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LA THÈSE A ÉTÉ
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THE RELATIONSHIP BETWEEN SCHOOL MANAGEMENT
PATTERNS AND ENVIRONMENTAL PRESS ON STUDENTS
IN GRADE SEVEN AND EIGHT-

by Bert J. Donnelly

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

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CURRICULUM STUDIORUM

Bert J. Donnelly was born October 6, 1938, in Beardmore, Ontario. He is a graduate of Hamilton Teachers' College (1958), Carleton University (B.A. in Economics and Geography, 1967) and the University of Ottawa (M.Ed. in Educational Administration, 1971). The title of his Interim Report was "An Examination of the Relationship Between Structure and the Environmental Press for the Satisfaction of Needs of Children of Exceptional Ability."

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INTRODUCTION

The organization and administration of a school is a perpetual concern to decision makers in education. Insights into the nature of effective management of schools would be of direct benefit to decision makers and of indirect benefit to students. More specifically, school principals charged with the responsibility of developing effective learning environments need to be guided by accurate conceptualizations of those administrative processes and patterns which contribute to effectiveness.

The present study attempts to relate a theory of school management patterns to a theory of effective environments through an examination of the perceptions of teachers and students.

The theoretical rationale is based on a synthesis of theories developed by Likert and Stern. Likert hypothesized that the qualitative output of an organization is dependent upon the nature of its interaction and influence. Leadership and other causal variables influence a set of intervening variables to produce end-result variables. Likert supported this hypothesis by examining successful and unsuccessful organizations. He found that organizations could be identified on a continuum from least effective (System 1) to most effective (System 4).

Stern developed a model of school environmental effectiveness which was built on the concept of perceived student need. The degree to which an environment satisfied or dissatisfied a need was described as "press". Stern suggested that this model provided a valid methodology for evaluating the effectiveness of a school.

In this investigation elementary teachers from the Ottawa and Carleton Boards of Education provided data on perceived school management patterns. In addition, press data were collected from grade seven and eight students in the most effective and least effective schools. The research centred around the question: "Is there a significant relationship between the perceptions of teachers and the perceptions of students of the school environment?"

The study seeks to establish an empirical link between the theories of Likert and Stern and provides an empirical test of Likert's theory. Secondly, other contributions lie in the explorations of perceptions at two levels of an organization and the resulting alternatives for school administrators as they engage in the decision-making process. Finally, significant implications for establishing goals in a school system are considered.

The research is reported in five chapters. Chapter I presents a review of theory and research related to the

aim of the study. Chapter II describes the research design while Chapter III provides an analysis of the data. Chapter IV considers the data analysis in light of previous research and theory. Chapter V presents the summary and conclusion of the study.

CHAPTER I

REVIEW OF THE LITERATURE

This review of the literature establishes a theoretical rationale linking the effect of school management patterns to school environments.

In the first section, the functions of schools are investigated in order to establish the position that schools should provide self-actualizing environments.

In the second section, a relationship will be established between the needs of students and the appropriate school organization necessary for the satisfaction of those student needs.

In the third section, a connection will be made between certain organizational process variables and their related organizational climates. This would include an analysis of research related to the dependent climate variable-pressure.

In the fourth section the conceptual background of the independent variable management pattern is examined.

In section five, the theory of management patterns as conceptualized by Rensis Likert is presented. This would include a critical analysis of research related to Likert's management patterns.

In section six the relationship between management patterns as conceptualized by Rensis Likert and environmental press as conceptualized by George Stern are examined.

In section seven a statement of the problem, the hypotheses, and the assumptions of the study conclude the review of the literature.

1. The Functions of Schools

Schools are purposeful organizations. Teachers and students engage in interactions to achieve the goals of education. These goals may change, or become unclear and frequently students question why and what they should study. Teachers and administrators, too, seek ends toward which they may direct their efforts. In fact, Bailey indicates that those entrusted with the education of the young "search for both practical and philosophical definitions and justifications of an educational public interest."¹ It is the intent of schooling that is implied in purposes, whereas the consequences are reflected in the end-results.

1 | Stephen K. Bailey, The Purposes of Education, Phi Delta Kappa, Educational Foundation, Bloomington, Indiana, 1976, p.1.

REVIEW OF THE LITERATURE

In the current literature, sociologists use the term "function" to refer to the social consequences of schools.²

In this way, they focus on what is actually happening to students in a school rather than what is intended to happen.

The functions of schools may be examined from various perspectives. Katz and Kahn identify schools as maintenance organizations whose primary function is to "socialize people by teaching them appropriate values and behavioral norms that are necessary to maintain social order."³ Blau and Scott⁴ classify schools as service organizations in which children are the prime beneficiaries. Thus, the basic function of schools is defined as the serving of "clients". (This helping function may stem from an original goal that becomes displaced over time. For example, Hoy and Miskel⁵ indicate that discipline may become a goal in itself rather than a means to an end. In this way a function changes.) Friedenberg⁶ suggests that schools perform two essential

2 Richard L. Derr, A Taxonomy of Social Purposes of Public Schools, New York, David McKay Co., 1973, p.5.

3 Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations, New York, John Wiley, 1966, p.110-148.

4 Wayne K. Hoy and Cecil G. Miskel, Educational Administration: Theory, Research and Practice, New York, Random House, 1978, p.31.

5 Ibid., p.32-33.

6 Edgar Z. Friedenberg, The Dignity of Youth and Other Atavisms, Boston Beacon Press, 1965, p.254.

functions: the development of learning, and the reinforcement of the dominant values of the local community. He suggests that the development function reflects the tendency to sustain or augment the social position one has on entry into a school. The reinforcement function controls and enforces established norms. In this way, schools reflect the dominant values of the community. These two functions of the school are noted also by Derr: "these objectives are clearly oriented toward the development of the individual and his preparation for adult membership in the society."⁷ Parsons⁸ identifies socialization as a primary function and the school as an agency of socialization. As such an agency, the school has the effect of preparing young people for future adult roles by bringing about the internalization of those commitments and capacities needed for such roles. Derr⁹ notes that Parsons treats functions as consequences or effects. Parsons does not claim that schools intend the

7 Richard L. Derr, A Taxonomy of Social Purposes New York, David McKay Co., 1973, p.5.

8 Talcot Parsons, "The School as a Social System: Some of its Functions in American Society" in A.H. Halsey, Jean Floud and C. Arnold Anderson (eds.), Education, Economy and Society, New York, The Free Press, 1961, p.434-455.

9 Richard L. Derr, Op.Cit., p.10.

effects of socialization but only that these effects are consequences. McAndless and Evans¹⁰ identify two prime functions of schools. Skills training and cultural transmission are combined into one function. The actualization of students is the second prime function. Desjarlais et al note:

The adolescent turns to the school for help in fulfilling certain fundamental needs in life. ...it (school) should stimulate a desire to continue learning, essential to the attainment of full self-actualization. The particular expression of such needs and emphasis may change from generation to generation and when they do the school must be prepared to change also.¹¹

In summary, although these aforementioned authors differ in several ways, they appear to agree that the two basic functions of schools are the development of the individual to his fullest potential and cultural transmission through the maintenance of normative behavior. There is evidence however, that society needs to re-examine the consequences or functions, that result from the purposes of schools. Bailey¹² questions:

10 B.R. McAndless, and Ellis D. Evans, Children and Youth: Psycho-Social Development, Hinsdale, Ill., The Dryden Press, 1973.

11 Lionel Desjarlais et al., Needs and Characteristics of Students in the Intermediate Years, Ages 12-16, Ministry of Education, Toronto, 1975, p.321.

12 Stephen K. Bailey, Op.Cit., p.5.

REVIEW OF THE LITERATURE

6

...What if the diverse institutions and instruments that constitute our educational system should consciously address...with the following basic purposes in mind:

- to help persons anticipate and increase their capacity for creative engagements with, major predictable changes, physical and psychological - in their stages of development.
- to help persons in their concentric communities to cope, to work, and to use their free time in ways that minimize neurotic anxieties and boredom and to maximize inner fulfillment and joyful reciprocities.
- to help persons to learn the arts of affecting the enveloping polity in order to promote justice and to secure the blessings of liberty for others as well as for themselves.¹³

In addition to implying that a school's function should be to change society, Bailey suggests that schools should emphasize the satisfaction of higher order needs which are geared to self-actualization. In this sense self-actualization is developmental in nature.¹⁴

In this section the functions of schools were considered with a view toward providing a self-actualizing environment for students. In the next section, a relationship between the functions of schools and the needs of adolescents will be established. These needs are reflected in the goals which adolescents set for themselves.

13 Ibid., p.5.

14 George G. Stern, Self-Actualizing Environments for Students, School Review, November, 1971, p.1-25.

REVIEW OF THE LITERATURE

2. Needs of Adolescents

Educators consider the needs of students in the setting of educational goals. This assumption implies that needs are known. Desjarlais enumerates nine goals of adolescents:

1. Achievement of independence, especially emotional from home;
2. Establishment of identity, as a person;
3. Development of self-motivation;
4. Establishment of a set of values and enough self-control to adhere to the values selected;
5. Development of an interest in and sympathy for other people as individuals;
6. Acceptance of sexual role and adequate heterosexual interests;
7. Development of added intellectual powers;
8. Acquisition of skills that will lead to self-support;
9. Development of satisfactory relations with his age mates.¹⁵

These goals are reflected in the concerns adolescents place on "self". Gibb¹⁶ identified four basic

¹⁵ Lionel Desjarlais, Op.Cit., p.14-15.

