20.0000	33.4444	20.0000	25.0000
21	1	32.0000	29.0000	34.0000	29.0000	53.0000	16.0000	28.0000
22	0	36.1111	35.0000	25.5556	33.0000	46.7537	13.4444	26.8889
23	1	26.0000	12.0000	7.0000	28.0000	41.0000	23.0000	25.0000
24	1	28.0000	25.0000	27.0000	25.0000	36.0000	24.0000	24.0000
25	1	16.3333	25.6667	12.0000	29.5556	30.0000	24.0000	12.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C6

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	23.0000	18.0000	22.0000	20.0000	34.0000	23.0000	22.0000
27	1	31.0000	22.0000	26.0000	19.0000	36.0000	21.0000	26.0000
28	1	41.0000	35.0000	29.0000	49.0000	45.0000	17.0000	20.0000
29	0	45.0000	34.0000	23.0000	30.4444	44.4444	16.0000	26.0000
30	1	26.0000	15.0000	19.0000	30.0000	32.0000	23.0000	25.0000
31	0	44.0000	33.0000	30.0000	35.0000	45.0000	14.0000	29.0000
32	1	25.0000	17.0000	16.0000	29.0000	38.0000	24.0000	24.7778
33	0	25.0000	26.0000	18.0000	27.0000	44.0000	13.0000	22.0000
34	1	40.0000	27.0000	28.0000	23.0000	40.0000	16.0000	29.0000
35	0	27.8889	24.7778	12.5000	33.4444	32.7778	19.7778	18.1111
36	1	28.0000	21.6944	20.4444	14.0000	35.7778	24.0000	23.0556
37	1	47.0000	31.0000	31.6667	34.7778	47.0000	12.0000	20.0000
38	1	31.0000	24.0000	29.0000	17.0000	35.0000	17.0000	26.0000
39	1	40.0000	23.0000	30.0000	25.0000	36.4444	25.6667	21.0000
40	0	25.0000	21.0000	28.0000	15.0000	37.0000	15.0000	24.0000
41	0	25.0556	19.9941	19.3889	26.5833	35.2698	16.2698	23.6667

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C7

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	41.0000	38.0000	35.0000	22.0000	38.0000	16.0000	24.0000
2	1	25.2222	19.0000	19.0000	16.0000	25.0000	11.0000	25.2222
3	1	16.0000	12.0000	15.0000	13.0000	21.0000	12.0000	23.0000
4	0	32.0000	26.0000	21.0000	24.0000	36.0000	17.0000	21.0000
5	1	37.0000	34.0000	39.0000	29.0000	42.0000	13.0000	30.0000
6	0	41.0000	34.0000	37.0000	43.0000	40.0000	13.0000	22.0000
7	1	34.0000	27.0000	30.0000	21.0000	37.0000	13.0000	29.0000
8	1	36.0000	26.0000	21.0000	40.0000	34.0000	14.0000	22.0000
9	1	35.0000	19.0000	22.0000	23.0000	39.0000	13.0000	32.0000
10	0	30.0000	28.0000	33.0000	26.0000	35.0000	12.0000	29.0000
11	1	36.0000	31.0000	35.0000	43.0000	44.0000	14.0000	23.0000
12	0	42.0000	35.0000	29.0000	35.0000	38.0000	14.0000	30.0000
13	0	36.7857	31.9643	24.6429	36.6071	34.1071	16.6071	23.5714
14	1	36.0000	33.0000	27.0000	35.0000	38.0000	13.0000	27.0000
15	0	41.0000	25.0000	30.0000	35.0000	36.0000	17.0000	27.0000
16	0	21.0000	22.0000	19.0000	33.0000	28.0000	19.0000	22.0000
17	0	24.0000	23.0000	15.0000	19.0000	26.0000	17.0000	15.0000
18	0	27.0000	25.0000	28.0000	43.0000	37.0000	11.0000	22.0000
19	1	28.0000	17.0000	20.0000	26.0000	31.0000	19.0000	26.0000
20	1	29.3333	25.7778	19.8889	44.0000	37.0000	14.0000	16.0000
21	0	53.0000	32.0000	32.0000	28.0000	44.0000	18.0000	27.0000
22	1	55.0000	38.0000	27.0000	35.0000	43.0000	11.0000	23.0000
23	0	34.0000	30.0000	24.0000	34.0000	32.0000	12.0000	28.0000
24	1	26.0000	30.0000	24.0000	30.0000	38.0000	11.0000	26.0000
25	0	42.5556	32.0000	31.0000	39.0000	44.0000	13.0000	28.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C7

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	33.6667	34.0000	27.6667	33.0000	35.0000	17.0000	30.0000
27	1	49.0000	36.0000	35.0000	36.0000	44.0000	15.0000	27.0000
28	0	33.0000	25.0000	24.0000	39.0000	41.0000	16.0000	21.0000
29	1	32.0000	21.0000	26.0000	34.6667	21.7500	7.0000	17.0000
30	0	51.0000	35.0000	32.0000	39.0000	43.0000	19.0000	33.0000
31	0	25.0000	18.0000	15.0000	22.0000	24.3333	17.0000	18.0000
32	1	30.0000	28.0000	20.0000	30.0000	38.0000	14.0000	29.0000
33	1	48.5913	38.4722	25.6468	38.2540	37.7778	22.3056	13.8333
34	1	24.0000	22.0000	16.0000	29.0000	23.0000	15.0000	18.0000
35	0	35.0000	26.0000	27.0000	36.0000	29.0000	13.0000	22.0000
36	1	33.0000	26.0000	25.0000	48.0000	43.0000	21.0000	16.4444
37	1	44.4444	28.0000	26.5556	21.1111	43.1389	14.0000	29.0000
38	1	59.0000	41.0000	42.0000	50.0000	46.7778	17.0000	23.0000
39	0	25.0000	16.0000	12.2222	28.0000	24.6667	21.0000	13.0000
40	0	55.0000	36.0000	36.0000	40.0000	45.0000	14.0000	22.0000
41	1	46.0000	37.7778	39.7778	36.0000	45.0000	15.0000	27.0000
42	0	18.0000	23.0000	19.0000	30.0000	26.0000	16.0000	13.0000
43	1	42.0000	37.0000	39.0000	26.5556	42.8889	20.0000	27.0000
44	1	43.0000	31.0000	24.0000	38.0000	34.0000	16.0000	25.0000
45	1	35.0000	26.0000	31.0000	13.0000	37.0000	6.0000	27.0000
46	0	37.0000	28.0000	33.0000	38.0000	34.0000	15.0000	22.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 08

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	26.0000	26.0000	13.0000	29.0000	29.0000	11.0000	24.0000
2	0	45.0000	35.0000	28.0000	28.0000	49.0000	15.0000	27.0000
3	0	25.0000	15.0000	19.0000	23.0000	21.0000	15.0000	21.0000
4	1	32.0000	22.0000	23.0000	38.0000	41.0000	16.0000	19.0000
5	1	26.0000	17.0000	16.0000	35.5556	34.3651	17.1429	25.4444
6	0	23.1111	17.1111	14.0000	31.6667	30.7778	22.7778	24.0000
7	0	50.0000	38.0000	38.0000	40.0000	53.2500	14.2500	29.0000
8	0	34.3333	24.0000	23.0000	12.0000	25.0000	17.0000	29.0000
9	1	16.7222	17.2222	18.0556	34.0000	18.9841	11.4286	16.0000
10	1	44.0000	35.0000	35.0000	36.0000	46.0000	16.0000	31.0000
11	0	22.0000	22.0000	14.0000	43.0000	24.0000	19.0000	12.0000
12	0	57.7778	42.8889	39.0000	38.0000	42.0000	17.4444	22.8889
13	0	17.0000	13.0000	16.0000	13.0000	23.0000	16.0000	18.0000
14	0	23.0000	23.0000	22.0000	24.5556	31.6667	13.6667	26.0000
15	1	35.0000	25.0000	20.0000	27.0000	36.2698	22.7143	19.0000
16	0	26.0000	20.0000	20.0000	22.0000	28.0000	15.4444	16.4444
17	0	43.0000	33.0000	31.0000	44.0000	32.0000	9.0000	21.0000
18	1	25.5833	23.5556	27.1111	24.8889	27.4444	13.6667	18.6667
19	1	35.0000	27.0000	26.0000	45.0000	45.7778	16.0000	20.0000
20	1	37.0000	31.0000	31.0000	35.0000	42.0000	19.0000	24.0000
21	1	50.0000	37.0000	32.0000	41.0000	36.0000	15.0000	27.0000
22	0	35.0000	31.0000	20.0000	32.0000	35.0000	14.2222	20.0000
23	0	20.0000	15.0000	23.0000	28.0000	26.0000	21.0000	17.0000
24	0	18.1111	18.0000	20.0000	21.0000	20.0000	21.0000	16.0000
25	1	49.0000	27.0000	30.0000	37.0000	42.0000	14.0000	25.5556

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER C8

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	21.0000	20.0000	10.0000	36.0000	36.0000	20.0000	15.0000
27	1	29.0000	25.0000	20.0000	26.0000	31.0000	9.0000	24.0000
28	1	37.0000	28.0000	27.0000	35.0000	36.0000	12.0000	21.0000
29	1	40.0000	22.0000	19.0000	43.0000	34.0000	16.0000	18.0000
30	0	45.0000	23.0000	23.0000	27.0000	37.0000	13.0000	25.0000
31	1	32.0000	24.0000	21.0000	24.0000	33.0000	11.0000	23.0000
32	1	38.0000	38.0000	17.0000	44.0000	48.1111	14.4444	23.0000
33	1	36.0000	25.0000	26.0000	39.0000	36.0000	14.0000	24.0000
34	1	49.0000	37.0000	28.4444	30.0000	41.0000	26.0000	29.0000
35	0	28.0000	18.0000	24.0000	28.0000	31.0000	13.0000	29.0000
36	0	34.0000	24.0000	27.0000	29.0000	38.0000	11.0000	25.0000
37	0	33.0000	25.0000	24.0000	42.0000	48.0000	19.0000	21.3333
38	0	39.0000	29.0000	27.0000	26.0000	40.0000	17.0000	26.0000
39	0	38.0000	31.0000	24.0000	44.0000	33.2222	12.2222	16.0000
40	1	35.0000	32.0000	18.0000	38.0000	46.0000	18.0000	27.0000
41	0	28.6111	20.6944	23.3333	22.2222	24.5833	8.8889	22.0833
42	0	45.0000	31.0000	31.0000	30.0000	45.0000	21.0000	23.0000
43	0	34.4444	30.3333	21.6667	39.8889	34.7778	17.7778	22.2222
44	0	45.0000	27.0000	19.0000	27.0000	37.0000	15.0000	24.0000
45	1	27.0000	22.0000	29.0000	17.0000	22.0000	9.0000	25.0000
46	1	24.0000	23.0000	28.0000	34.0000	37.0000	15.0000	24.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 09

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	46.0000	36.0000	28.0000	26.0000	41.0000	15.0000	27.0000
2	1	30.0000	25.0000	25.0000	16.0000	40.0000	17.0000	31.0000
3	0	31.0000	28.0000	25.0000	23.0000	33.0000	17.0000	24.2222
4	1	45.0000	37.0000	35.0000	32.0000	41.0000	12.0000	35.0000
5	0	39.7778	33.0000	25.0000	27.2222	38.7778	16.0000	22.7778
6	1	44.0278	32.0000	23.8889	39.8889	43.6667	20.0000	29.2500
7	0	48.0000	35.0000	31.0000	32.0000	41.0000	13.0000	29.0000
8	0	23.0000	20.0000	21.5556	32.0000	29.0000	21.0000	27.0000
9	0	38.7302	33.4444	28.2222	33.4444	40.1111	16.5556	25.7222
10	1	54.0000	39.0000	30.0000	38.0000	46.0000	22.0000	29.0000
11	0	36.0000	34.0000	23.0000	30.0000	41.4444	17.0000	23.0000
12	0	28.2222	24.0000	23.0000	26.0000	42.0000	15.0000	26.0000
13	1	51.5556	40.0000	43.0000	42.0000	51.0000	14.0000	25.0000
14	0	30.0000	23.0000	21.0000	24.0000	30.0000	16.0000	27.0000
15	0	39.4444	26.0000	23.0000	36.0000	42.5556	21.5556	27.0000
16	0	36.0000	38.0000	31.0000	38.0000	52.0000	13.0000	28.0000
17	1	36.0000	20.0000	14.0000	25.0000	26.0000	15.0000	26.0000
18	0	50.0000	33.0000	29.0000	27.0000	44.0000	15.0000	30.0000
19	0	39.0000	29.0000	23.0000	29.0000	46.0000	16.0000	27.0000
20	0	38.0000	30.4444	24.0000	32.0000	30.0000	15.0000	27.0000
21	1	36.7778	34.8889	27.5556	45.0000	39.2500	10.5833	22.5556
22	1	33.0000	31.0000	26.0000	25.4444	44.0000	14.0000	25.0000
23	0	24.0000	20.4444	18.4444	26.0000	19.0000	11.0000	24.0000
24	0	37.0000	31.0000	30.0000	22.0000	44.0000	23.0000	28.0000
25	0	51.1111	36.3333	34.0000	31.3333	42.0556	18.4444	32.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 09