¹⁶ Leland P. Bradford, Jack R. Gibb and Kenneth D. Benne, T - Group Theory and Laboratory Method, New York, John Wiley, 1964, p.280-282.

concerns that arise from all social interactions: acceptance concern, (related to the concept of adequacy) data concern, (a deep sense of depersonalization and isolation) goal concern, (a loss of identity) and control concern, (a feeling of powerlessness).

Weinstein and Fantini suggest the development of 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."¹⁷ They analysed a number of statements of children and found three main concerns: concern about self-image, concern about disconnectedness, and concern about control over one's life.¹⁸ These concerns become the foci of what each student perceives. Murphy writes:

(...) through his coping experiences the child discovers and measures himself, and develops his own perception of who and what he is and in time may become. We can say that the child creates his identity through his efforts in coming to terms with his environment in his own personal way.¹⁹

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

18 Ibid., p.39.

19 L. Murphy et al., The Widening World of Childhood, New York, Basic Books, 1962, p.366.

These concerns reflect adolescent needs and provide direction for those providing formal learning situations.

Combs suggests:

(...) schools (...) must become more relevant to the needs and experiences of students and must find more effective ways to induce students to take a major responsibility for their own learning.²⁰

This examination of needs reflects the importance of the self-actualization function of schools. The review has suggested that learner needs should be the preferential basis of the self-actualization function.

Self-actualization occurs within an organizational context. There is evidence to suggest that other conditions, such as a helping relationship, encourage significant learning.

In the field of psychotherapy, Rogers notes:

...the initiation of such learning rests not upon the teaching skill of the leader, not upon his scholarly knowledge of the field, not upon his curricular planning, not upon his use of audio visual aids, not upon the programmed learning he uses... No, the facilitation of significant

²⁰ Arthur W. Combs, "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.

learning rests upon certain attitudinal qualities which exist in the personal relationship between the facilitator and the learner.²¹

Krathwohl et al., assume a different stance: "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."²² This demonstrates that other environmental variables contribute to the meeting of student needs.

According to Bloom:

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.²³

21 Carl Rogers, "The Interpersonal Relationship in the Facilitation of Learning", in R.R. Leeper Humanizing Education: The Person in the Process, Washington D.C. Association for Supervision and Curriculum Development 1967, p.1-18.

22 David R. Krathwohl, Benjamin Bloom, and Bertram B. Masia, Taxonomy of Educational Goals, Handbook II: Affective Domain, New York, David MacKay, 1964, p.78.

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

This implies that the impact of the total environment needs to be considered when examining the functions of schools.

In the previous two sections, general theoretical parameters linking the influence of management pattern variables to the satisfaction of student needs were established. In particular, it was demonstrated that the functions of schools should be considered in terms of the needs of students. The review also drew attention to the organizational context of the formal educational experience. The analysis indicated further that the curriculum of a school includes a hidden, or latent, curriculum which may not be reflected in the purposes of schools but, rather, manifested in the functions of schools. This wider context of student experiences must be recognized in any study aiming at determining management patterns that provide for student self-actualization.

The operationalizing of school effectiveness will be examined in section three which will analyze organizational theory and related psychological theory to identify those conditions which provide for the self-actualization of students. This should substantiate the direction taken in this study and help to explain the functions of schools. The previous section suggested the operationalizing of school effectiveness in terms of the phenomenological environment of

the student. This direction has been taken as a result of the failure of "Scientific Management" and "Human Relations" schools to explain conclusively differences in effectiveness.

Briefly, the school of scientific management proposed that an individual would derive greatest satisfaction in an organization that was most efficient and economically rewarding. The human relations school proposed that the most efficient organization would result when organizational structure was related to the social needs of its members. Although both of these schools of thought recognized the need for balance between the formal organization and the needs of the organizational members, the scientific management school focussed primarily upon formal structure as the means for achieving compatibility, by assuming that man was concerned primarily with economic benefits. The human relations school focussed on the informal organization contending that satisfying interpersonal relationships would effect the desired balance. The concept of organizational climate established a link between these schools.

3. Organizational Climate

In this section, school effectiveness is operationalized in terms of the phenomenological environment of the school. The term climate has been used extensively as a way of describing environment.

Argyris²⁴ conceptualized that the adjustment which an individual makes within an organization is that individual's perception of "organizational climate". Argyris described climate as, "a confusion of simultaneously existing, multi-level, mutually interacting variables."²⁵ He attempted to arrange these variables in three groups; formal organizational structures, personality factors of the individual concerned, and the informal variables related to the participant's attempts to adapt to the formal organization. This conceptualization is similar to that of Lonsdale who defined organizational climate as:

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.²⁶

The influence of several disciplines is evident in the literature: besides industrial management and sociology,

24 Chris Argyris, "Some Problems in Conceptualizing Organizational Climate: A Case Study of a Bank" in Administrative Science Quarterly, Vol. 2 #1, March, 1958, p.501-520.

25 Ibid., p.501.

26 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.746.

climate is often viewed as a psychological concept. Halpin²⁷ equated climate to an organization, as he saw personality related to the individual.

Other definitions of organizational climate exist in the literature: Null²⁸ noted that organizational climate is referred to when the results from the interaction of role participants at the various hierarchical levels of the organization housed in a particular building, are being considered.

Forehand and Gilmer chose to define organizational climate as:

the set of characteristics that describe the organization and that (a) distinguish the organization from other organizations, (b) are relatively enduring over time, and (c) influence the behavior of people in the organization.²⁹

In using this definition, they attempted to focus on features of organizational variation that are amenable to specification and measurement.

One conceptualization that helps explain the idea of climate is Lewin's concept of a "field". Based on the

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

28 Eldon J. Null, Organizational Climate of Elementary Schools, Dannville, Illinois, the Interstate Printers and Publishers, Inc., 1967.

29 Garlie A. Forehand and B. Von Haller Gilmer, "Environmental Variation in Studies of Organizational Behavior", in Psychological Bulletin, Vol. LXII #6, December, 1964, p.362.

assumption that both external and internal factors are responsible for motivating behavior,³⁰ Lewin argues that the person and environment are interdependent. Individual behaviors reflect the sum-total of all forces rather than any one direct force at a given time.³¹ Travers helps to account for those differences which an individual brings to given situations: "Individuals differ in the situations that arouse them, that is, they differ in their need structure."³²

Murray provides another model which portrays individuals in interaction with environments. Murray believed that to understand a person required the collection of several objective facts such as perceptions, feelings and emotions. He closely linked this data with need, suggesting that needs are generated or activated by internal and external forces. The external forces were identified as press. He defined need as "a hypothetical process, the occurrence of which is imagined in order to account for certain objective and subjective facts."³³ He further described need as "manifesting

30 Robert M.W. Travers, Essentials of Learning, New York, MacMillan, 1967, p.171.

31 J.W. Atkinson, An Introduction to Motivation, D. Van Nostrand, New Jersey, 1964, p.78.

32 Travers, Op.Cit., p.177.

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

itself by leading the organism to search for or to avoid encountering, or, when encountered, to attend and respond to certain kinds of press."³⁴ Thus, needs are identified with the purpose that an interaction serves for the person as reflected by his behavior. Murray described the individual and the environment in congruent terms.

Both Murray and Lewin assumed that needs are generated both internally and externally. Murray used the concept "press" to indicate the influence tendency of the external situation. This was closely linked to the perceptual processes of the individual. Murray noted: "The process in the subject which recognizes what is being done to him at the moment may be conveniently termed pressive perception."³⁵

Murray's systematic classification of the components of Lewin's definition of behavior³⁶ in common terms represented a way to operationalize the concept climate.

Likewise Bloom noted:

(...) until individual and environment are described in the same or at least in congruent

34 Ibid., p.124.

35 Ibid., p.119.

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

terms, the task of determining consequences and effects cannot proceed with much power or precision. The Murray (1938) concepts of needs and press represent a step in this direction.³⁷

One can conclude, therefore, that Lewin and Murray provide a comprehensive model for studying environments in relation to psychogenic needs. Behavior in the environment is viewed as a function of the congruence between need and press.

Stern³⁸ extended Murray's need-press taxonomy to produce a theory of effective environments. The theory is based on the perception of press. This term refers to those unique, private perceptions which an individual has of the events in which he participates.³⁹ Perceptions of press are based on needs. Stern notes:

the relationship between any given psychological need and the relevant environmental press, affiliation for example, ... The need for affiliation involves the maximization of opportunities to establish close, friendly, reciprocal associations with others; an affiliative press is one in which such opportunities are optimized.⁴⁰

37 Benjamin S. Bloom, Stability and Change in Human Characteristics, New York, John Wiley, 1964, p.187.

38 George G. Stern, People in Context, John Wiley, Toronto, 1970, XXVI-402 p.

39 Ibid., p.7.

40 Ibid., p.8.

Stern defined needs as: "organizational tendencies which appear to give unity and direction to a person's behavior."⁴¹

Accordingly,

(...) on the one hand needs are functional in character, being identified with the goals or purposes that an interaction serves for the individual. In this sense, a listing of needs is essentially a taxonomy of objectives that the individuals characteristically strive to achieve for themselves ... revealed in the modes of behavior employed by the individual ... a taxonomy of the interaction processes.⁴²

The determination of these needs can be made from an examination of the interactions in which an individual engages. Stern concludes that needs may be identified as "a taxonomic classification of the characteristic spontaneous behavior manifested by individuals in their life transactions."⁴³

A close relationship exists between need and press. Press, reflects the external situational counterparts to internalized personality needs of both a quantitative or intensity and a qualitative or higher order need, such as need for understanding, or contemplation versus lower order need, such as physiological needs. Stern extends the press