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	33.0000	31.6667	21.6667	24.0000	33.0000	15.0000	26.0000
27	0	37.6667	28.0000	34.0000	28.5722	42.8333	20.7222	26.0000
28	1	48.0000	35.4444	37.0000	50.0000	46.0000	19.5556	25.0000
29	1	38.2222	40.0000	28.4444	44.1111	44.5278	12.1111	25.0000
30	1	46.7778	35.2222	23.0000	19.7778	39.5556	17.7778	29.0000
31	1	62.0000	45.0000	38.0000	47.6667	50.0000	20.4444	23.0000
32	1	40.0000	26.0000	23.0000	20.0000	37.0000	13.0000	28.0000
33	0	42.5556	34.6667	21.6667	23.3333	28.0000	17.4444	23.0000
34	1	35.0000	36.0000	32.0000	39.4444	34.0000	13.0000	19.0000
35	1	26.7778	29.0000	14.0000	31.0000	38.0000	11.0000	25.0000
36	0	37.0000	29.0000	29.0000	28.0000	37.7500	18.7500	24.0000
37	1	40.0000	39.0000	26.0000	48.0000	47.7778	18.0000	20.0000
38	1	26.0000	24.0000	25.0000	25.0000	24.0000	12.0000	22.0000
39	1	28.2500	21.0000	18.2500	32.3333	20.1111	8.1111	23.4444
40	1	24.0000	16.0000	13.0000	14.0000	29.0000	17.5556	24.0000
41	1	38.0000	20.0000	26.4444	24.0000	28.0000	13.0000	27.0000
42	0	35.0000	26.8889	22.0000	24.3333	38.5556	19.0000	20.2222
43	1	38.0000	28.0000	20.0000	31.0000	44.0000	22.0000	26.0000
44	0	30.3333	33.0000	20.0000	51.0000	38.0476	14.3333	18.3333
45	0	45.0000	37.0000	31.0000	40.0000	43.0000	17.0000	23.0000
46	1	25.0000	22.0000	18.0000	22.0000	27.0000	19.0000	21.0000
47	0	33.0000	24.3333	23.0000	29.3333	40.0000	16.0000	21.0000
48	0	30.0000	28.0000	21.0000	39.0000	38.0000	16.0000	24.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 10

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	28.0000	26.0000	21.0000	24.0000	27.0000	21.0000	25.7778
2	0	42.0000	33.0000	31.0000	39.0000	35.0000	16.0000	26.0000
3	0	48.0000	32.0000	38.0000	36.0000	37.0000	15.0000	33.0000
4	0	25.0000	23.0000	17.0000	20.0000	36.0000	27.0000	21.0000
5	0	26.0000	26.0000	29.0000	33.0000	41.0000	15.0000	20.0000
6	1	27.0000	22.0000	19.0000	20.0000	20.0000	15.0000	26.0000
7	0	34.0000	33.0000	24.0000	31.0000	34.0000	10.0000	27.0000
8	0	16.5556	15.0000	20.1111	25.4444	26.6667	21.6667	14.8889
9	0	24.0000	19.0000	20.0000	31.4444	26.3333	10.7778	20.0000
10	0	59.0000	39.0000	40.0000	48.0000	58.0000	22.0000	26.0000
11	0	53.0000	30.0000	35.0000	30.0000	46.0000	22.0000	30.0000
12	0	49.6667	40.0000	34.0000	45.0000	49.0000	19.0000	23.0000
13	1	48.4444	34.0000	33.4444	51.0000	40.2500	18.7500	25.0000
14	0	50.0000	41.0000	43.0000	47.0000	51.0000	22.0000	29.0000
15	1	32.0000	30.0000	25.0000	36.0000	41.4444	13.6667	25.0000
16	0	44.0000	34.0000	24.0000	31.0000	42.1111	17.5556	28.0000
17	1	22.4444	21.0000	23.0000	27.0000	31.0000	17.0000	24.0000
18	0	25.0000	22.0000	19.0000	31.0000	35.0000	19.0000	18.0000
19	0	22.0000	19.0000	17.0000	21.0000	34.0000	18.0000	26.0000
20	0	43.6667	29.0000	26.0000	25.0000	37.5556	16.5556	28.0000
21	1	28.3175	28.5833	23.1111	36.5278	45.6310	14.2857	25.5556
22	1	20.0000	17.0000	17.0000	29.0000	24.0000	22.0000	21.0000
23	1	27.0000	21.0000	28.0000	25.0000	31.0000	15.0000	26.0000
24	1	48.0000	34.0000	36.0000	31.0000	45.0000	16.0000	30.6667
25	1	46.0000	41.0000	28.0000	41.0000	53.0000	22.0000	23.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 10

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	34.0000	28.0000	28.0000	30.0000	35.0000	16.0000	20.0000
27	1	29.0000	25.0000	23.0000	39.0000	31.6667	19.6667	19.0000
28	1	28.0000	22.0000	26.0000	36.2500	29.6944	10.2500	24.0000
29	1	21.0000	22.0000	17.0000	30.0000	29.0000	16.0000	23.0000
30	1	39.0000	37.0000	32.8889	41.0000	48.0000	18.0000	27.0000
31	0	30.0000	34.0000	25.0000	47.0000	45.0000	22.0000	15.0000
32	1	46.5556	27.0000	35.3333	25.0000	46.0000	20.0000	27.0000
33	1	29.0000	28.0000	15.0000	37.0000	34.0000	16.0000	19.0000
34	0	33.0000	31.0000	32.0000	32.6667	34.1111	11.2222	28.0000
35	1	25.9167	22.8333	12.0000	27.3333	35.3968	24.7143	18.7500
36	0	33.0556	30.2500	33.2500	35.0000	34.4444	16.0000	29.4444
37	1	22.0000	22.0000	25.0000	36.0000	33.0000	15.0000	22.0000
38	1	24.0000	20.0000	24.0000	39.0000	29.0000	22.0000	18.0000
39	1	36.3333	30.0000	19.0000	35.0000	33.2222	14.6667	22.6667
40	1	33.0000	32.0000	32.0000	32.0000	44.0000	15.0000	29.0000
41	1	21.2222	17.0000	9.0000	14.4444	21.5357	15.2857	26.0000
42	0	43.0000	33.0000	31.7778	41.0000	45.0000	20.0000	25.0000
43	0	43.0000	39.0000	33.0000	23.0000	47.0000	18.0000	30.0000
44	0	22.3333	17.0000	18.0000	17.0000	23.0000	12.0000	26.0000
45	0	36.0000	38.0000	35.0000	42.0000	48.0000	19.0000	23.0000
46	1	48.0000	32.0000	32.0000	45.0000	41.5556	13.0000	22.0000
47	0	41.0000	36.0000	29.0000	34.0000	39.0000	11.0000	29.0000
48	1	39.3333	29.0000	28.2222	29.8889	29.3968	15.2857	28.0000
49	0	33.4167	21.1111	31.2222	33.8889	28.0357	11.8056	26.6667

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 11

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	30.1389	26.0000	16.0000	30.0000	25.7778	13.0000	16.4444
2	0	46.0000	38.0000	30.0000	53.0000	43.0000	17.0000	20.0000
3	0	37.0000	36.0000	24.3333	26.1111	35.8889	15.0000	24.0000
4	1	43.0000	38.0000	24.0000	44.0000	39.0000	14.0000	27.0000
5	1	36.0000	32.0000	23.0000	49.0000	44.0000	17.0000	17.0000
6	1	35.0000	30.0000	26.0000	52.0000	35.0000	17.0000	17.0000
7	1	32.0000	30.0000	18.0000	39.0000	36.0000	14.0000	20.0000
8	0	49.0000	46.0000	36.0000	49.0000	57.0000	19.0000	24.0000
9	1	18.0000	15.0000	18.0000	27.0000	16.1111	10.1111	25.0000
10	1	42.0000	31.0000	23.0000	36.0000	41.0000	20.0000	25.0000
11	1	36.0000	35.0000	19.0000	46.0000	41.0000	20.3333	18.5556
12	0	67.0000	44.0000	40.0000	27.0000	53.0000	23.0000	36.0000
13	0	28.0000	32.0000	20.0000	43.0000	41.0000	14.0000	20.0000
14	1	43.0000	33.0000	25.0000	42.0000	35.0000	15.0000	23.0000
15	1	27.0000	23.0000	15.0000	23.0000	17.0000	13.0000	19.0000
16	1	40.0000	37.0000	27.0000	36.0000	50.7778	17.0000	24.0000
17	0	24.0000	18.0000	20.0000	18.0000	19.0000	15.0000	21.0000
18	0	33.4444	37.0000	21.3333	45.0000	40.9365	20.0476	22.0000
19	1	39.4444	40.0000	32.0000	40.0000	30.0000	13.0000	22.0000
20	1	51.0000	42.0000	31.0000	49.0000	45.0000	17.0000	20.0000
21	1	28.0000	27.0000	15.0000	25.0000	30.0000	9.0000	27.0000
22	0	51.0000	40.0000	30.0000	43.0000	44.0000	9.0000	27.0000
23	1	43.7778	30.0000	30.0000	39.0000	38.0000	16.0000	20.0000
24	1	33.0000	36.0000	27.0000	45.0000	39.0000	17.0000	18.0000
25	0	31.0000	31.0000	19.0000	28.0000	30.0000	17.0000	18.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

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HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 11

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	23.0000	21.6667	14.0000	19.0000	25.0000	15.0000	19.0000
27	1	40.6667	32.0000	26.0000	31.2500	35.5556	12.2222	28.0000
28	0	37.0000	31.0000	19.0000	32.0000	40.0000	17.0000	24.0000
29	1	58.0000	49.0000	40.0000	43.0000	49.0000	15.0000	22.0000
30	0	30.0000	30.0000	26.0000	40.0000	38.0000	10.0000	25.0000
31	1	50.0000	46.0000	24.0000	45.0000	44.0000	15.0000	26.0000
32	1	38.0000	42.0000	27.0000	45.0000	43.0000	18.0000	21.0000
33	0	48.0000	39.0000	32.0000	43.0000	45.0000	13.0000	23.0000
34	0	44.5556	38.6667	22.0000	40.5556	47.8056	18.2500	17.0000
35	1	39.0000	41.0000	34.0000	29.0000	42.0000	11.0000	28.0000
36	0	29.0000	24.0000	16.3333	36.0000	34.0000	26.0000	18.0000
37	0	20.0000	21.0000	10.0000	17.0000	20.0000	19.0000	13.0000
38	1	33.0000	31.0000	17.0000	39.0000	37.0000	14.0000	27.0000
39	1	47.0000	34.0000	20.0000	39.0000	34.0000	11.0000	24.0000
40	0	32.0000	32.0000	28.0000	30.0000	42.0000	14.0000	27.0000
41	1	53.0000	45.0000	38.0000	16.0000	48.0000	15.0000	25.0000
42	1	53.0000	44.0000	37.0000	44.0000	49.0000	13.0000	26.0000
43	1	20.0000	27.0000	24.0000	14.0000	37.3333	16.7778	28.0000
44	0	41.0000	32.0000	22.0000	48.0000	41.6667	19.0000	20.0000
45	0	43.0000	32.0000	23.0000	42.0000	32.5556	11.0000	20.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 12

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	27.0000	25.0000	23.0000	33.7778	38.0000	21.0000	15.0000
2	0	40.0000	30.0000	28.0000	33.0000	38.0000	12.0000	22.0000
3	0	55.5556	37.3056	24.8611	41.7937	50.2500	23.4722	29.8333
4	1	57.0000	38.0000	33.0000	40.0000	49.0000	22.0000	24.0000
5	1	38.0000	29.0000	22.0000	43.5556	53.0000	25.7778	21.2222
6	1	27.0000	22.0000	17.0000	28.0000	42.0000	18.0000	21.0000
7	1	40.0000	24.0000	19.0000	34.6667	44.4167	21.6667	23.0000
8	0	33.0000	26.0000	24.0000	35.0000	29.0000	10.0000	22.0000
9	0	27.0000	25.0000	28.0000	20.5556	36.3333	19.0000	28.0000
10	1	25.0000	24.0000	20.0000	22.0000	28.0000	16.0000	28.0000
11	1	48.0000	40.0000	41.0000	41.0000	50.4444	14.4444	26.0000
12	1	31.0000	26.4444	22.0000	24.4444	34.0000	19.0000	22.5556
13	0	36.0000	28.0000	19.0000	31.0000	29.0000	22.0000	23.0000
14	0	42.0000	30.0000	25.0000	15.2222	41.6667	20.0000	29.7778
15	0	33.0000	22.0000	17.0000	24.0000	27.0000	15.0000	22.0000
16	0	40.0000	18.0000	30.0000	20.0000	33.0000	12.0000	27.0000
17	0	26.0000	23.0000	30.0000	27.0000	40.0000	18.0000	24.0000
18	0	38.3333	33.0000	31.0000	35.0000	30.0000	6.0000	22.0000
19	0	35.0000	40.0000	30.0000	40.0000	43.0000	17.0000	21.0000
20	1	40.0000	20.7778	17.0000	38.5556	31.2222	17.0000	19.0000
21	0	29.0000	31.0000	20.0000	38.0000	33.4444	14.4444	27.0000
22	1	33.0000	26.4444	23.7778	39.9722	41.5278	17.7500	24.1111
23	1	26.0000	23.0000	11.0000	46.7778	38.0000	24.0000	15.2222
24	0	33.0000	29.0000	23.0000	28.0000	39.0000	14.0000	22.0000
25	1	48.0000	41.0000	27.0000	35.0000	38.0000	17.0000	30.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 12

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	27.0000	26.2222	17.0000	46.0000	31.8889	18.6667	16.0000
27	0	43.3333	31.3333	33.0000	41.0000	49.3333	17.0000	26.8889
28	1	32.0000	23.0000	25.6667	18.0000	31.0000	12.0000	29.0000
29	1	36.0000	31.0000	24.0000	51.0000	44.0000	22.0000	17.6667
30	1	41.0000	27.0000	26.0000	17.0000	48.7778	17.7778	32.0000
31	1	36.4444	35.0000	28.0000	43.4444	46.9524	16.2857	17.0000
32	0	29.0000	23.0000	28.0000	18.0000	38.0000	16.0000	26.0000
33	1	41.0000	32.0000	22.0000	28.0000	35.0000	12.0000	27.0000
34	0	43.0000	36.0000	28.0000	36.0000	44.0000	13.0000	23.0000
35	1	34.0000	28.0000	22.0000	30.0000	39.0000	16.0000	25.0000
36	0	51.0000	40.0000	42.0000	36.0000	46.0000	9.0000	29.0000
37	0	32.0000	29.0000	29.0000	25.0000	42.0000	20.0000	24.0000
38	1	28.0000	27.0000	29.0000	34.0000	36.0000	20.0000	18.0000
39	1	21.1111	14.0000	7.0000	22.6667	22.5516	18.3016	26.0000
40	1	47.7778	31.0000	33.0000	31.0000	45.0000	15.0000	27.0000
41	0	45.0000	35.0000	35.0000	37.0000	34.0000	9.0000	30.0000
42	0	24.0000	16.0000	13.0000	19.0000	33.0000	29.0000	22.0000
43	1	50.0000	43.0000	41.0000	39.0000	50.0000	17.0000	27.0000
44	1	49.0000	43.0000	39.0000	46.0000	53.7778	19.6667	23.0000
45	1	23.0000	22.0000	21.0000	36.0000	32.0000	17.0000	16.0000
46	1	49.0000	41.0000	39.0000	34.0000	58.0000	16.0000	33.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 13

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	36.0000	32.0000	23.0000	31.0000	34.0000	10.0000	30.0000
2	1	39.0000	33.0000	32.0000	27.0000	42.0000	11.0000	30.0000
3	0	23.0000	21.0000	15.0000	30.0000	28.0000	14.0000	19.4444
4	1	29.0000	25.0000	16.0000	19.0000	33.0000	13.0000	31.0000
5	1	46.0000	32.0000	31.0000	28.5556	40.0000	13.0000	30.0000
6	1	12.0000	19.0000	9.0000	28.0000	30.0000	19.0000	15.0000
7	0	27.0000	22.0000	17.0000	32.0000	31.0000	16.0000	20.0000
8	0	24.0000	22.0000	10.3333	34.0000	29.0000	20.0000	19.0000
9	1	24.0000	25.0000	23.0000	36.0000	38.0000	17.0000	22.0000
10	1	23.0000	22.0000	19.0000	10.0000	36.0000	17.0000	26.0000
11	0	44.5833	40.6667	24.8889	22.1944	36.1905	10.2500	28.7778
12	0	41.0000	37.0000	27.0000	41.0000	39.0000	14.0000	21.0000
13	1	28.0000	22.0000	16.0000	21.0000	25.0000	21.0000	22.0000
14	1	33.0000	25.3333	18.0000	27.0000	33.7778	15.0000	26.0000
15	1	42.0000	32.0000	28.0000	37.0000	45.0000	18.0000	23.0000
16	1	24.0000	23.0000	13.5556	42.0000	34.0000	22.0000	22.0000
17	0	30.0000	24.0000	25.0000	27.0000	35.0000	13.0000	21.0000
18	1	40.0000	36.0000	27.0000	42.0000	48.5556	16.0000	22.0000
19	0	23.0000	21.0000	15.0000	14.0000	24.0000	16.0000	22.0000
20	0	23.3333	23.3333	15.0000	18.0000	30.0000	22.0000	19.0000
21	1	45.0000	35.0000	26.0000	33.0000	48.0000	22.0000	27.0000
22	0	19.0000	23.0000	13.0000	28.0000	24.0000	18.0000	19.0000
23	0	24.0000	24.0000	12.0000	23.0000	25.4444	20.0000	16.0000
24	1	33.0000	25.0000	23.0000	25.0000	34.0000	12.0000	25.0000
25	0	30.0000	24.0000	20.0000	30.0000	21.0000	13.0000	17.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 13

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	33.0000	33.0000	24.0000	44.0000	45.0000	13.0000	25.0000
27	0	24.0000	28.0000	14.0000	33.0000	28.0000	13.0000	18.0000
28	1	36.0000	30.0000	20.0000	42.0000	44.0000	20.0000	19.0000
29	1	39.4444	29.0000	20.2500	50.0000	31.6667	18.8571	16.3333
30	1	47.0000	39.0000	30.0000	37.0000	43.0000	20.0000	24.0000
31	1	22.0000	21.0000	18.0000	25.3333	31.0000	19.0000	26.0000
32	1	44.0000	27.0000	17.0000	33.0000	39.0000	18.0000	28.0000
33	0	34.0000	24.0000	25.0000	25.0000	31.0000	17.0000	21.0000
34	0	21.4444	16.0000	18.0000	28.0000	28.7778	13.4444	17.5556
35	1	37.0000	31.0000	23.0000	35.0000	42.0000	18.0000	26.0000
36	1	18.0000	17.4444	9.4444	35.7778	20.0000	13.0000	14.7778
37	0	39.0000	24.0000	28.0000	16.2222	42.0000	16.0000	32.7778
38	0	23.0000	21.0000	13.0000	22.0000	29.0000	15.0000	17.0000
39	1	36.4444	42.0000	33.4444	49.0000	34.0000	8.0000	22.0000
40	0	35.0000	28.0000	15.0000	29.0000	36.0000	11.0000	23.0000
41	1	25.0000	24.0000	20.0000	22.0000	30.0000	14.0000	25.0000
42	0	23.0000	20.0000	17.0000	18.0000	40.0000	17.0000	24.0000
43	1	14.0000	17.0000	10.0000	18.0000	23.0000	16.0000	19.0000
44	1	29.0000	24.0000	23.0000	22.0000	33.0000	19.0000	26.0000
45	1	30.0000	23.0000	19.0000	25.0000	29.0000	21.0000	23.0000
46	0	25.0000	21.0000	16.2222	40.0000	36.7778	18.0000	22.0000
47	0	22.0000	21.0000	12.0000	35.0000	22.0000	11.3333	21.0000
48	0	30.5000	24.0000	18.6111	31.0000	27.6667	14.0000	18.4444
49	0	22.0000	31.0000	25.3333	24.0000	31.2222	24.0000	19.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 14

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	41.0000	33.0000	36.0000	34.0000	39.5556	16.0000	26.0000
2	1	30.0000	21.0000	18.0000	28.0000	28.0000	25.0000	17.0000
3	1	19.0000	16.0000	13.0000	21.0000	29.5556	23.0000	21.0000
4	1	25.0000	18.0000	17.0000	23.0000	31.0000	24.0000	20.0000
5	1	36.0000	29.0000	28.0000	47.0000	43.0000	25.0000	16.0000
6	1	27.0000	22.7778	22.0000	31.7778	33.0000	19.6667	28.0000
7	0	50.0000	33.0000	39.0000	23.0000	50.0000	24.0000	31.0000
8	0	19.0000	13.0000	12.0000	27.0000	31.0000	25.0000	23.0000
9	1	20.0000	17.0000	14.0000	19.0000	27.0000	21.0000	17.0000
10	1	40.0000	32.0000	23.0000	20.0000	45.0000	25.0000	24.0000
11	0	36.3333	29.0000	26.0000	43.5556	43.0000	20.0000	25.0000
12	0	36.0000	25.4444	29.0000	29.4444	39.0000	22.0000	22.0000
13	0	25.0000	20.0000	24.0000	37.0000	33.0000	16.0000	24.0000
14	1	46.0000	33.0000	39.0000	26.0000	50.0000	17.0000	28.0000
15	1	22.0000	19.2222	19.0000	29.2222	34.0000	20.0000	22.0000
16	0	40.6667	24.3333	29.6667	30.4444	37.0000	17.1111	24.5556
17	1	33.0000	21.0000	26.0000	20.0000	35.0000	16.0000	26.0000
18	1	25.0000	19.0000	28.0000	16.0000	32.0000	13.0000	24.0000
19	0	28.0000	19.0000	24.0000	21.0000	27.0000	18.0000	27.0000
20	0	27.1111	22.1111	23.0000	24.0000	33.0000	19.0000	22.0000
21	1	36.5000	28.0000	31.0000	19.0000	39.5556	25.0000	23.5000
22	1	41.0000	36.0000	31.0000	44.0000	43.8889	14.0000	24.0000
23	1	34.0000	26.0000	26.0000	39.0000	36.0000	12.0000	15.0000
24	0	22.3333	17.0000	16.0000	42.8889	30.1111	13.4444	13.0000
25	1	63.0000	46.0000	46.0000	50.0000	56.0000	16.0000	28.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 14

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	31.2222	24.3333	25.8889	33.4444	29.2778	10.0000	23.7778
27	0	47.0000	32.0000	24.0000	28.0000	30.0000	21.0000	28.0000
28	0	32.0000	31.0000	23.0000	35.0000	36.0000	21.0000	19.0000
29	0	36.0000	30.0000	32.0000	24.0000	36.0000	20.0000	32.0000
30	0	38.0000	30.0000	18.0000	32.0000	42.0000	24.0000	26.0000
31	0	28.4444	27.7778	25.0000	24.0000	34.7778	19.0000	24.0000
32	1	30.0000	24.0000	26.0000	28.0000	39.0000	21.0000	22.0000
33	1	32.0000	25.0000	24.0000	23.0000	35.0000	14.0000	23.0000
34	1	17.0000	17.0000	20.0000	15.0000	24.0000	18.0000	22.0000
35	1	44.0000	33.0000	32.0000	34.0000	49.0000	18.0000	30.0000
36	0	23.0000	19.0000	21.8889	31.0000	28.7778	21.7778	24.0000
37	1	38.0000	18.0000	27.0000	19.0000	34.6667	14.6667	28.0000
38	0	19.0000	17.0000	22.0000	24.0000	30.0000	19.0000	21.0000
39	0	26.8889	24.0000	28.4444	27.0000	35.0000	12.0000	25.4444
40	1	44.0000	35.0000	38.0000	49.0000	44.4444	11.4444	30.0000
41	1	45.0000	31.0000	30.0000	28.0000	43.0000	16.0000	29.0000
42	0	33.0000	28.0000	32.0000	28.0000	33.0000	15.0000	28.0000
43	0	48.0000	36.0000	29.0000	27.0000	41.0000	14.0000	24.0000
44	0	34.0000	35.0000	27.0000	31.0000	41.0000	21.0000	25.0000
45	0	28.0000	28.0000	30.0000	27.0000	36.0000	11.0000	29.0000
46	0	30.0000	25.0000	30.0000	27.0000	46.0000	17.0000	20.0000
47	1	37.2222	26.0000	35.0000	29.0000	43.0000	14.0000	21.2222
48	1	22.0000	9.0000	24.0000	21.0000	28.6667	18.6667	25.0000
49	0	32.0000	23.0000	29.0000	21.0000	38.6667	17.6667	25.0000
50	0	23.0000	17.0000	22.5556	25.0000	34.0000	14.0000	23.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 15