41 Ibid., p.6.

42 Ibid., p.6.

43 Ibid., p.6.

concept to collective groups of people expanding the definition of press to be "a taxonomic classification of characteristic behavior manifested by aggregates of individuals in their mutual interpersonal transactions."⁴⁴ In other words, both needs and press link those inner tendencies that are sometimes called motives to the perceived degree that the environment supports to satisfy or dissatisfy. To measure the various types of institutional press, Stern developed five instruments: the College Characteristics Index, the Evening College Characteristics Index, the High School Characteristic Index, and the Classroom Environment Index (Stern and Walker, 1973)⁴⁵ and the more generalized Organizational Climate Index. Responses to statements of these questionnaires are assigned to one of the scales and organized by factor analysis into first and second order factors. The factors reduced to two underlying dimensions of developmental press and control press. Developmental press promoted growth and self-actualization of individuals. Control press promoted the maintenance of institutional structure. Satisfaction of a person's needs, through the

44 Ibid., p.8.

45 George G. Stern and William J. Walker, The Measurement of Classroom Environmental Press, paper delivered to The American Educational Research Association, Annual Meeting, 1973, 1-28 p.

environment, provided an indication of the extent to which various environments reflected a climate perceived to be effective. That is, the press of the environment, as perceived by a person, will reflect to a degree, his needs. This means that the origin of a given need is to be found in the immediate past, supporting the belief in the transactional nature of needs. Stern suggested that the environment may be effective in arousing a need and that the anticipated satisfaction or dissatisfaction is determined largely by the environment. Press affects the individual by generating an arousal of need and therefore governs behavior.

Press is complementary to a corresponding need.⁴⁶ Stern noted that press referred to the "phenomenological world of the individual, the unique and inevitably private view each person has of the events in which he takes part."⁴⁷ This private beta press differs from consensual beta press which is based on the merger of private perceptions. Stern defined consensual beta press as:

the merger of individual private perceptions into mutually shared inferences about the events in which others participate.

46 George G. Stern, Op.Cit., 1970, p.8.

47 Ibid., p.7. (See also appendix 1)

This definition was expanded to include:

- A taxonomic classification of characteristic behaviors manifested by aggregates of individuals in their mutual interpersonal transactions.⁴⁸

People who have a common ideology -- "whether theoretical, political, or professional -- also tend to share common interpretations of the events in which they participate."⁴⁹

Thus the functions of schools are reflected in the consensual beta press that is present. Stern was thus able to relate consensual beta press to climate which he defined as "conditions that represent impediments to a need as well as those that are likely to facilitate its expression."⁵⁰

Theoretically, the effective organization is characterized by high scores on developmental press and low scores on control press.⁵¹ The effective organization is perceived to be one in which the needs of people, are being met. That is, self-actualizing environments or high developmental press are present. According to Stern, these are stimulating intellectual experience, maximized personal responsibility,

48 Ibid., p.8.

49 Ibid., p.7.

50 Ibid., p.7.

51 Ibid., p.288-292

high personal achievement standards, friendly and cooperative group life, and high levels of personal dignity.

With reference to the common parameters of the CCI, OCI and HSCI, he explains:

The four preceding factors all appear to fulfill the conditions of anabolic press, adjuncts for supporting a process of self-actualization among its participants. This seems to reflect an environmental context in which competence can be developed without fear or coercion. Hence the generic title Developmental Press. The three that follow carry a different implication. Two of them clearly involve varieties of externally imposed control over the activities of the group participants. Both are reflections of a consciously imposed authoritarian structure. The third is less clear in this regard, involving societal rather than institutional conformity.⁵²

Stern and Walker (1971)⁵³ developed the Classroom Environment Index (CEI) which measures the impact of school on the elementary or secondary student. Items were selected with reference to measuring aspects of the school environment. For example, items probe faculty characteristics, program content, classroom activities, teaching, examinations, outside preparation, extra-curricular academic aspects, chapel, special programs, organizational structures, rules

52 Ibid., p.289.

53 George G. Stern and William J. Walker, Op.Cit., 1973.

and regulations, physical plant and facilities, student characteristics, community life, extra curricular activities and study patterns. As with other Stern indexes, the CEI attempts to differentiate the effect of school settings on students.

One variable that appeared to have some effect on press was student sex. Herr⁵⁴ 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 aggression than boys. Stern⁵⁵ found that culture scores for the Activities Index and the College Characteristics Index were influenced by the sex of the respondent.

There is evidence in the literature which suggests that there is a relationship between student perception of press and grade level.

Stern explored differences in perceptions between incoming freshmen and senior college students. He found that "the incoming freshmen expected something rather different from what his upper division colleagues actually

54 Edwin L. Herr, Differential Perception of "Environmental Press by High School Students", in Personnel and Guidance Journal, Vol. 43 #7, March, 1965, p.684.

55 George G. Stern, Op.Cit., 1970, p.75-76.

experienced."⁵⁶ This can be linked to the differences between grade seven and eight students in that it is logical that perceptions of early adolescent students of grade seven would be different from those of grade eight students who are looking forward to high school.

Walsh⁵⁷ attempted to determine differences in the self-concept of Michigan students in grade six, seven and eight in high and low level implementation middle schools. She found that there were noteworthy differences by both grade level and sex. It is necessary therefore to control for both grade level and sex in the present study.

Winfrey⁵⁸ examined school environments to determine if the psychological environment of a particular school affected different groups differently. The sample consisted of 1212 twelfth grade students selected from six urban and

56 Ibid., p.92.

57 Andrea Joy K. Walsh, A Descriptive Analysis of Self-Concept of Middle High School Students in Michigan Based Upon High and Low Implementation of the Eighteen Basic Characteristics of Middle School Concept, unpublished doctoral dissertation, Michigan State University, 1977, 164 p.

58 James K. Winfrey, The Appraisal of Institutional Press As Perceived by Selected Groups of Minneapolis Area High School Students, unpublished doctoral dissertation, University of Minnesota, Minneapolis, Minnesota, 1963.

suburban high schools. The HSCI was administered to all subjects, factor analysed and resulted in six press clusters. His findings showed significant differences between each school on all of the six press clusters as well as between urban and suburban schools. Consequently, between school differences become a variable to consider in examining perceptions of press.

In summary, there is some evidence in the literature which suggests that there is a relationship between student perception of the environment and other variables. Thus, this examination of the literature was in order to determine whether these variables should be controlled in the study. The three variables sex, school differences and grade level appear to have an influence on student perception and result in four sub-hypotheses found at the end of the chapter.

It has been shown that there are environment conditions which provide for the self-actualization of subordinates in a variety of settings. The review demonstrates that Stern has provided an operational model of self-actualizing environments from the psychological-perceptual perspective. The review has shown that Stern tends to follow the Murray-Lewin construct as a basis for his work. Thereby, he presents a comprehensive conceptu-

alization of the environment. In taking the perception of the student as the most meaningful measure of student need, Stern has operationalized a model measuring the total curriculum that the student faces in a school rather than particular aspects. In this sense, a valid index has been provided to measure school effectiveness.

The literature related to the criterion variable of the study (classroom environment of schools) has been examined. It has been shown that student sex and grade level and between school differences also effect these perceptions. Stern's environmental constructs are based on the transposition of higher order needs to environmental counterparts and include organizational variables. These organizational or management variables will be examined next.

4. Management Patterns

The literature examined in this section reviews those management variables which appear to have an effect on school climate. In addition a link is made between the variables school climate and classroom climate.

A survey of the literature reveals that various scientific management patterns have failed to predict conclusively why some organizations are more effective than others.

Recently there has been a trend to emphasize the human dimensions of management.

Halpin and Croft⁵⁹ observed that schools differed markedly in their "feel" and consequently began to identify important aspects of teacher-teacher and teacher-principal interactions. This resulted in the development of the Organizational Climate Description Questionnaire (OCDQ).

The authors also identified six basic clusters of interactions in the profiles that resulted from the OCDQ. These were arrayed along a continuum from open to closed. Dimensions that were identified as promising characteristics to be examined were: Hindrance, Intimacy, Disengagement, Esprit, Production Emphasis, Aloofness, Consideration and Thrust. The first four reflected characteristics of faculty behavior; the last four reflected characteristics of principal behavior. This direction represented an attempt to identify differences in schools which reflected the impact of people on organizations.

Dominant control patterns represented another variable which has been related to climate. The Pupil Control

59 Andrew Halpin and Don Croft, The Organizational Climate of Schools, Chicago, Midwest Administration Centre, The University of Chicago, 1963.

Ideology (PCI)⁶⁰ form operationalized the measurement of pupil control along a continuum from custodial to humanistic. The custodial orientation reflected rigid, highly controlled settings which were concerned primarily with the maintenance of order. Teachers holding custodial values conceptualized the school as an autocratic organization. The humanistic orientation reflected learning in a democratic, open, communicative environment with high levels of self-determination and self-discipline set as prime goals. Appleberry and Hoy⁶¹ found a significant relationship between a humanistic pupil control pattern and perceived openness in the organizational climate.

Likert and colleagues⁶² have investigated effectiveness in different types of organizations. Their formulations suggest that the effectiveness of any working group is linked qualitatively to decision-making among members. Likert's research has demonstrated that the social system, that is, those relationships among teachers as well as their

60 Donald J. Willower, Terry I. Eidell, and Wayne K. Hoy, The School and Pupil Control Ideology, Penn. State Studies, #24, Pennsylvania State University Press, 1967.

61 James B. Appleberry and Wayne K. Hoy, "The Pupil Control Ideology of Professional Personnel in "Open" and "Closed" Elementary Schools", in Educational Administration Quarterly, Vol. 5, 1969, p.74-85.