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	27.0000	21.0000	18.0000	25.0000	32.0000	9.0000	23.0000
2	0	22.0000	18.7778	17.3333	30.6667	24.7500	15.0000	24.0000
3	0	29.5556	20.0000	18.2222	21.8889	20.1111	10.1111	29.1111
4	1	23.0000	19.0000	14.0000	21.6667	26.0000	21.0000	19.0000
5	1	47.0000	26.0000	19.0000	36.0000	29.0000	14.3333	25.4444
6	1	22.0000	19.0000	14.0000	26.0000	29.0000	18.0000	19.0000
7	1	32.0000	26.0000	15.0000	39.0000	33.0000	14.0000	20.0000
8	0	22.0000	21.0000	11.0000	38.0000	28.0000	16.0000	20.0000
9	1	22.0000	19.0000	22.0000	21.0000	17.9722	12.9722	25.0000
10	1	32.0000	27.0000	11.0000	31.0000	26.0000	15.0000	25.0000
11	1	33.0000	18.0000	12.0000	29.0000	30.0000	14.0000	20.0000
12	0	36.0000	27.0000	18.0000	19.0000	29.0000	19.0000	25.0000
13	1	31.0000	26.0000	17.0000	35.0000	31.0000	12.1111	24.0000
14	0	54.0000	35.0000	23.0000	38.0000	43.0000	18.0000	26.0000
15	0	35.0000	28.0000	25.0000	24.0000	30.0000	12.0000	35.0000
16	0	19.0000	18.0000	15.0000	16.0000	17.0000	12.0000	19.0000
17	1	18.0000	17.0000	10.0000	19.0000	22.0000	14.0000	25.0000
18	1	24.0000	16.0000	13.0000	15.0000	16.0000	14.0000	21.0000
19	1	28.0000	29.0000	16.0000	42.0000	34.0000	9.0000	34.0000
20	1	42.0000	20.0000	21.0000	22.0000	33.5556	17.5556	31.0000
21	0	28.0000	21.0000	17.3333	27.0000	21.0000	6.0000	18.0000
22	0	22.4444	15.0000	8.0000	31.0000	24.0000	21.0000	20.0000
23	0	29.0000	31.0000	23.0000	25.0000	45.0000	14.0000	27.0000
24	0	35.0000	23.0000	21.0000	18.0000	28.0000	12.0000	30.0000
25	0	24.0000	19.0000	20.0000	15.0000	32.0000	19.0000	21.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 15

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	41.0000	31.0000	24.0000	18.0000	42.0000	16.0000	29.0000
27	1	34.0000	31.0000	28.0000	48.0000	28.0000	7.0000	16.0000
28	1	27.0000	20.0000	18.0000	35.0000	26.0000	14.0000	26.0000
29	0	21.0000	24.0000	12.0000	26.0000	17.0000	13.0000	21.0000
30	1	33.0000	21.0000	21.0000	30.0000	28.0000	11.0000	23.0000
31	0	11.0000	20.0000	11.0000	37.0000	25.0000	13.0000	18.0000
32	0	27.0000	21.0000	17.0000	34.0000	30.0000	18.0000	24.0000
33	1	24.0000	19.0000	13.0000	27.0000	37.0000	18.0000	23.0000
34	0	40.0000	33.0000	19.0000	41.0000	41.0000	12.0000	24.0000
35	1	44.0000	36.0000	27.0000	21.0000	44.0000	22.0000	29.0000
36	1	39.0000	26.0000	22.6667	33.0000	32.0000	15.5556	31.0000
37	1	32.0000	26.0000	17.0000	35.0000	26.0000	14.0000	18.3333
38	1	32.0000	27.0000	32.0000	30.0000	40.0000	18.0000	28.0000
39	0	41.2500	37.6667	29.0000	32.0000	39.0000	11.0000	28.2500
40	1	30.0000	26.0000	11.0000	36.0000	30.0000	14.0000	23.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 16

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	29.0000	23.0000	29.0000	20.0000	37.0000	16.0000	25.0000
2	0	38.0000	38.0000	31.0000	41.0000	51.4444	20.6667	15.5556
3	1	30.1111	26.0000	20.0000	30.2222	30.7778	12.4444	29.8889
4	0	22.0000	26.0000	17.0000	24.7778	32.0000	16.0000	25.0000
5	0	28.0000	22.0000	27.0000	27.0000	28.3333	10.0000	26.0000
6	0	39.0000	27.0000	35.0000	35.0000	43.0000	11.0000	28.0000
7	0	36.0000	33.0000	27.6667	28.0000	42.0000	19.0000	25.0000
8	0	27.1111	26.0000	22.0000	32.0000	32.0000	21.0000	24.0000
9	0	25.4444	16.2222	22.0000	23.0000	29.4444	17.5556	21.0000
10	1	37.0000	36.0000	26.0000	29.0000	41.0000	16.0000	27.0000
11	0	36.0000	27.0000	25.0000	34.0000	36.7778	20.0000	21.0000
12	0	35.0000	33.0000	29.0000	34.0000	47.0000	18.0000	30.0000
13	0	48.0000	35.0000	34.0000	35.0000	48.0000	17.0000	26.0000
14	0	38.0000	30.0000	27.0000	43.0000	40.0000	25.0000	19.0000
15	0	17.0000	26.0000	16.0000	47.0000	33.0000	12.0000	12.0000
16	1	39.0000	23.0000	24.0000	19.0000	34.0000	23.0000	31.0000
17	1	27.0000	25.0000	17.3333	35.0000	35.1905	18.3016	26.0000
18	0	43.0000	31.0000	26.0000	43.0000	54.0000	17.0000	22.0000
19	1	50.0000	27.0000	35.0000	22.0000	41.0000	23.0000	31.0000
20	0	34.0000	33.0000	30.0000	30.0000	49.0000	20.0000	28.0000
21	1	41.0000	28.0000	20.0000	41.0000	46.0000	15.0000	21.0000
22	1	36.0000	36.0000	29.0000	36.0000	47.0000	21.0000	28.0000
23	1	27.0000	22.0000	23.0000	18.0000	31.0000	24.0000	25.0000
24	1	39.0000	29.0000	22.0000	35.0000	33.0000	16.0000	23.0000
25	1	45.0000	31.0000	15.0000	26.5556	39.0000	19.0000	22.4444

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 16

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	33.8889	33.0000	27.2222	40.0000	34.3056	15.9722	22.1944
27	1	22.0000	29.0000	20.0000	29.0000	37.0000	20.0000	20.0000
28	1	22.0000	14.0000	16.0000	30.0000	21.0000	20.0000	24.0000
29	1	31.0000	28.0000	25.0000	32.0000	39.0635	13.2857	23.0000
30	1	30.0000	24.0000	20.0000	15.0000	30.0000	17.0000	28.0000
31	1	38.0000	27.0000	29.0000	36.0000	38.1944	13.4444	27.0000
32	0	40.0000	30.0000	28.0000	19.0000	39.0000	20.0000	33.0000
33	1	41.0000	32.0000	21.0000	24.0000	35.0000	20.0000	27.0000
34	1	37.0000	31.0000	21.0000	28.0000	39.0000	22.0000	30.0000
35	0	44.6667	32.0000	20.0000	35.0000	32.0000	17.0000	26.6667
36	1	30.2222	22.5000	26.6667	35.3333	38.6667	18.6667	29.6667
37	0	42.0000	31.0000	22.0000	25.0000	39.3333	18.0000	25.0000
38	0	27.0000	29.0000	27.0000	32.0000	36.4444	15.0000	22.0000
39	0	31.0000	21.0000	23.0000	16.0000	26.0000	17.0000	22.0000
40	0	33.0000	22.0000	29.0000	13.0000	37.0000	21.0000	26.0000
41	0	25.0000	21.0000	28.0000	33.0000	29.0000	15.0000	17.0000
42	1	33.0000	37.0000	20.0000	43.0000	27.0000	14.0000	17.0000
43	1	30.0000	27.0000	15.0000	22.0000	27.0000	19.0000	28.0000
44	0	36.1111	35.6667	29.0000	36.6667	46.8889	15.0000	25.8889
45	0	35.0000	31.0000	21.0000	34.0000	41.0000	20.0000	25.0000
46	1	27.0000	17.0000	14.0000	28.0000	40.0000	22.0000	29.0000
47	0	31.0000	21.0000	30.0000	24.0000	41.0000	20.0000	21.0000
48	1	52.2222	42.8889	32.3333	39.6667	49.7778	21.0000	32.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 17

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	28.2222	27.0000	26.5556	37.6667	31.0000	16.0000	16.7778
2	0	49.0000	37.0000	26.0000	19.0000	38.0000	15.0000	32.0000
3	0	34.0000	34.0000	21.0000	32.0000	28.0000	16.0000	19.0000
4	0	35.0000	35.0000	21.0000	41.0000	43.0000	14.0000	27.0000
5	1	31.0000	28.0000	16.0000	30.0000	32.0000	20.0000	23.0000
6	1	42.0000	34.0000	19.0000	41.0000	28.0000	10.0000	19.0000
7	1	30.5556	24.0000	15.0000	13.0000	32.0000	18.0000	23.0000
8	1	47.0000	37.0000	21.0000	50.0000	42.0000	17.0000	13.0000
9	1	29.0000	28.0000	20.0000	41.0000	37.0000	17.0000	25.0000
10	1	24.0000	19.0000	11.0000	30.0000	29.0000	19.0000	14.0000
11	1	45.6667	38.5556	21.0000	35.0000	50.4444	22.5556	20.5556
12	0	31.0000	25.0000	14.0000	42.0000	27.0000	13.0000	19.0000
13	1	33.0000	30.0000	23.0000	32.0000	31.0000	21.0000	18.0000
14	0	38.0000	26.0000	22.2222	25.4444	31.3333	17.0000	22.0000
15	0	31.0000	32.0000	20.0000	29.8889	30.4444	15.4444	21.3333
16	0	31.5556	27.2222	31.7778	27.4444	39.0000	21.3333	27.0000
17	0	35.3333	39.0000	24.5556	24.0000	45.3333	21.6667	26.0000
18	0	33.0000	33.0000	23.0000	39.0000	45.0000	19.0000	23.0000
19	1	24.3333	18.3333	10.4444	34.0000	31.0000	19.0000	16.3333
20	0	34.4444	25.0000	24.0000	28.0000	33.4444	15.4444	21.0000
21	0	29.0000	25.0000	12.0000	38.0000	39.0000	20.0000	17.0000
22	0	24.0000	27.0000	17.0000	29.0000	25.0000	20.0000	23.0000
23	0	29.0000	24.0000	17.0000	41.0000	35.0000	17.0000	20.0000
24	0	48.7778	34.2222	18.8889	39.8889	42.6667	17.5556	22.5556
25	0	30.0000	32.0000	21.0000	29.0000	31.0000	14.0000	22.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 17

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	41.0000	42.0000	34.0000	50.0000	54.0000	24.0000	18.0000
27	0	30.0000	30.0000	26.0000	23.0000	33.6667	12.0000	28.0000
28	1	31.0000	37.0000	27.0000	37.0000	37.0000	18.0000	25.0000
29	0	37.0000	28.0000	28.0000	35.0000	37.0000	16.0000	26.0000
30	1	29.7778	23.3333	15.0000	32.6667	37.0000	16.0000	18.0000
31	0	39.0000	33.0000	32.0000	29.0000	26.0000	11.0000	29.0000
32	0	32.1111	28.0000	20.0000	35.0000	40.0000	13.0000	24.0000
33	1	42.0000	26.3333	25.0000	26.0000	35.4167	15.2222	27.0000
34	0	28.0000	24.0000	16.0000	33.0000	19.0000	13.0000	12.0000
35	0	41.0000	25.0000	16.5556	36.0000	24.0000	16.0000	17.0000
36	1	38.0000	36.0000	17.0000	42.0000	45.0000	18.0000	23.0000
37	1	40.7222	26.5556	23.0556	28.8889	33.6190	14.9524	30.0000
38	1	31.0000	28.0000	30.0000	23.0000	19.8333	12.5000	27.0000
39	1	44.0000	37.5556	24.0000	26.4444	42.0357	14.7500	26.5556
40	1	34.0000	25.0000	11.0000	30.0000	47.0000	26.0000	22.0000
41	1	33.0000	27.0000	23.0000	20.0000	34.0000	18.0000	23.0000
42	1	28.0000	21.0000	16.0000	20.0000	32.0000	21.0000	25.0000
43	1	24.0000	24.0000	18.0000	28.0000	34.0000	16.0000	20.0000
44	0	26.0000	20.0000	21.0000	10.2222	35.0000	19.0000	25.8889
45	1	28.0000	28.0000	18.0000	22.3333	25.0000	11.0000	23.0000
46	0	50.0000	41.0000	35.0000	34.0000	47.7778	15.0000	27.0000
47	0	25.0000	19.0000	15.0000	22.0000	35.0000	17.0000	27.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 18

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	43.6667	31.0000	29.0000	30.0000	38.0000	17.0000	21.0000
2	1	27.0000	36.0000	23.0000	23.0000	33.0000	10.0000	23.0000
3	0	31.6667	28.3333	29.0000	17.2222	46.0000	21.0000	27.0000
4	1	28.0000	26.0000	28.0000	24.0000	37.0000	19.0000	26.0000
5	0	29.0000	23.4444	23.4444	29.0000	41.0000	17.0000	19.0000
6	0	34.0000	27.0000	26.0000	32.0000	36.0000	23.0000	23.0000
7	1	31.0000	23.0000	19.5556	19.0000	33.0000	12.0000	21.0000
8	1	62.0000	46.0000	38.0000	31.0000	56.0000	16.0000	29.0000
9	0	55.0000	39.0000	31.0000	30.0000	52.0000	21.0000	31.0000
10	0	18.0000	27.0000	25.0000	29.0000	29.0000	15.0000	24.0000
11	0	36.6667	27.0000	28.0000	31.6667	32.7500	17.7500	13.0000
12	1	43.0000	39.0000	28.0000	41.0000	44.0000	20.0000	24.0000
13	1	27.0000	23.0000	24.0000	27.0000	24.0000	14.0000	22.0000
14	1	51.0000	36.0000	30.0000	32.0000	44.0000	18.0000	24.0000
15	1	39.7778	29.0000	27.6667	23.3333	39.5714	19.5714	25.0000
16	1	58.0000	43.0000	41.0000	38.0000	49.0000	16.0000	26.0000
17	1	42.0000	29.0000	34.0000	23.0000	48.0000	19.0000	28.0000
18	1	40.0000	32.0000	22.0000	34.0000	30.0000	18.0000	18.0000
19	0	41.0000	36.0000	31.0000	30.0000	45.0000	15.0000	27.0000
20	0	42.0000	40.0000	37.0000	37.0000	39.0000	22.6667	21.0000
21	1	33.0000	32.0000	33.0000	37.0000	42.4444	15.4444	28.0000
22	1	53.2222	32.0000	27.7778	20.9365	51.5556	19.5278	31.7778
23	0	40.3333	26.4444	21.3333	29.5556	24.6667	16.0000	20.4444
24	1	16.0000	21.0000	13.0000	18.0000	32.0000	24.0000	24.0000
25	0	37.5000	32.5556	30.6667	33.0000	44.4444	26.5556	23.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 18

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	40.4444	30.4444	31.0000	30.0000	38.8889	15.0000	23.0000
27	1	45.0000	34.0000	26.0000	38.0000	32.2222	15.2222	25.0000
28	1	32.0000	28.0000	22.0000	33.0000	22.0000	17.0000	18.0000
29	1	44.0000	30.0000	23.0000	31.0000	42.4444	17.0000	25.0000
30	0	32.1111	31.2222	32.4167	28.0000	41.5556	21.4444	23.0000
31	1	35.0000	31.0000	33.0000	25.0000	42.0000	15.0000	25.0000
32	1	46.6667	30.0000	28.5714	23.3333	42.3810	11.4286	25.7143
33	0	47.6667	32.0000	26.0000	26.0000	42.6389	21.7500	28.0000
34	0	26.0000	26.2222	34.3333	27.7778	28.2222	12.1111	18.1111
35	1	35.5556	17.7778	25.5556	16.6667	36.6667	18.8889	16.6667
36	1	44.5556	34.0000	22.0000	22.6667	36.5000	16.2500	22.0000
37	0	52.0000	35.0000	29.0000	31.0000	45.0000	20.0000	28.0000
38	1	46.7778	33.0000	21.0000	23.0000	44.0000	22.1111	27.0000
39	1	49.0000	39.0000	36.0000	40.0000	49.8889	22.0000	23.0000
40	0	40.0000	32.7778	23.7778	24.6667	42.0000	23.0000	21.3333
41	0	30.3333	32.4167	26.3333	42.6032	38.1667	14.8571	19.9841

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 19

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	26.0000	21.0000	23.0000	17.0000	16.0000	7.0000	24.0000
2	0	37.8889	34.4444	30.0000	28.2222	44.0000	16.0000	19.7778
3	0	17.0000	22.0000	19.0000	19.0000	30.0000	18.4444	24.0000
4	0	43.0000	40.0000	34.0000	43.0000	48.0000	14.0000	26.0000
5	0	34.8889	28.6667	31.6667	27.3333	38.0000	17.4444	25.0000
6	0	24.3333	30.0000	20.0000	31.4444	41.0000	23.0000	18.7778
7	1	36.0000	30.0000	26.0000	31.0000	43.0000	18.0000	19.0000
8	0	20.0000	14.0000	23.0000	28.0000	21.0000	18.0000	17.0000
9	0	32.5556	22.0000	23.0000	18.3333	32.0000	16.3333	25.7778
10	0	30.4444	28.0000	27.1111	42.0000	39.0000	25.0000	23.0000
11	0	34.0000	30.0000	34.0000	29.0000	32.0000	11.0000	29.0000
12	0	39.0000	38.0000	34.0000	45.0000	46.0000	15.0000	24.0000
13	0	26.0000	22.0000	26.0000	26.0000	21.0000	12.0000	25.0000
14	1	35.0000	34.0000	30.0000	23.0000	38.0000	14.0000	27.0000
15	1	28.2222	27.0000	27.2222	33.0000	40.1071	12.0794	19.0000
16	1	44.0000	22.0000	33.0000	17.0000	37.0000	9.0000	28.0000
17	0	34.0000	32.5556	32.5556	42.6667	39.0000	14.0000	22.0000
18	1	29.0000	34.0000	32.0000	29.0000	35.0000	15.0000	28.0000
19	1	33.0000	29.0000	32.0000	25.0000	42.0000	12.0000	18.0000
20	0	36.0000	31.0000	37.0000	24.0000	37.6667	14.0000	26.0000
21	0	29.0000	21.2222	23.0000	32.0000	21.2222	13.0000	16.0000
22	1	35.0000	30.0000	32.0000	40.0000	37.0000	12.0000	26.0000
23	0	32.0000	19.7778	16.0000	26.2222	27.1111	20.5556	21.0000
24	0	57.0000	48.0000	37.0000	40.0000	54.0000	16.0000	30.0000
25	0	30.0000	22.0000	26.0000	14.0000	30.0000	20.0000	26.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 19

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	60.0000	39.0000	42.0000	49.0000	44.0000	14.0000	28.0000
27	1	28.0000	26.0000	25.0000	32.0000	39.0000	19.0000	27.0000
28	0	42.0000	39.8889	38.8889	26.4444	52.0000	22.0000	27.0000
29	0	26.0000	19.0000	27.0000	32.0000	35.0000	11.0000	27.0000
30	1	25.0000	22.0000	15.0000	18.0000	25.3333	13.6667	25.0000
31	1	47.6667	39.0000	38.0000	40.0000	46.0000	13.0000	25.6667
32	1	46.0000	40.0000	40.0000	26.0000	38.0000	14.0000	26.0000
33	1	48.0000	40.0000	39.6667	29.7778	55.0000	15.0000	27.0000
34	0	66.0000	46.0000	41.0000	47.0000	59.0000	23.0000	24.0000
35	1	38.0000	36.0000	38.0000	30.0000	47.0000	19.0000	26.0000
36	0	31.0000	20.0000	24.0000	33.0000	37.0000	14.0000	25.0000
37	1	51.0000	33.0000	29.6667	38.0000	53.0000	23.0000	23.0000
38	1	46.0000	26.0000	26.0000	26.0000	39.0000	16.0000	33.0000
39	1	29.0000	29.0000	20.0000	37.0000	33.0000	18.0000	26.0000
40	1	30.2222	23.2222	28.0000	31.0000	38.0000	16.0000	22.0000
41	1	31.0000	24.0000	29.0000	23.0000	33.0000	18.0000	22.0000
42	0	34.0000	26.0000	37.0000	12.0000	41.0000	21.0000	28.0000
43	1	29.0000	25.0000	26.0000	33.0000	40.0000	19.0000	25.0000
44	1	43.2222	31.0000	26.0000	40.0000	43.0000	14.0000	25.0000
45	1	38.3333	38.0000	26.0000	42.0000	46.0000	15.0000	24.0000
46	0	30.0000	31.0000	25.0000	30.0000	40.0000	20.0000	23.0000
47	1	48.0000	29.0000	21.0000	28.0000	39.6667	18.6667	20.0000
48	1	42.0000	29.0000	34.7778	26.0000	44.5556	13.5556	29.0000
49	1	26.0000	24.0000	27.0000	18.0000	23.0000	9.0000	24.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 20

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	33.0000	29.5556	25.0000	23.3333	33.0000	9.0000	24.0000
2	0	43.0000	32.0000	28.0000	33.0000	46.0000	18.0000	20.0000
3	1	54.5556	28.0000	34.0000	20.0000	46.0000	14.0000	26.0000
4	0	26.0000	29.8889	19.4444	41.0000	26.1944	14.0000	12.0000
5	1	32.0000	29.0000	20.0000	35.0000	30.0000	16.0000	18.0000
6	1	29.0000	25.0000	29.6667	33.0000	30.4444	15.4444	23.0000
7	0	27.0000	24.0000	21.0000	27.0000	26.0000	20.0000	17.0000
8	1	51.0000	31.0000	32.0000	34.0000	34.0000	11.0000	23.0000
9	1	25.0000	29.0000	17.0000	16.0000	29.0000	17.0000	17.0000
10	0	52.0000	39.0000	38.0000	43.0000	41.0000	10.0000	28.0000
11	0	31.0000	24.0000	24.0000	40.0000	24.0000	14.0000	21.0000
12	0	39.0000	32.0000	21.5556	22.0000	31.0000	14.0000	25.0000
13	0	47.0000	42.0000	32.0000	35.0000	43.0000	16.0000	22.0000
14	0	32.5556	26.3333	23.3333	42.0000	28.0000	14.0000	21.0000
15	1	28.0000	35.0000	27.0000	45.0000	33.0000	17.0000	21.0000
16	1	49.0000	36.0000	30.0000	36.0000	38.0000	20.0000	24.0000
17	0	24.1111	29.1270	17.0000	31.1111	29.2222	22.0000	21.4444
18	1	28.0000	23.0000	19.0000	31.0000	29.0000	15.0000	22.0000
19	1	29.0000	27.7778	22.0000	45.0000	30.0000	23.0000	18.0000
20	1	38.0000	25.0000	23.0000	35.0000	30.0000	14.0000	25.0000
21	1	26.0000	25.0000	16.0000	14.0000	27.0000	9.0000	24.0000
22	1	29.0000	26.0000	22.0000	37.0000	31.0000	14.0000	15.0000
23	1	47.4444	41.6667	35.3333	50.0000	52.0000	16.0000	20.0000
24	1	38.0000	28.0000	19.0000	45.0000	43.4444	16.0000	25.0000
25	1	37.0000	32.0000	30.0000	31.7778	36.6429	14.8333	25.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 20