62 Rensis Likert, New Patterns of Management, Toronto, McGraw Hill, 1961, Table 14-1, p.223-233.

disposition toward the work situation, improves in direct proportion to the amount of interaction and to the degree of influence perceived by subordinates.

In summation those management variables which have a positive effect on school climate have been identified. Furthermore, a link between school climate and classroom climate has been established.

5. Likert's Management Patterns .

In this section, the conceptualizations of Likert will be examined to identify those management variables which are related significantly to effective end-results in organizations. A review of the literature will establish that certain teacher perceptions of school management patterns are related to student perceptions of effective environments. This will provide a rationale for the present study.

The interaction-influence theory of Likert suggests that the effectiveness of any working group is proportional to the combined ability of its members to make and implement quality decisions. He identified causal, intervening and end-result variables as influencing the decision-making process. (Figure 1).⁶³

63. Wm. S. MacKillican and I.I. Dow, Measuring School Leadership: A Factor Analysis of Likert's Profile of a School, Paper presented at the Annual Conference of the Canadian Association For the Study of Educational Administration, Quebec City, June 1976.

Causal variables were those which could be changed by the organization and its management. They included: structure, policies, decisions, business and leadership strategies, skills and behavior. Intervening variables were those controlled by the work group. They included: loyalty, attitudes, motivations, performance goals, member perceptions of their collective capacity for effective interaction, communication and decision-making. End-result variables were those various performance and financial variables such as level of productivity and profit that were a concern of the business organization.

These variables deal with an interaction-influence system that permeates all levels of a management system.

Given that the leadership is strong, the structure and technology appropriate then the management pattern improves in direct proportion to the amount of interaction and to the degree of influence perceived to be present by members of the organization. The management pattern thus affects end-results. The arrows of Figure 1 indicate the sequential relationship among the set of variables.

Causal variables, such as organizational structure and behavior of managers, affect members of the organization. Individual perceptions are formed by a host of factors including interactions with others, the individual's past experience, his personal expectations, and the existing values of

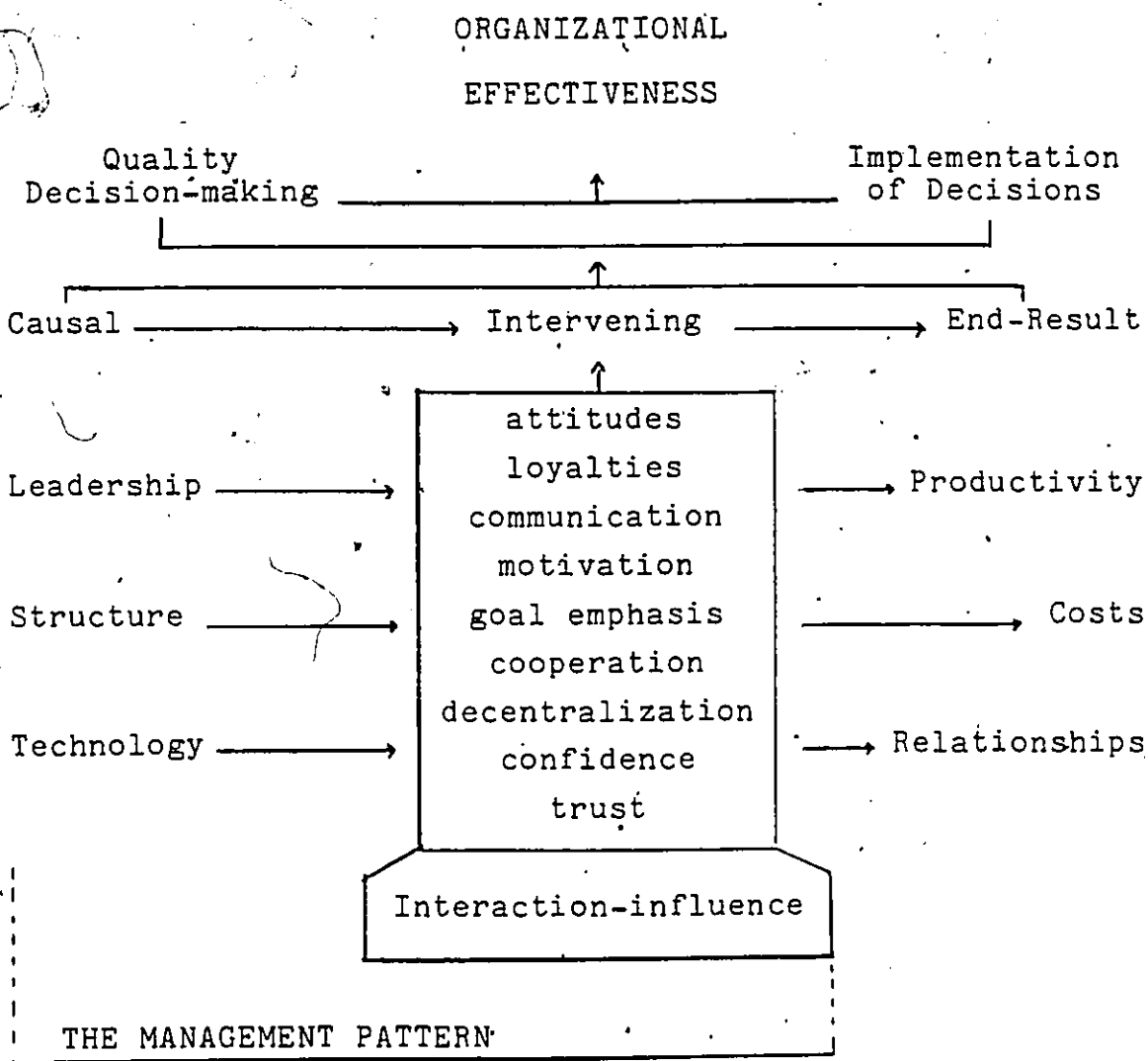


Figure-1 - Relationship of Causal, Intervening and End-Result Variables of Likert's Management Patterns

the work group. These individual perceptions lead logically to a system of cognitive orientations about the job and about the organization and its objective.

Likert utilized the concept of an interaction-influence process to explain how motivational forces work to reinforce one another, either positively or negatively to affect end-results. He demonstrated that⁶⁴ behavior resulted from a combination of cognitive orientations and motivational forces. He claimed that perception both influenced and was influenced by other variables. His research findings showed that gains in the intervening variables such as upward communication or motivation were not achieved directly. To achieve lasting improvement required executive action focussed on the causal variables to move the organization toward more effective, collaborative performance.

64 Rensis Likert, Op.Cit., 1961, p.196-200.

Likert's propositions represent a theoretical inference about a management system. He relates several inputs as causal variables to end-result variables through a system of intervening variables. Since management systems are human systems, the perceptions of members are a crucial component in the way they can affect outcomes. The person's personality, beliefs and background influence perception which lead to expectations and attitudes and generates degrees of motivation which lead to behaviors which affect end-result variables, such as production and earnings.

The interaction-influence system is built conceptually throughout the entire set of causal, intervening and end-result variables. It is most obvious, however, in the set of intervening variables. Time delays and frequent changes make it difficult often to determine which change in the end-result variables stems from which change in the causal variables.⁶⁵ The concept of time is a key element in being able to predict changes. Long time delays between a change in one of the causal variables, such as leadership principles used, may occur before a resulting change occurs in the end-result variable. Likert suggests that shortened

65 Rensis Likert, Op.Cit., 1961, p.201.

feedback loops will increase effectiveness.⁶⁶ He notes:

These time delays, which may be of different length for different kinds of changes, the curvilinear relationships and the fact that often many different changes occur in an organization within a relatively short span of time, all make it virtually impossible to tell which changes in the end-result variables occur as a consequence of particular changes in the causal variables.⁶⁷

Likert's system is highly interrelated, existing at any one moment in a state of equilibrium and resulting in a new equilibrium as soon as a change occurs. It is therefore transactional in nature.

The importance of the time variable is also noted by Garland and O'Reilly. In a study which examined Fiedler's contingency model of leadership effectiveness, they concluded:

Those principals who, by one process or another, ended with a staff which enjoyed good leader-member relationships, ran good schools. The subjects of the study were principals who had worked with their staffs for a minimum of two years.⁶⁸

66 Ibid., p.202.

67 Ibid., p.202.

68 Parnel Garland and Robert R. O'Reilly, "The Effect of Leader Member Interaction on Organizational Effectiveness" in Educational Administration Quarterly, Vol. 12 #3, Fall 1976, p.29.

In addition to the causal-intervening-end-result model, Likert conceptualized a framework to account for the organizational and performance characteristics of different management systems of organizations. The use of the term "system" referred to a category or type of approach rather than to the overall structure of an organization. He identified four management systems and arranged them on a continuum from the most primitive, style one, to the most socially evolved, style four.⁶⁹

Each of these four systems reflect an increasing degree of the principle of supportive relationships which he defined:

The leadership and other processes of the organization must be such as to ensure a maximum probability that in all relationships within the organization each member, in the light of his background, values, desires, and expectations, will view the experience as supportive and one which builds and maintains his sense of personal worth and importance.⁷⁰

The principle consists of two basic assumptions about human nature. First, "all persons have a strong inherited desire to achieve and maintain a sense of personal

69 Rensis Likert, Op.Cit., 1961, p.14-24.

70 Ibid., p.103.

worth and importance."⁷¹ Likert claims that this principle is the motive source for a variety of human needs.⁷² Second, all individuals respond to an experience on the basis of its relation, as they perceive it, to their own values, goals, traditions, expectations and skills.⁷³ Leaders who lack confidence and trust in other persons and who believe that man is basically deceitful, lazy and unreliable, are compelled to use a more primitive system of interaction and influence. These persons reflect little of the principle of supportive relations.