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	33.0000	25.0000	22.0000	23.0000	38.0000	17.0000	23.0000
27	0	28.0000	22.0000	15.3333	40.0000	26.0000	19.0000	19.0000
28	0	34.0000	30.5556	22.5556	18.0000	35.5556	15.0000	29.0000
29	1	32.0000	25.0000	17.0000	28.0000	28.5556	12.5556	19.0000
30	0	28.0000	31.0000	27.0000	33.0000	39.0000	19.0000	25.0000
31	0	44.0000	34.0000	33.0000	21.0000	39.0000	19.0000	35.0000
32	0	44.0000	32.0000	30.0000	35.0000	34.0000	17.6667	26.0000
33	0	32.0000	29.0000	30.0000	44.0000	35.0000	15.0000	26.0000
34	0	44.0000	30.0000	28.0000	44.0000	24.0000	16.0000	14.0000
35	1	36.0000	28.0000	20.0000	35.0000	39.0000	17.0000	21.0000
36	0	30.0000	23.0000	22.0000	35.0000	33.0000	17.0000	19.0000
37	0	51.7778	34.0000	32.7778	27.3333	48.7778	14.7778	21.4444
38	1	56.0000	44.0000	32.0000	21.0000	50.0000	10.0000	29.0000
39	1	35.0000	38.0000	28.0000	47.0000	44.5000	19.0000	18.0000
40	0	29.0000	28.0000	35.0000	33.0000	32.5556	16.0000	21.0000
41	0	43.2500	35.0000	34.0000	24.5556	49.4444	17.7778	36.0000
42	0	31.0000	30.0000	29.0000	24.0000	40.0000	18.0000	26.0000
43	0	32.0000	28.0000	29.0000	31.0000	31.3333	17.3333	17.0000
44	1	35.0000	26.8889	25.0000	27.3333	31.3056	14.0833	25.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 21

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	40.8889	31.0000	24.0000	31.5556	35.6667	15.2222	22.0000
2	0	33.0000	37.0000	35.5556	47.0000	41.5000	22.0000	18.0000
3	0	67.0000	46.0000	41.0000	53.0000	56.0000	20.0000	24.0000
4	0	51.0000	37.0000	33.0000	47.0000	47.0000	20.0000	24.0000
5	0	35.0000	30.0000	34.0000	25.0000	44.3333	18.5556	28.0000
6	0	42.0000	43.0000	29.0000	24.0000	41.0000	16.0000	26.0000
7	0	34.3333	27.3333	36.8889	39.5833	37.0000	14.4444	21.0000
8	1	28.0000	20.0000	17.0000	31.0000	33.4444	24.0000	29.0000
9	1	50.8889	35.0000	33.0000	38.0000	39.0000	11.0000	19.0000
10	0	40.0000	28.0000	27.0000	24.0000	36.0000	14.0000	25.0000
11	0	51.4444	42.0000	37.0000	51.0000	48.0000	23.5556	24.7778
12	0	52.0000	39.6667	40.8889	27.0000	35.6667	10.3333	32.7500
13	0	35.0000	28.0000	31.7778	37.0000	33.7500	16.1944	17.0000
14	0	41.0000	36.0000	30.0000	30.0000	34.0000	15.0000	28.0000
15	0	27.0000	23.4444	27.4444	28.0000	32.0000	25.0000	25.0000
16	0	33.5635	40.4206	27.9524	47.4444	44.2778	13.4444	21.2698
17	1	38.0000	37.0000	34.0000	48.0000	36.0000	15.0000	21.0000
18	1	43.0000	40.0000	37.0000	32.0000	34.3333	13.3333	22.0000
19	1	41.7778	35.4444	41.0000	36.0000	49.6825	21.6667	25.7778
20	1	34.0000	25.0000	28.0000	19.3333	38.2222	13.4444	25.0000
21	1	33.0000	28.0000	25.7778	32.0000	45.0000	15.0000	25.4444
22	1	44.0000	31.0000	28.0000	45.0000	45.3333	24.5556	25.0000
23	0	47.7778	37.5556	33.0000	33.0000	44.4444	17.4444	23.6667
24	0	41.0000	27.0000	37.0000	16.0000	32.1111	18.0000	32.0000
25	1	45.0000	35.0000	37.0000	37.0000	44.0000	14.0000	22.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 21

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	0	52.0000	41.5556	39.5556	43.0000	51.0000	17.0000	25.0000
27	1	38.2222	34.0000	32.0000	32.0000	38.2222	10.5556	23.0000
28	0	47.0000	35.0000	35.0000	27.2222	41.7778	14.5556	25.6667
29	1	24.0000	26.0000	29.0000	37.0000	35.0000	17.5000	19.0000
30	0	31.0000	23.0000	30.0000	38.0000	26.7778	15.0000	19.0000
31	0	43.0000	22.5556	32.0000	18.2222	34.0000	16.0000	26.0000
32	0	32.0000	26.0000	25.0000	33.0000	41.0000	21.0000	24.0000
33	1	30.0000	20.1111	29.0000	16.5556	27.0000	19.0000	26.0000
34	1	36.8889	31.7778	30.6544	42.8889	40.5833	7.7778	17.0000
35	0	66.0000	45.0000	35.0000	52.0000	59.0000	21.0000	23.0000
36	0	25.0000	31.0000	22.0000	48.0000	39.1111	18.8889	18.0000
37	1	41.0000	30.0000	27.0000	24.0000	40.0000	19.0000	23.0000
38	1	46.0000	38.0000	33.0000	20.0000	44.0000	9.0000	32.0000
39	1	34.0000	35.0000	36.0000	23.0000	39.0000	15.0000	29.0000
40	1	23.0000	18.0000	19.0000	15.0000	28.7778	12.1111	24.0000
41	1	33.0000	25.4444	31.5556	31.0000	33.0000	13.0000	23.0000
42	1	21.0000	19.0000	19.0000	33.0000	28.0000	9.0000	15.0000
43	1	32.0000	30.0000	18.0000	41.0000	39.0000	17.0000	22.0000
44	1	53.0000	42.0000	35.0000	34.0000	38.0000	12.0000	26.0000
45	1	23.0000	25.0000	23.0000	30.0000	25.0000	14.0000	21.0000
46	1	24.1190	27.5556	23.6429	16.9286	29.6349	18.7302	26.2103
47	1	51.0000	41.2500	32.7778	23.0000	49.8056	17.5556	34.0000
48	1	51.0000	36.0000	37.0000	42.0000	42.0000	20.0000	24.0000
49	0	28.2222	26.0000	14.2222	16.6667	27.0000	12.0000	22.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 22

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	32.0000	35.0000	25.0000	51.0000	40.0000	18.0000	18.0000
2	1	25.0000	22.0000	25.0000	13.0000	30.0000	21.0000	26.0000
3	0	38.0000	31.0000	31.0000	30.0000	35.0000	11.0000	26.0000
4	1	51.0000	41.0000	41.0000	40.0000	54.4444	18.4444	25.0000
5	1	42.0000	31.0000	31.0000	24.0000	34.0000	14.0000	19.0000
6	1	29.0000	19.0000	17.0000	15.0000	27.0000	22.0000	21.0000
7	1	22.0000	25.0000	23.0000	18.0000	28.0000	16.0000	25.0000
8	1	35.0000	27.0000	26.0000	14.0000	37.0000	15.0000	28.0000
9	0	23.0000	19.0000	14.0000	30.0000	26.0000	17.0000	15.0000
10	1	26.0000	21.0000	17.0000	25.0000	21.2222	12.2222	21.0000
11	0	29.0000	32.0000	26.0000	33.0000	47.0000	18.0000	30.0000
12	1	51.0000	36.0000	27.0000	36.0000	41.0000	11.0000	23.0000
13	1	21.0000	22.0000	13.0000	22.0000	36.0000	20.0000	21.0000
14	1	31.0000	20.0000	22.0000	27.5556	37.0000	15.0000	25.0000
15	0	29.0000	30.0000	26.0000	42.5556	34.6667	19.0000	15.0000
16	1	30.2222	22.0000	21.2222	13.0000	36.9167	17.2500	27.0000
17	1	37.4444	26.0000	25.0000	26.0000	35.0000	9.0000	26.0000
18	0	19.3333	14.0000	7.0000	26.0000	16.0000	13.0000	15.3333
19	1	49.0000	34.0000	38.0000	43.0000	46.5556	14.5556	29.0000
20	0	25.0000	18.0000	12.0000	35.0000	30.0000	16.0000	21.0000
21	0	42.0000	32.0000	31.0000	31.0000	47.7778	23.0000	31.0000
22	0	12.0000	13.0000	21.0000	13.0000	23.0000	16.0000	13.0000
23	0	23.0000	20.0000	14.0000	22.0000	25.0000	15.0000	15.0000
24	1	21.0000	17.0000	11.0000	17.0000	29.0000	14.0000	22.0000
25	1	33.0000	19.0000	25.0000	21.0000	26.0000	24.0000	27.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 22

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7.
26	1	31.0000	26.0000	20.0000	34.0000	34.0000	17.0000	20.0000
27	1	27.0000	21.0000	22.0000	15.0000	36.0000	19.0000	28.0000
28	1	26.0000	23.0000	23.0000	25.0000	27.0000	14.0000	24.0000
29	1	25.0000	17.0000	26.0000	18.0000	29.0000	15.0000	22.0000
30	0	30.2222	27.0000	19.0000	27.0000	22.0000	11.0000	18.0000
31	0	31.0000	28.0000	22.0000	28.0000	30.0000	15.0000	24.0000
32	0	43.0000	31.0000	32.0000	37.0000	49.0000	10.0000	20.0000
33	0	27.0000	28.0000	18.0000	34.0000	39.0000	15.0000	14.0000
34	1	19.0000	13.0000	13.0000	27.0000	26.0000	13.0000	22.0000
35	0	48.0000	38.0000	32.0000	40.0000	54.0000	22.0000	25.0000
36	0	25.0000	17.2222	14.3333	17.0000	26.3333	20.3333	28.0000
37	1	32.0000	25.0000	21.0000	31.0000	35.0000	17.0000	17.0000
38	0	40.0000	32.0000	30.0000	38.0000	46.9365	16.7143	16.0000
39	1	16.0000	16.0000	18.0000	21.0000	26.1944	10.7500	23.0000
40	0	42.6667	26.0000	27.1111	21.0000	33.0000	12.0000	23.0000
41	0	38.0000	14.0000	25.0000	32.0000	27.0000	14.0000	22.0000
42	0	20.0000	20.0000	15.0000	28.0000	21.0000	13.0000	21.0000
43	1	26.0000	16.0000	18.0000	16.0000	24.0000	14.0000	20.0000
44	0	58.0000	40.0000	41.0000	33.0000	49.0000	12.0000	33.0000
45	0	31.0000	34.0000	36.0000	29.0000	35.0000	12.0000	25.0000
46	0	35.8889	34.7778	36.8889	44.0000	39.7500	13.0000	20.0000
47	1	47.0000	40.0000	36.0000	44.0000	48.0000	18.0000	26.0000
48	1	34.0000	32.0000	27.0000	26.0000	43.0000	23.0000	27.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 23