Additionally, the four management systems reflect the degree to which group decision-making processes and group methods of supervision are applied, and the degree to which expected performance goals for the organization are attained.

The use of these four conceptualizations enabled Likert to explain the systems which appeared to characterize organizations.⁷⁴ System 1 describes the manager as having no confidence in subordinates. Decision-making, direction and surveillance rest in the hands of management.

⁷¹ Rensis Likert and Jane Gibson Likert, New Ways of Managing Conflict, Toronto, McGraw Hill, 1976, p.109.

⁷² Ibid., p.109.

⁷³ Ibid., p.109.

⁷⁴ Rensis Likert, The Human Organization, Toronto, McGraw-Hill, 1967; p.4-10.

Employees are viewed as a market commodity whose time and labour are purchased. Upward communication tends to be inaccurate, biased by what is perceived to be wanted by superiors. There is little superior-subordinate interaction that does not take place in an environment of fear and mistrust. While the control process is highly concentrated in top management, an informal organization generally develops which generates goals, frequently antagonistic to those of the formal organization. Control data is used primarily for policing. Likert labelled System 1 as exploitive-authoritarian.

System 2 management reflects similar assumptions about employee relations. Authority rests with supervisors, although motivation is geared to incentives making it less coercive than System 1. There is condescending confidence and trust, some upward communication, and some consultation. Decision-making is permitted within a prescribed framework at lower levels but is limited. Customarily, the rank and file feel little responsibility. The informal organization tends to be less in opposition to formal organizational goals. There is little interaction and usually some condescension by superiors. System 2 is labelled benevolent-authoritarian.

System 3 management holds different assumptions about man. Employees are no longer viewed as market commodities. Substantial surveillance is removed and minimum coercion exists. Employees are usually involved in the solving of job problems. Motivation emphasizes rewards, some punishment and some involvement. Valid two-way communication is maintained. There is a moderate amount of subordinate-superior interaction, demonstrating considerable confidence and trust in workers. Superiors know and understand the problems of subordinates. This approach encourages commitment to organizational purpose with the result that cost factors, performance levels, and employee satisfaction tend to reflect this commitment. System 3 is labelled consultative-participative.

System 4 management exhibits different decision-making assumptions of man. Employees are trusted and decision-making is widely dispersed throughout the organization. There is a highly developed interaction-influence system, including overlapping structures, multiple group membership, easy access to information, and a climate of willing participation in goal setting, developing economic rewards and improving methods. There is a highly refined feedback system. The formal and informal organizations are often the same. Social forces support efforts to achieve stated organizational goals. System 4 is labelled collaborative-participative.

In 1971, Likert applied this management theory to schools. He developed the instrument, Profile of a School, Form 3,⁷⁵. Variables were grouped into five factors, or groupings: climate, leadership, trust levels and other intervening variables and end-result variables, measuring a teacher's perception of his own relationship with students and the relationship he perceives to exist among students, and teacher perception of his own relationship or influence in the decision-making system of the school, the general working relationship among peers, and the goal emphasis of the school.

Schools obtaining a high score on the Profile of a School are deemed to be participative-collaborative or System 4. Schools obtaining a low score are deemed authoritarian-exploitive, or System 1.

Likert's management theory provides an appropriate rationale for this study for a number of reasons. It expands the concept of leadership to include influence and other variables to represent a management system. It represents a holistic perspective of reality. It presents a generalized model of the management process of a school, focussing on the group, not the individual. Finally, it establishes parameters on an exceedingly complex area of

75 See Appendix 2.

study.

Essential to an elaboration of this management system theory are the concepts of influence, overlapping group structures, measurement, time and causal, intervening and end-result variables.

Likert presents an ideal, closed system type. It is noteworthy, however, to consider Schoderbek's message:

... no model of itself asserts the organization is a closed system, rather the model builder considers the interaction between the organization and its environment as an irrelevant and unnecessary complication of the firm ... a system theory will however focus on the interface between the organization and the totality of its environment simply because neither the strictly internal nor strictly external aspects of the organization constitute its defining characteristics.⁷⁶

Similarly, Likert accounts for this interaction with the environment:

In every organization there are many basic facts of life which cannot be ignored, if the organization is to achieve its objectives. For example, there are often deadlines or minimum financial conditions as to earnings and reserves to be met. These hard, objective realities are the situational requirements which impose limitations on the decision-making processes.⁷⁷

76 Peter P. Schoderbek, Asterios G. Kefelas, and Charles G. Schoderbek, Management Systems: Conceptual Considerations, Business Publications, Dallas Texas, Irwin Dorsey, Georgetown, Ontario., 1975, p.126.

77 Rensis Likert, Op.Cit., 1961, p.112.

The previous discussion has presented the basic tenets of Likert's conceptualizations. The relationship to the work of other theorists will now be examined to indicate the contributions which other theorists and researchers have made. This review and analysis of the research is limited to educational research with the exception of the theoretical support for Likert's work which comes from industrial settings. Since the aim of the study is to link the theories of Likert and Stern, the review will concentrate on that task.

A commonality in most studies of management is the leadership function. Likert's approach to the problem of leadership is similar to that of McGregor.

McGregor⁷⁸ theorized that leaders operated from a set of assumptions about the nature of man. He labelled these two dichotomies, Theory X and Theory Y. Each set of beliefs inferred certain organizational climates consistent with those beliefs. Theory X assumptions claimed that, essentially, the average man is indolent, works as little as possible, lacks ambition, dislikes responsibility and prefers to be led. From this perspective, man is viewed as inherently self-centered, indifferent to organizational needs, resistant to change, and gullible. Management systems

78 Douglas McGregor, Op.Cit., 1960, X-246 p.

based on these assumptions tend to operate using the processes of fear and coercion. Organizations holding these assumptions employ management practices similar to those characterized by Likert's System 1. By contrast, Theory Y assumptions lead management to:

(...) a preoccupation with the creation of an environment which would encourage commitment to organizational objectives and which will provide opportunities for the maximum exercise of initiative, ingenuity and self-direction in achieving them.⁷⁹

This formulation is not dissimilar to that of Likert's System 4 which provides theoretical support for his position. Both theorists acknowledge the human variable. While McGregor focusses on the human dimension Likert focusses on the group and the organization within which the manager works.

MacKillican⁸⁰ explored the relationship between school management patterns and classroom openness. He described graphically the relationship between Likert's variables and as a result of his factor analysis, he reclassified Likert's groupings. These variables were

79 Ibid., p.232.

80 William S. MacKillican, An Empirical Study of the Relationship Between School Management Patterns and the Change Toward Classroom Openness, unpublished doctoral dissertation, University of Ottawa, 1975, XII-191 p.

designated principal leadership, teacher influence, teacher leadership, student influence and goal emphasis. These factors confirm the utility of the "Profile of a School" for measuring the aforementioned variables within the school. Teacher leadership and student influence operate at the classroom level whereas principal leadership and teacher influence operate at the school level. Leadership was designated as a causal variable. Subordinate influence was designated as an intervening variable. MacKillican supports Likert's contention that the intervening variables at one level in an organization act as the causal variables at the lower level in the hierarchy.

Pheysey, Payne and Pugh⁸¹ compared two organizations having different organizational structures in an attempt to establish a relationship between structure and climate. Subjects responded to interviews, questionnaires on group dimensions, and business organizational climate. In this way, the structural variables, concentration of authority, configuration, size of the organization and structuring of activities were measured. The results differed from what had been hypothesized from the literature on bureaucracy. The

81 D.C. Pheysey, R.L. Payne and D.S. Pugh, "Influence of Structure at Organizational and Group Levels" in Administrative Science Quarterly, 1971, Vol. 16, No.1, p.61-73.

researchers found that the more mechanistically structured organization was perceived to have a higher developmental press than the less mechanistically structured organization at the supervisory level. There was no indication, that data were collected from non-supervisory personnel. Had this been done, however, greater importance could have been attached to this study. Theory would suggest that climate at one level is causally related to climate at another level.⁸² The authors indicated that it may have been the smaller size of the more mechanistic organization (350 vs. 412) that helped alleviate the dysfunction of bureaucracy or that the relative youthfulness of the leadership of the more mechanistic organization may be associated with developmental press. The authors concluded:

developmental press may be quite independent of structure and more dependent on the motivations of individual executives (leadership variables) and that intervening managerial or cultural variables or small organizational size may be so strongly associated with developmental press that they negate the influence of structure.⁸³

Although this study was done in an industrial setting, the results do suggest the dominance of the interaction-influence system relative to the organizational

82 Ibid., p.66.

83 Ibid., p.66.

structure. Likert suggests that causal variables can effect end-results but given that they are adequate, the resulting variables become the determining factors in differences of effectiveness.

Pheysey hypothesized a link between climate at one level and climate at another level:

Many writers have argued that top executives are likely to have great influence on the climate of the organization, and once the top policy makers have made decisions, they exert pressure on subordinates to execute them.⁸⁴

MacKillican operationalized this concept by outlining the relationship between two levels within a school, thus demonstrating potential interaction and influence. (Figure 2). Subordinate influence implies communication operating between two levels. Principal leadership helps to create a management pattern that permits reciprocal influence by teachers. This in turn theoretically generates teacher leadership which creates a management pattern which engenders student influence. These patterns collectively affect end-results.