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	1	28.0000	27.0000	20.0000	26.0000	41.3333	19.0000	27.0000
2	0	54.0000	45.0000	38.0000	51.0000	53.0000	16.0000	21.0000
3	0	36.0000	27.0000	30.0000	33.0000	35.0000	12.0000	25.0000
4	1	26.0000	19.0000	22.0000	18.0000	28.0000	21.0000	30.0000
5	1	38.0000	29.0000	27.0000	39.0000	38.0000	19.0000	27.0000
6	0	27.1111	30.5357	34.5000	23.1429	19.8651	3.3333	22.8333
7	1	28.0000	27.0000	30.0000	43.0000	38.0000	15.0000	23.0000
8	1	40.0000	28.0000	27.0000	47.0000	38.0000	16.0000	18.0000
9	0	42.7778	34.0000	31.6667	22.0000	38.0000	18.0000	24.0000
10	0	30.5357	26.1111	27.7778	26.1429	31.3968	18.7024	18.2222
11	0	33.0000	35.0000	35.0000	30.0000	44.0000	11.0000	23.0000
12	1	23.2222	20.5556	27.0476	26.2500	16.3611	9.7619	29.8333
13	1	22.0000	17.0000	28.0000	23.0000	26.7500	11.7500	25.0000
14	0	33.0000	21.0000	31.0000	18.0000	35.0000	18.0000	28.0000
15	1	26.0000	26.0000	30.0000	20.0000	28.0000	13.0000	29.0000
16	0	37.0000	39.0000	39.0000	34.0000	39.0000	7.0000	28.0000
17	0	16.0000	12.0000	19.0000	18.0000	21.0000	22.0000	16.0000
18	1	35.0000	32.0000	23.0000	38.0000	33.0000	14.0000	19.0000
19	1	50.0000	43.0000	34.0000	43.0000	51.0000	21.0000	28.0000
20	1	35.6667	38.6667	30.0000	40.0000	42.0000	22.0000	15.0000
21	1	30.0000	27.0000	22.0000	26.0000	32.0000	15.0000	18.0000
22	1	26.0000	21.3611	23.2500	14.3611	21.8889	10.7778	30.3056
23	0	34.0000	26.0000	32.0000	28.0000	38.0000	14.0000	23.0000
24	1	36.0000	40.7778	30.0000	49.7778	43.2222	17.6667	18.0000
25	1	40.0000	27.0000	38.0000	29.0000	39.0000	24.0000	30.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHCCL NUMBER 23

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	45.0000	32.0000	25.0000	31.0000	37.0000	19.0000	27.0000
27	1	39.0000	32.0000	28.0000	24.0000	46.0000	20.0000	28.0000
28	1	33.0000	37.0000	41.0000	38.0000	41.0000	13.0000	25.0000
29	0	22.0000	25.0000	22.0000	32.5556	38.0000	19.0000	21.0000
30	0	42.0000	40.0000	32.0000	41.0000	48.0000	20.0000	26.0000
31	0	34.7778	29.8889	38.1111	19.3333	33.4921	17.0000	26.0000
32	1	46.0000	42.0000	38.0000	37.0000	49.0000	23.1111	35.0000
33	0	33.0000	29.0000	29.0000	28.0000	42.0000	15.0000	28.0000
34	1	35.0000	26.0000	28.4444	36.0000	30.0000	18.0000	22.0000
35	0	52.0000	44.5556	36.0000	54.0000	46.4444	13.4444	18.0000
36	0	21.0000	18.0000	23.0000	32.0000	25.0000	6.0000	21.0000
37	0	29.2222	30.0000	32.0000	29.0000	40.3333	13.0000	22.0000
38	0	23.0000	24.4444	32.0000	27.0000	38.0000	17.0000	25.0000
39	0	26.4444	21.0000	26.0000	20.0000	28.0000	11.0000	27.0000
40	1	40.0000	31.0000	37.0000	36.0000	39.0000	15.0000	26.0000
41	1	44.0000	38.0000	36.0000	51.0000	41.0000	12.0000	21.0000
42	0	42.0000	38.0000	33.0000	46.0000	46.0000	20.0000	25.0000
43	0	19.0000	20.0000	19.0000	29.0000	26.0000	16.0000	19.0000
44	1	20.0000	22.0000	27.0000	25.0000	32.0000	20.0000	27.0000
45	0	23.0000	32.0000	35.0000	15.5556	40.0000	18.0000	28.0000
46	1	34.1111	31.1111	31.0000	20.7778	42.7778	12.0000	27.0000
47	0	31.0000	35.6667	30.0000	52.0000	42.0000	23.0000	21.0000
48	0	49.0000	33.0000	32.5556	19.0000	44.6667	19.0000	35.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 24

STUDENT NUMBER	SEX (0=M,1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	0	36.0000	26.0000	20.0000	38.0000	26.5556	13.2222	20.0000
2	0	32.0000	26.0000	21.0000	20.0000	30.0000	20.0000	25.0000
3	0	35.0000	35.0000	29.0000	27.0000	36.0000	15.0000	28.0000
4	0	27.0000	19.0000	11.0000	48.0000	31.0000	20.0000	10.0000
5	0	31.0000	32.0000	17.0000	50.0000	45.0000	17.0000	19.0000
6	0	44.0000	40.0000	35.0000	50.0000	53.0000	18.0000	22.0000
7	0	10.0000	12.0000	11.0000	28.0000	13.0000	16.0000	9.0000
8	0	38.4444	22.6667	25.6667	28.0000	33.8889	19.2500	25.4444
9	1	28.0000	18.0000	24.0000	25.0000	29.0000	18.0000	29.0000
10	1	41.0000	30.0000	31.0000	30.0000	41.0000	20.0000	26.0000
11	1	29.0000	29.0000	26.0000	41.0000	37.0000	21.0000	19.0000
12	1	24.0000	22.0000	22.6667	34.6667	33.7778	24.0000	22.0000
13	1	49.0000	35.0000	32.6667	49.0000	49.2500	24.0000	22.0000
14	0	16.0000	9.0000	15.0000	23.0000	31.3333	20.5556	20.0000
15	0	39.0000	29.0000	33.0000	45.0000	43.0000	14.0000	18.0000
16	0	34.0000	31.0000	32.0000	33.0000	40.0000	17.0000	23.0000
17	1	20.0000	17.0000	16.0000	27.0000	35.0000	21.0000	21.0000
18	0	54.1111	45.1389	40.0000	38.2222	49.5000	19.2857	32.2222
19	1	20.4722	14.3333	14.7500	33.0833	18.4167	17.4286	13.6667
20	0	37.0000	24.2222	17.0000	34.0000	35.0000	15.0000	17.0000
21	1	39.0000	35.0000	31.0000	31.0000	39.0000	22.0000	21.0000
22	0	40.0000	22.0000	25.0000	32.0000	34.0000	22.0000	24.0000
23	1	25.0000	20.0000	19.0000	40.0000	36.0000	19.0000	18.0000
24	0	21.0000	21.0000	16.0000	43.0000	22.0000	10.0000	15.0000
25	0	35.0000	24.0000	24.0000	42.0000	34.0000	18.0000	18.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX FACTOR SCORES FOR INDIVIDUALS

SCHOOL NUMBER 24

STUDENT NUMBER	SEX (0=M, 1=F)	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
26	1	31.0000	19.0000	17.0000	37.0000	30.0000	17.0000	17.0000
27	1	34.0000	24.0000	22.0000	31.0000	40.0000	16.0000	28.8889
28	1	64.0000	43.0000	39.0000	49.0000	46.7778	20.0000	29.0000
29	0	41.5556	32.0000	24.5556	49.0000	43.4444	19.4444	22.0000
30	0	26.0000	19.0000	23.0000	28.0000	26.0000	18.0000	22.0000
31	1	29.3333	26.7778	21.1111	45.7778	30.1111	12.7778	17.4444
32	1	32.0000	33.0000	17.3333	42.0000	41.8889	10.2222	21.0000
33	1	37.0000	31.0000	30.0000	15.0000	42.0000	12.0000	34.0000
34	0	38.0000	28.0000	25.0000	24.0000	46.0000	21.0000	33.0000
35	1	34.0000	24.0000	26.0000	26.0000	35.0000	20.0000	24.0000
36	1	32.0000	30.0000	23.7778	29.0000	31.0000	10.0000	24.0000
37	1	27.0000	29.0000	24.0000	34.0000	32.0000	16.0000	15.0000
38	0	37.0000	35.0000	24.0000	48.0000	41.0000	19.0000	13.0000
39	1	34.0000	27.0000	25.0000	25.0000	25.4127	14.8571	25.0000
40	0	42.0000	33.0000	23.0000	18.0000	36.0000	16.0000	31.0000
41	1	41.5833	40.3333	31.1111	36.8889	43.8889	19.3333	25.4444
42	0	46.5873	25.1786	20.3175	22.8413	28.9524	13.8690	30.1389
43	0	25.4444	25.4444	23.5556	30.0000	33.0000	15.0000	21.0000
44	0	34.0000	22.0000	18.0000	37.5556	34.4444	21.4444	16.0000
45	1	54.0000	40.0000	36.3333	52.0000	56.1310	21.7143	26.0000
46	1	49.0000	41.0000	37.0000	38.5556	53.4444	17.7778	29.0000
47	1	35.0000	29.0000	28.0000	41.0000	41.0000	13.0000	22.0000
48	1	35.0000	21.0000	29.0000	28.0000	31.0000	14.0000	23.0000
49	1	54.0000	42.0000	34.0000	48.0000	46.0000	17.0000	21.0000

APPENDIX 6

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

APPENDIX 7

HIGH SCHOOL CHARACTERISTICS INDEX MEAN
SCORES FOR MALES AND FEMALES

HIGH SCHOOL CHARACTERISTICS INDEX SCHOOL MEAN SCORES FOR MALES AND FEMALES

SCHOOL NUMBER	SEX	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
1	MALES	29.5010	24.9762	20.5856	27.0502	31.6362	15.4097	23.2206
1	FEMALES	29.5000	23.4676	19.3565	27.2083	28.7683	13.9699	22.1018
2	MALES	37.3889	28.1782	27.8495	33.3472	35.7778	15.5509	24.5509
2	FEMALES	39.3623	31.5555	30.4927	31.8019	37.3651	14.2077	23.8696
3	MALES	47.8228	39.8322	33.6478	42.0114	41.9677	13.9267	24.3176
3	FEMALES	50.9722	41.8862	32.8201	41.0939	41.1625	12.6202	25.0542
4	MALES	33.2284	25.8647	21.8543	33.0567	32.4722	16.3909	22.4408
4	FEMALES	32.3915	24.6666	20.0688	35.2487	35.2146	17.2252	21.6085
5	MALES	31.0910	25.4382	25.2531	27.6960	33.7484	14.3642	20.3055
5	FEMALES	33.6657	24.6493	23.5521	26.4653	34.7083	16.3333	23.8879
6	MALES	33.5710	27.4003	25.1420	30.3410	40.2380	15.9903	23.8518
6	FEMALES	32.5845	24.5034	22.5072	28.6059	38.4715	19.2560	22.5978
7	MALES	35.3640	28.3165	26.5696	32.8458	35.0048	15.0185	23.2987
7	FEMALES	36.6496	28.5011	27.0362	31.4828	36.8889	14.1794	24.2292
8	MALES	33.2155	25.0411	23.2400	30.0533	33.8111	15.9478	21.9189
8	FEMALES	34.4431	26.8465	24.0291	33.9259	36.3311	15.0665	23.2222
9	MALES	36.5136	29.8888	25.3422	30.2789	38.1652	16.7522	25.3311
9	FEMALES	38.7995	30.9372	25.8514	32.2463	38.2995	15.4843	25.5326
10	MALES	36.1877	29.6144	28.2544	32.9377	38.3703	17.3433	25.1111
10	FEMALES	32.3153	26.7673	24.6250	33.0602	35.4914	16.8571	23.8183
11	MALES	37.2069	32.4666	23.4500	35.4833	37.7815	16.2149	21.7222
11	FEMALES	39.1555	34.8000	25.6000	37.4900	38.2311	14.8178	23.1022
12	MALES	35.8737	28.8118	26.2664	30.9250	37.5416	16.1629	24.1591
12	FEMALES	37.5555	29.6528	25.3935	34.3368	41.3196	17.9863	23.8241