84 Ibid., p.62.

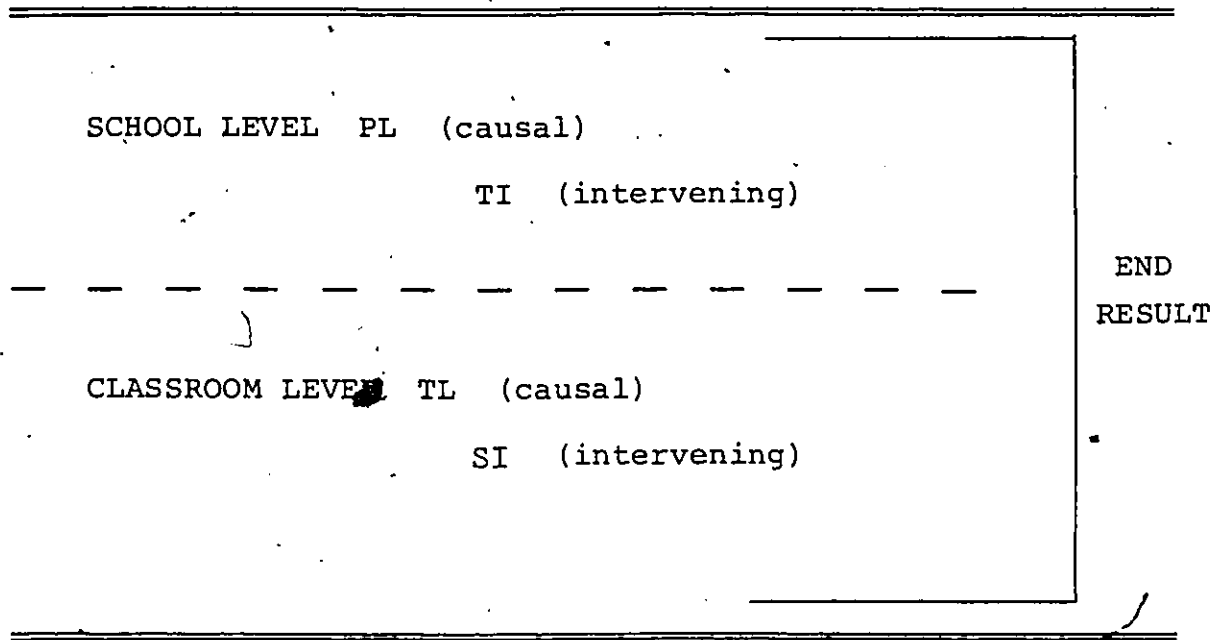


Figure 2 - MacKillican's Operationalization of the Theoretical Relationship Between the Two Levels of Leadership and Influence

This support of the related concepts strengthens the value of Likert's theory in explaining and predicting what end-results will be. The increase of the predictive power of such a theory potentially allows administrators to manipulate variables directly. Likert is proposing that organizations with System 4 characteristics will be more effective than those with more authoritarian patterns.

MacKay⁸⁵ examined the relationship between perceptions of elementary children and perceptions of teachers. Subtests of Halpin's Organizational Climate Description Questionnaire Form 4 were used to obtain teacher perceptions of the four principal variables; aloofness, production emphasis, thrust and consideration and the four teacher variables of disengagement, hindrance, esprit and intimacy. Collective perceptions of fifth and sixth grade students were obtained from Sinclair and Sadker's Elementary School Environment Survey Form 2 (ESES) for the educational environment variables, alienation, humanism, autonomy, morale, opportunism and resources. The sample included 4,105 students and 627 teachers in thirty-six schools. He found that the set of teacher variables were significantly related to

85 Alexander Bruce MacKay, Principals, Teachers, and Elementary Youth: Measurement of Selected Variables of Teacher-Principal Social Interaction and Educational Environment, unpublished doctoral dissertation, University of Massachusetts, 1971.

the ESES set of educational environment variables. The set of principal variables were significantly related to the set of teacher variables, and the set of principal variables were significantly related to the set of educational environment variables. The study showed also that the principal behaviors thrust, and consideration provided the major contribution to the relationship between principal and teacher variables. Disengagement and intimacy were the primary teacher variables that contributed to the relationship between teacher variables and educational environment. The relationship between principal variables and educational environment, reflected the dominance of the principal behaviors, thrust and production emphasis and the educational environment variable of alienation. Disengagement and hindrance were found to be highly related to alienation. Disengagement was found also to be highly related to morale as was the thrust of the principal. These findings showed that principal behaviors of thrust and consideration accounted for all but one of the seven significant relationships involving the principal, while significant correlations were obtained for all teacher variables except intimacy. It would be important therefore to determine if the same results would be true for grades seven and eight. This study provides a theoretical and a practical link between selected principal-teacher interactions and educational environments.

It provides direction theoretically for studies of a more experimental nature and it identifies certain variables to consider in developing positive educational environments. Hall's study⁸⁶ suggested a link between the OCDQ and the Profile of a School, and therefore, MacKay's results suggest that System 4 Schools would probably also score positively on the ESFS.

Franklin⁸⁷ developed a model (Figure 3) that was based on Likert's theory. The model attempted to establish causal relationships among four major social-psychological factors: organizational climate, managerial leadership, peer leadership and group process. He administered the Survey of Organizations⁸⁸ to 246 groups and 1770 individuals in 10 different organizations. Path analysis was used as the primary analytic strategy. Within and between level relationships were investigated using one and two waves of data. The model was used to evaluate common assumptions regarding

86 John W. Hall, "A Comparison of Halpin and Croft's Organizational Climates and Likert and Likert's Organizational Systems", in Administrative Science Quarterly, Vol. 17, December 1971, p.586-590.

87 Jerome Lee Franklin, A Path Analytic Approach to Describing Causal Relationships Among Social Psychological Variables in Multi-Level Organizations, Unpublished doctoral dissertation, University of Michigan, 1973, VII-145, p.

88 J.C. Taylor and D.G. Bowers, Survey of Organizations: A Machine Scored Standardized Questionnaire Instrument, Ann Arbor, Michigan, Institute for Social Research, 1972.

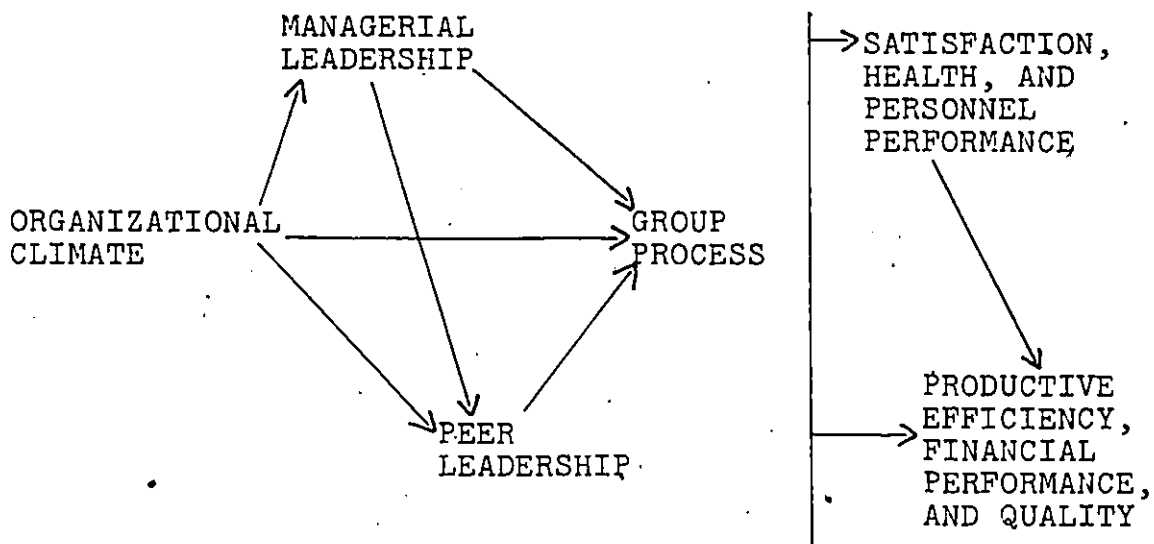


Figure 3 - Relationships Among Social-Psychological Factors and Outcomes

cross level influences and strategies used to improve organizational functioning. Franklin found that organizational climate consisting of the indices human resources primacy, decision-making practices, communication flow, and motivational conditions was a major factor in shaping supervisory leadership behavior, managerial leadership and in some cases, peer leadership behavior. Organizational climate emerged as a substantial predictor of group process behavior. The effects of managerial leadership behaviors upon group process were generally inconsequential. Peer leadership was a predictor of group process behaviors. The results suggested that the model holds substantial potential for increasing understanding of social-psychological process in organizations. The study also supports the cumulative evidence that has been generated using Likert's theory.

James and Jones attempted to answer the "plea to develop new models for organizational research which encompassed both individual and situational characteristics as antecedent causes of individual behavior and attitudes in organizational settings".⁸⁹ They developed a model which is similar to Likert's in three respects: both utilize the

⁸⁹ Lawrence R. James and Allan P. Jones, "Organizational Structure: A Review of Structural Dimensions and Their Conceptual Relationships with Individual Attitudes and Behavior", in Organizational Behavior and Human Performance, Vol 16, 1976, p.74.

integrative concept of causal, intervening and end result variables; both also include the identification of climate as a situational causal variable; and both note circularity among many of the variables (Likert's interaction and influence systems). The model differs in that linear causation is replaced by the concept that components within the model are related, either directly or indirectly, on a dynamic or homeostatic basis.⁹⁰ They noted that the weakness of the psychological emphasis on micro levels is the "present lack of knowledge regarding how characteristics of organizational levels above the immediate work group influence behavior and attitudes."⁹¹ This study highlights the need for multivariate paradigms that examine increasing numbers of variables at both the micro and macro level.

In the previous section the theoretical support of Likert's theory has been shown in the work of McGregor, MacKillican, Pheysey, Payne and Pugh, MacKay, Franklin, James and Jones. The support, though considerable, presents several problems: the nature of causality relationships; the circularity of the variables and also the degree to which the variables represent abstractions of reality. There is a need for further work and validation through empirical

90 Ibid., p.75.

91 Ibid., p.98.

testing of the models and theory. The path analysis procedure holds promise of being able to evaluate the relative degree of explanatory power each of predictor variables has upon dependent variables.

Empirical evidence has also been demonstrated to provide support for the Likert theory, although no studies have considered the perspective of the adolescent. The studies of Lieberman, Hall, Dugan and Waldman, are presented next to show the support and the problems that empirical testing has indicated. This illustrates the link between management systems and environment and affirms the development of the global concept management system.

Lieberman⁹² examined the relationship between student perceptions and teacher perceptions of the interaction-influence system in a school. She adapted Gordon's (1963) teacher leadership dimensions of task, authority and expressiveness to the leadership behavior of the principal to measure teacher-principal relations instead of teacher-pupil relations. She used an index of teacher morale, (Gross and Herriott) and developed an index of professionalism. To produce measures of teacher style pupils responded to

92 Ann Lieberman, The Effects of Principal Leadership on Teacher Morale, Professionalism and Style in the Classroom, Unpublished doctoral dissertation, Los Angeles, University of California, 1969, 183 p. (70-9932).

Gordon's Teacher Leadership instrument. She examined: the relationship between the task, authority and expressive dimensions of the principal; the relationship between dimensions of principal leadership, teacher morale, and professionalism; and last, the relationship between principal leadership and teacher leadership style in the classroom. Thirty-one principals and 704 teachers responded to the teacher-principal instrument and 4821 pupils responded to the Gordon Teacher Leadership instrument. These were analysed through the use of Guttman scaling procedures. She found that high morale and professionalism was related to high task, low authority, high expressive principals. Teachers as perceived by students presented a variety of styles unrelated to the style of the principal. High authority principals had the effect of duplicating their own style among teachers. In general principals with higher task orientation had schools with higher professionalism, and high expressive orientations were related to higher morale. The results suggest that there is strong peer influence on teacher style.

Hall⁹³ examined data from forty-three New York State elementary schools to analyze the relationship between Halpin and Croft's OCDQ and an early (1962) version of the

93 J.W. Hall, Op.Cit., 1971.

Profile of a School (Teacher's Form). Thirty-two items from this Teacher's Form, were used to measure the teacher's description of the principal's behavior, and reactions of teachers to this behavior. Grouping the schools into "open" and "closed" categories and into System 1 and 2 versus System 3 and 4 categories yielded a correlation coefficient of 0.59. No school fell in the System 1 range; nine schools were in the System 2 range; thirty-two had a System 3 administrative system; and two were designated System 4. A different distribution, however, was found when the schools were clustered by the teachers' description of their own behavior towards students. All of the schools were categorized in the System 3 and System 4 range. This difference suggests that superiors generally perceive their behavior to be more toward System 4 than do their subordinates. This error in perception by superiors is especially characteristic of those whose behavior lies in the System 1 and 2 range. This suggests that students see the school and their teachers' behavior appreciably more toward System 1 than the teachers reported.

Hall's survey of the literature on climate concluded:

(...) studies conducted to date indicate conflicting findings between the global concepts or organizational climate and achievement, personality, teacher behavior patterns and leadership. In some instances significant relationships have been found

between certain subtests and the involved variables.⁹⁴

Since the Organizational Climate Description Questionnaire (OCDQ) had been the sole instrument available at the time to measure climate, the conclusions should be interpreted cautiously. The study suggests a correlation between the Halpin and Croft instrument and the Likert instrument. Hall found that there was a significant positive relationship between the Halpin and Croft organizational climate as classified by the OCDQ and the Likert Organizational System as classified by an early version of the Profile of a School instrument.

One could conclude that both the OCDQ and the earlier version of the Profile of a School measured aspects of the quality of the management system. The quality is the climate and can be viewed from different perspectives by subordinates as being positive. Openness measured by the OCDQ is related to the System 4 in that both are reflecting perceptions that promote good communication. Hall used teacher perceptions of climate as the effect.

94 Ibid., p.43.

Dugan⁹⁵ administered the OCDQ and the Administrative Communication Rating Scale to principals and teachers in elementary schools of New York State. The sample consisted of 48 principals and 1368 teachers. Correlations indicated that there was a significant relationship between the communication behavior of principals and the organizational climates of their schools. Teachers in open climate schools tended to rate administrators as more satisfactory communicators. This tends to confirm that communication as reflected in interaction and influence systems of System 4 would be better than in System 1.

Waldman⁹⁶ hypothesized that the more open the organizational climate of the secondary school, the less custodial the pupil control orientation of the principal and the teachers. He administered the OCDQ and the Pupil Control Ideology (PCI) to a sample of nearly 3000 teachers and principals. Coefficient correlations were used to determine the degree and direction of relationships. He found that the more open the organizational climate the less custodial

95 Peter Dugan, The Relationship between the Communication Behavior of Elementary School Principals and the Organizational Climates of their Schools, Unpublished doctoral dissertation, Syracuse University, 1967, 216 p.

96 Bruce Waldman, Organizational Climate and Pupil Control Orientation of Secondary Schools, Unpublished doctoral dissertation, Rutgers University, N.S., 1971, 124 p.

the pupil control orientation of the school and teachers but not the principal. This study supports the System 4 concept on the assumption that relationship with the OCDQ is strong.

Leader member relations, i.e. principal-teacher-pupil, is 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."⁹⁷ The results confirm the necessity for studies that examine whole organizations at more than one level. The previous sections have examined studies that attempted to link causal variables to some form of end result. Effectiveness is often judged on the basis of these end results. In the next section one perspective of effectiveness will be examined.

Effectiveness has been defined as "the degree to which an organization realizes its goals."⁹⁸ A basic

97 Parnell G. Garland, The Effect of Principal-Teacher Interaction on Secondary School Environment. Unpublished doctoral dissertation, University of Ottawa, 1973, p. 33.

98 Amitai Etzioni, Modern Organizations, Englewood Cliffs, N.J. Prentice Hall, 1964, p.8.

difficulty of determining effectiveness is that there are often multiple and conflicting goals in organizations such as schools. This results in effectiveness in one aspect of goal-achievement contributing to non-effectiveness in another area. This is of crucial concern to those who manage. A multiple criteria approach to effectiveness is essential to a multiple goal system. In measuring effectiveness the output of the system is often examined to determine the degree to which goals were attained. Unfortunately, in school systems it is difficult to determine the effectiveness of organizational systems until considerable time has transpired. The growth and development of students is complex, in that it entails the knowledge, skills and attitudes developed in the student. The concept output is also complex. Mahoney and Weitzel⁹⁹ noted that business managers look at outputs of a system through high order and low order criteria. High order criteria are productivity and efficient performance. Low order criteria are characteristic of the organizational climate. They also note that research and development managers use cooperative behavior, staff development and reliable performance as high order criteria,

⁹⁹ Thomas A. Mahoney and William Weitzel, "Managerial Models of Organizational Effectiveness", Administrative Science Quarterly, Vol. 14, No. 3, September, 1969, p.362.

and efficiency and productivity as lower order criteria.

Schools, similarly, have multiple criteria of effectiveness.

In summary, a multiple criteria approach to effectiveness has been shown to be valuable. The previous section has shown that there is considerable support for the theoretical direction taken by Rensis Likert, and that his theory has been related to several variables that measure conditions within a school.

6. The Theoretical Relationship Between Likert and Stern.

The following section will show the relationship between the theories of Rensis Likert and George Stern. The relationships are to be found in the similarity of constructs and in the conceptualization of the process of activity in terms of causal, intervening and end-result variables. Both theories utilize as a common base the "need" construct. Likert notes the tendency of human energy to be allocated to the satisfaction of prepotent needs and, in particular, self-actualization needs when lower order needs such as those of safety and physiology have been met. Likert suggests that the inherited desire to achieve and maintain a sense of personal worth and importance is the motive source for a variety of needs.¹⁰⁰ The development of leadership at

¹⁰⁰ Rensis and Jane Likert, Op.Cit., 1976, p.109.

different levels (i.e. student level) in a System 4 environment is in a sense generated by a changing of aspirations. Once an individual has achieved a level of aspiration that has led to psychological success, his tendency is to define a higher level of aspiration. Leadership in this sense generates more leadership. Stern postulated that the needs of one individual constitute a press for others in any social interaction.¹⁰¹ Murray defined need as ... a non-observable construct or intervening variable which belongs (...) to the category of disposition concepts.¹⁰² Thus the perceived leadership exercised by the principal creates an environmental press for teachers and similarly the perceived leadership of the teacher may be viewed as creating environmental press for students. Effectiveness can be linked to student needs, in that structured arrangements of organizations often constrain the release of human energy. Student perception of the management system may inhibit therefore the release of human energy and thus provides a valid index of a school's effectiveness. The extent to which the formal educational effort contributes to meaningful student growth

101 George G. Stern, Op.Cit., 1970, p.8.

102 Henry A. Murray, "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.

is dependent therefore upon the relative emphasis of student needs.