APPENDIX 7

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

HIGH SCHOOL CHARACTERISTICS INDEX SCHOOL MEAN SCORES FOR MALES AND FEMALES

SCHOOL NUMBER	SEX	HIGH SCHOOL CHARACTERISTICS INDEX FACTORS						
		1*	2	3	4	5	6	7
13	MALES	28.2025	25.2083	18.4745	28.1423	31.4199	15.3761	21.2916
13	FEMALES	31.8355	27.1511	20.9878	30.7866	35.4800	16.8343	23.6044
14	MALES	31.7600	25.2000	25.6978	28.9111	35.7844	18.0800	24.3511
14	FEMALES	33.9089	25.4000	26.9200	28.5200	37.7333	18.2977	23.5889
15	MALES	29.8472	24.6358	18.2716	27.3086	29.7701	14.2839	24.3534
15	FEMALES	30.7273	23.4091	17.8030	29.8485	29.5694	14.4785	24.0353
16	MALES	33.8089	28.3955	26.1155	31.3778	38.7188	17.5278	23.5322
16	FEMALES	34.5024	27.7125	22.6232	29.2947	36.3770	18.4410	26.2608
17	MALES	33.9778	29.2178	21.9822	31.1822	34.4666	16.1778	22.9822
17	FEMALES	34.1389	29.0303	19.8901	31.6515	36.0158	17.6809	21.7929
18	MALES	37.0798	31.0260	28.3941	29.9057	39.2152	19.2584	22.9295
18	FEMALES	40.5466	31.4089	27.4451	28.1574	39.5425	17.0977	24.0463
19	MALES	34.8844	29.0222	29.2489	30.5066	37.0000	16.6311	24.1733
19	FEMALES	36.9444	30.0092	29.2222	29.8241	39.7776	15.2487	24.7778
20	MALES	35.8997	30.2132	26.6956	32.4782	34.7862	16.5459	22.8212
20	FEMALES	36.5714	30.1375	24.9047	32.8307	35.5187	14.9484	22.0000
21	MALES	41.5096	33.4804	31.5952	34.8622	40.1006	17.2766	23.9638
21	FEMALES	36.7558	30.6233	29.4579	31.1882	37.6815	15.3292	23.9373
22	MALES	32.2657	26.6956	24.1449	31.3720	34.6289	15.3064	21.2319
22	FEMALES	31.4667	24.4400	23.4489	24.4622	33.8933	16.1689	23.7600
23	MALES	32.9530	29.8417	30.7338	30.3221	37.1749	15.3117	23.7940
23	FEMALES	34.1667	29.7697	29.2809	32.5486	36.4305	16.7111	25.3808
24	MALES	34.1726	26.5688	23.0456	35.1091	35.4636	17.4196	21.4085
24	FEMALES	35.9355	28.8177	26.3100	35.5589	37.7639	17.5244	22.9378

APPENDIX 7

*1 - INTELLECTUAL CLIMATE, 2 - EXPRESSIVENESS, 3 - GROUP LIFE, 4 - PERSONAL DIGNITY
5 - ACHIEVEMENT STANDARDS, 6 - ORDERLINESS, 7 - PRACTICALNESS

APPENDIX 8

TEST-RETEST SCORES FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA)
SCALES

TEST-RETEST SCORES FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA) SCALES

NUMBER	LPC SCORES		GA SCORES	
	TEST	RETEST	TEST	RETEST
1	64	63	65	63
2	35	35	73	71
3	60	66	71	65
4	62	48	58	65
5	80	73	80	71
6	75	63	60	70
7	86	71	69	63
8	44	60	71	74
9	65	67	63	64
10	52	53	72	69
11	50	73	64	61
12	57	62	68	68
13	73	77	73	66
14	70	58	60	63
15	54	77	64	70
16	62	69	63	63
17	58	81	61	64
18	91	81	65	64
19	65	71	64	65
20	70	75	67	63
21	69	51	57	63
22	31	33	56	62
23	65	69	56	58
24	86	83	67	66
25	63	72	43	55
26	70	88	74	71
27	77	60	62	66
28	58	60	64	64
29	67	64	66	59
30	73	81	67	75
31	66	75	68	70
32	50	44	61	67
33	75	73	72	70
34	60	62	72	72
35	75	68	74	67

APPENDIX 9

CHARACTERISTICS OF PRINCIPALS IN THE
INITIAL SAMPLE (N = 176)

APPENDIX 9

CHARACTERISTICS OF PRINCIPALS IN THE
INITIAL SAMPLE (N = 176)

		Frequency
Age	30 - 39	26
	40 - 49	89
	50 - 59	51
	60 - 69	10
Degrees held	None	3
	Undergraduate	124
	Graduate	49
Experience as principal in present school (years)	1 - 2	49
	3 - 5	69
	6 - 10	44
	11 or more	14
Experience as principal in other schools (years)	None	111
	1 - 2	17
	3 - 5	26
	6 - 10	14
	11 or more	8
Experience in education before becoming a principal (years)	10 or less	36
	11 - 15	54
	16 - 20	49
	21 or more	37

APPENDIX 10

MEANS AND STANDARD DEVIATIONS FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA) DATA
OBTAINED FROM PRINCIPALS IN THE INITIAL
SAMPLE (N = 176)

APPENDIX 10

MEANS AND STANDARD DEVIATIONS FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA) DATA
OBTAINED FROM PRINCIPALS IN THE INITIAL
SAMPLE (N = 176)

	LPC	GA
Mean	64.22	66.89
S.D.	18.50	7.21

APPENDIX 11

CHARACTERISTICS OF PRINCIPALS IN
THE TEST-RETEST SAMPLE (N = 35)

APPENDIX 11

CHARACTERISTICS OF PRINCIPALS IN
THE TEST-RETEST SAMPLE (N = 35)

		Frequency
Age	30 - 39	6
	40 - 49	17
	50 - 59	8
	60 - 69	4
Degrees held	None	1
	Undergraduate	29
	Graduate	5
Experience as principal in present school (years)	1 - 2	5
	3 - 5	16
	6 - 10	12
	11 or more	2
Experience as principal in other schools (years)	None	25
	1 - 2	2
	3 - 5	3
	6 - 10	1
	11 or more	4
Experience in education before becoming a principal (years)	10 or less	9
	11 - 15	12
	16 - 20	9
	21 or more	5

APPENDIX 12

MEANS AND STANDARD DEVIATIONS FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA) DATA
OBTAINED FROM PRINCIPALS IN THE TEST-RETEST
STUDY (N = 35)

APPENDIX 12

MEANS AND STANDARD DEVIATIONS FOR THE LEAST PREFERRED
COWORKER (LPC) AND GROUP ATMOSPHERE (GA) DATA
OBTAINED FROM PRINCIPALS IN THE TEST-RETEST
STUDY (N = 35)

	<u>LPC Scale</u>		<u>GA Scale</u>	
	Mean	S.D.	Mean	S.D.
First administration	64.51	13.00	65.43	6.84
Second administration	65.89	12.63	65.91	4.42

APPENDIX 13

MEANS AND STANDARD DEVIATIONS FOR THE SEVEN FACTORS
OF THE HIGH SCHOOL CHARACTERISTICS INDEX (N = 1102)

APPENDIX 13

MEANS AND STANDARD DEVIATIONS FOR THE SEVEN FACTORS
OF THE HIGH SCHOOL CHARACTERISTICS INDEX (N = 1102)

Factor	Mean	S.D.
1. Intellectual Climate	35.20	10.13
2. Expressiveness	28.61	7.63
3. Group Life	25.31	7.50
4. Personal Dignity	31.61	9.30
5. Achievement Standards	36.35	8.30
6. Orderliness	16.17	4.01
7. Practicalness	23.49	4.51

APPENDIX 14

MEANS AND STANDARD DEVIATIONS OF THE SCHOOL MEANS FOR
THE SEVEN FACTORS OF THE HIGH SCHOOL CHARACTERISTICS
INDEX (N = 24)

APPENDIX 14

MEANS AND STANDARD DEVIATIONS OF THE SCHOOL MEANS FOR
THE SEVEN FACTORS OF THE HIGH SCHOOL CHARACTERISTICS
INDEX (N = 24)

Factor	Mean	S.D.
1. Intellectual Climate	35.18	4.09
2. Expressiveness	28.56	3.68
3. Group Life	25.24	3.69
4. Personal Dignity	31.55	3.26
5. Achievement Standards	36.31	2.84
6. Orderliness	16.16	1.26
7. Practicalness	23.46	1.04

APPENDIX 15

PROCEDURES FOR SCORING THE HIGH SCHOOL CHARACTERISTICS
INDEX

APPENDIX 15

PROCEDURES FOR SCORING THE HIGH SCHOOL CHARACTERISTICS
INDEX

The HSCI was scored according to the procedures outlined by Stern.¹ Each of the 300 items was assigned a value of one for the true responses and a value of zero for the false responses with the exception of items 1, 4, 5, 11, 16, 18, 19, 32, 35, 41, 46, 56, 57, 61, 65, 73, 75, 77, 80, 84, 86, 87, 89, 90, 92, 94, 96, 101, 104, 105, 106, 107, 108, 111, 115, 116, 117, 119, 122, 129, 131, 132, 133, 135, 137, 145, 149, 150, 151, 154, 156, 158, 159, 160, 162, 165, 166, 167, 169, 171, 172, 179, 180, 188, 189, 192, 198, 201, 206, 212, 216, 222, 223, 231, 233, 237, 242, 246, 247, 252, 254, 255, 256, 263, 267, 269, 275, 279, 281, 282, 286, 287, and 291 which were scored in reverse.

Each of the thirty scales² consists of ten items. The first item of each scale corresponds to the scale number and is located within the first thirty items of the HSCI. The remaining nine items for each scale are located at increments of thirty throughout the scale. The scale scores were obtained by summing the ten items which corresponded to the scale.

The seven factor scores were obtained by combining scale scores. The score for Intellectual Climate was obtained by summing the scores for scales 11, 15, 17, 20, 25, 26, 27, and 30. The score for Expressiveness was obtained by summing the scores for scales 6, 12, 13, 27, 29, and 30. The score for Group Life was obtained by summing the scores for 4, 12, 14, 20, and 23. The score for Personal Dignity was obtained by calculating the difference between 40 and the sum of the scores for scales 1, 3, 5, and 10 and adding the result to the sum of the scores for scales 21 and 29. The score for Achievement Standards was obtained by summing the scores for scales 2, 7, 8, 13, 19, 22, and 30. The score for Orderliness was obtained by calculating the

1 George G. Stern, People in Context: Measuring Person-Environment Congruence in Education and Industry, New York, John Wiley, 1970, xxvi-402 p.

2 See Appendix 4.

differences between 10 and the score for scale 18 and adding the result to the sum of the scores for scales 9, 16 and 20. The score for Practicalness was obtained by summing the scores for scales 10, 24, 26, and 28.

APPENDIX 16

ABSTRACT OF

The Effect of Principal-Teacher Interaction on Secondary
School Environments: An Empirical Study

APPENDIX 16

ABSTRACT OF

The Effect of Principal-Teacher Interaction on Secondary School Environments: An Empirical Study¹

The study investigated the relationship between principal-teacher interaction and staff performance using the theoretical models developed by Fiedler and Stern. Leadership style and leader-member relations were the predictor variables and Stern's secondary school environmental factors were the criterion variables.

The hypotheses of the research were as follows:

1. Good group atmosphere staff groups led by low LPC principals will have higher Intellectual Climate, Expressiveness, Group Life, Personal Dignity, and Achievement Standards scores and lower Orderliness and Practicalness scores on the basis of student responses to the HSCI than good group atmosphere staff groups led by high LPC principals statistically controlling for the sex of respondents.
2. Good group atmosphere staff groups led by intermediate LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from good group atmosphere staff groups led by high LPC and low LPC principals statistically controlling for the sex of respondents.

¹ Parnell Garland, doctoral thesis presented to the School of Graduate Studies of the University of Ottawa, Ontario, 1973, xii-250 p.

3. Good group atmosphere staff groups led by high LPC, intermediate LPC, and low LPC principals will not have significantly different Intellectual Climate, Expressiveness, Group Life, Personal Dignity, Achievement Standards, Orderliness, and Practicalness scores on the basis of student responses to the HSCI from poor group atmosphere staff groups led by intermediate LPC principals statistically controlling for the sex of respondents.

The study was conducted in two phases: in the first phase, leadership style and leader-member relations data were obtained from 176 principals and, in the second phase, data relative to the school environmental factors were obtained from students in twenty-four schools.

The conclusions of the study were as follows:

1. Staff groups led by high LPC principals in good GA schools do not differ significantly in effectiveness from staff groups led by low LPC principals in good GA schools when the index of effectiveness is student perception of the school environment. However, staff groups led by high LPC principals tended to be more effective than their low LPC counterparts providing some support for the position that the secondary school provides a moderately favorable leadership situation for principals with more than two years of experience.
2. Good group atmosphere staff groups led by intermediate LPC principals do not differ in effectiveness from good group atmosphere staff groups led by high LPC or low LPC principals when the criterion of effectiveness is student perception of the school environment.
3. Staff groups led by high LPC, intermediate LPC, and low LPC principals in good GA schools are more effective than staff groups led by intermediate LPC principals in poor group atmosphere schools. Staff groups in the intermediate LPC/poor GA schools have significantly lower scores for Group Life and Personal Dignity and significantly higher scores for Orderliness.

In general, the results did not provide strong support for Fiedler's contingency model or his concept of organizational engineering. The results of the analysis indicated that Likert's conceptualization of organizational processes in terms of causal, intervening, and end-result variables was more appropriate for interpreting the evidence than Fiedler's contingency model.