Both theories reflect the concept effectiveness. Stern's Organizational Climate Index OCI-GE factors were named - Intellectual Climate, Organizational Effectiveness, Personal Dignity, Orderliness and Work and Impulse Control.¹⁰³ Organizational Effectiveness loaded highest with the scales Energy, Achievement and Conjunctivity. The same factor also stresses outgoing, friendly, cooperative, task oriented group interaction. Group achievement standards are stressed rather than individual competitiveness. The underlying structure of the Press indexes therefore reflect a similarity to the perceptions measured by the Likert Profile of a School. The CEI is not the OCI, however, comparison of the two instruments indicate both factor structure and question content reflect a high degree of similarity. Both theories are theories of effectiveness,¹⁰⁴ Likert's model of organizational effectiveness presents four possible systems. He presents System 4 as being the most effective which is similar to Stern's ideal environments, that is, high developmental press and low control press. Both theories utilize perception as the

103 George C. Stern, Op.Cit., p.287.

104 James A.F. Stoner, Management, Prentice Hall, Englewood Cliffs, N.J., 1978, p.445.

determinant of the "real" world and in this way they consider behavior as symptomatic of these perceptions. Likert's conceptualization of the process of activity in an organization in terms of causal, intervening and end-result variables¹⁰⁵ links his theory to that of Stern. Student perception of the environment, a measure of growth enhancement, is the end-result variable, related to teacher perceptions of interaction and influence.

Wright¹⁰⁶ tested the relationship between climate and press by administering the OCDQ to teachers and principals and the High School Press Index (HSPI) to students in eighteen high schools. The HSPI was developed from the Stern High School Characteristic Index (HSCI). Conceptually Wright based his instrument on a limited and structured definition of environmental press and reduced the 300 items of the HSCI to 100. He also attempted to find out if certain components in the educational institution such as organization, program human and material resources were related to teacher perception of climate and student perception of press. He developed the Judges Rating Scale based on the Logical

105 Likert, Op.Cit., 1961, p.196-206.

106 William R. Wright, "Environmental Press as Perceived by High School Students and its Relationship to Organizational Climate", Unpublished doctoral dissertation, Lafayette, Purdue University, 1970, xi-505.

Structure Theory (LST)¹⁰⁷ which identifies the component parts of the school, and notes interactions among the parts as well as the forces that impinge upon or influence it. The sample included 595 staff members and 888 grade nine to twelve students from 18 predominately rural schools in 17 school corporations. The Pearson-product-moment correlation procedure was used to test the relationship between environmental press and organizational climate, and selected components of the LST and two perceptions of school environment, high press and low press. Univariate and multivariate regression analysis procedures were used to determine the predictive capabilities of the OCDQ and HSPI for the sample studied. Analysis of variance was used to test the relationship between student perception of press by grade level within the same school and between different schools. Wright found that open climate conditions were associated with high press conditions and closed climates were found to be related to low press conditions, ($r = -.37$, $\alpha = .10$). He also presented two equations to predict the HSPI and the OCDQ given one of the instrument scores. He found that organization correlated significantly with teacher perception of climate but program,

107 Norbert J. Nelson, The Logical Structure Theory, Mimeographed Document, Purdue University, Lafayette Indiana, April 1962.

human resources and material resources did not. None of these LST factors correlated significantly with press. Students of different grade levels in the same and different schools perceived environmental press similarly. These results suggest that where conditions of open climate are made to operate for the faculty the results may be a high developmental press and low control press on students. Because the OCDQ and Profile of a School are related and the HSPI and CEI are somewhat conceptually related this strengthens the need to test the relationship between the Profile and the CEI. The findings related to grade level contradict speculations of some theorists that age is a factor that affects perceptions and reinforces the need to examine the age factor with students of an early adolescent stage of development. Wright noted that no relationships in previous studies of climate had been found between climate and size of a school.¹⁰⁸

To summarize, an analysis of management variables in relation to theory and research associated with Likert's management system was presented in this section. The examination of the research applications of Likert's work indicated that no studies have tested the theory using pre-adolescent perceptions. The review also established the

108 William R. Wright, Op.Cit., p.173.

infancy of establishing causality relationships. It does establish high correlations in some of the variables with varying measures of effectiveness yet there is a paucity of studies that have dealt with the interaction-influence model in school settings using the Likert system approach. The problem of differing levels of analysis suggests that there is a need to look at perceptions of more than one level of an organization: that is teacher perceptions compared with student perception, or at multi-levels within an organization. Those studies that have been conducted using the Likert system, are difficult to compare because they tend to look at multi-levels. The review of the research also provided a basis for concluding that the Likert instrument factors may need to be confirmed using the McKillican terminology. There is a need to test theories of management in large complex organizations such as school systems.

7. Statement of the Problem, Hypotheses and Assumptions

The purpose of this study is to determine the relationship between management patterns, in elementary school settings, as perceived by teachers, and conceptualized by Likert, and the environment, as perceived by students, and conceptualized by Stern. The theoretical rationale for the study is based on Likert's theory of management practices and the Stern need-press model. There

is a fundamental relationship between these two theories and both are compatible with a wide range of administrative theory.

Schools differ in terms of the type of management pattern perceived to be: System 1 - exploitive-authoritarian; System 2 - benevolent-authoritarian; System 3 - consultative; System 4 - participative. The theoretical relationships that exist between causal, intervening and end-result variables enable one to predict a positive relationship between the management pattern system score and the developmental press score, and a negative relationship between the management pattern score and control press score. An examination of data available from previous research, indicates that there is a need to test the relationship between the management system and press. The specific question of the study becomes: Is there a difference in effectiveness (press) between elementary schools with high school management pattern scores and schools with low school management pattern scores?

The major hypothesis, which is predicted and based on Likert's management theory, is as follows:

1. High School Management Pattern elementary schools will score significantly higher than low School Management Pattern elementary schools in the Developmental press scores, and lower on the Control press scores.

The review of the literature suggests that the following subsidiary hypotheses should be tested:

2. There is no difference between grade levels and student perception of environmental press.
3. There is no difference between sex classification and student perception of environmental press.
4. There is no difference in environmental press between schools within High SMP.
5. There is no difference in environmental press between schools within Low SMP.

These hypotheses are based on the assumption that differences between schools can be measured; that these measurements can be made from a perceptual psychological perspective, and that the focus of leadership is the group and its decision-making system.

It is anticipated that the study will establish a link between the management theory of Rensis Likert and the environmental press theory of George Stern.

The next chapter will outline the experimental design.

CHAPTER II

EXPERIMENTAL DESIGN

The design of the study is outlined in this Chapter. The first section presents information relative to the instruments used in the study. The second section outlines those procedures used in collecting and organizing the data. The sample is described in the third section and the Chapter concludes with the plan for the statistical analysis of the data.

1. The Instruments

A. The Profile of a School.¹ This instrument is used to measure School Management Patterns (SMP). The score obtained is a measure of teacher perceptions of the way in which a school is managed. Likert adapted the Profile of a School from a similar instrument used by business organizations to compare certain variables with organizational effectiveness. He devised a conceptual relationship among these variables and effected a measurement of conditions within an organization. The Profile of Organizational Characteristics, which resulted from this conceptualization, was empirically tested against such organizational variables as productivity, employee turnover, cost factors, employee motivation, labor

¹ See Appendix 2.

relations and profit margins. The validity of the profile was concluded from its accurate ability to predict organizational outcomes or end-results from a measure of internal conditions.

The variables of the instrument have been grouped into the following five clusters:²

1. Climate (Causal)
 - a) goal commitment
 - b) decision process
 - c) team co-operation
2. Trust (Causal/Intervening)
 - a) trust by and in a leader
3. Other Intervening Variables
 - a) influence by subordinates
 - b) communication
 - c) peer team building
 - d) motivation of subordinates
 - e) student acceptance of goals
4. End-Result Variables
 - a) attitude of teachers toward school
 - b) teacher frustration.

² These are reported in Rensis Likert Associates, The Likert Profile of a School, New Survey Instruments for Public Schools to Improve Organizational Effectiveness, Manual for Questionnaire Use, Ann Arbor, Michigan, 1972, Section VI, p.1-5.

5. Leadership (Causal)

- a) support by a leader
- b) leader's receptivity to subordinate's ideas
- c) goal emphasis
- d) work facilitation
- e) team building
- f) decision making

The validity of the industrial indexes was concluded from its accurate ability to predict organizational outcomes³ or end-results from a measure of internal conditions. This conclusion was drawn from 250 studies which involved 200,000 employees and 20,000 managers. Reliability scores from these studies ranged from .70 to .90. The Profile of a School indicated split-half reliabilities of .90 and .95.⁴

Although the quantity of studies in school settings has lagged behind those in business, several⁵ have confirmed this instrument's validity as an accurate predictor of such desirable school outcomes as high student achievement, teacher satisfaction, decreased teacher strikes, better communication, improved decision making, high student satisfaction, and less school vandalism.

3 Ibid., p.VI-2.

4 Ibid., p.VI-1.

5 Ibid., p.2-10.

For widely divergent types of desirable outcomes, System Four management patterns seem superior to other types of school administration.⁶

The majority of investigations employing the Profile of a School have tended to use global scores based on the entire sixty-five items. In 1972, when Likert Associates published the Manual⁷ it was proposed that the instrument could be subdivided into components measuring teacher perception of relationships with students and relationships perceived to exist among students. This division was known as self-assessment (SA) with the teacher perception of school conditions and leadership labelled as subordinate perception (SP).

MacKillican⁸ examined the device and reduced the instrumentation through factor analysis to forty-two items. He named the factors: principal leadership (PL), teacher leadership (TL), teacher influence (TI) and student influence (SI). MacKillican concluded that the four factors exhibited sufficient consistency to provide confidence for future measurement of organizations using the factors as variables, particularly when measuring leadership and influence at more

6 Ibid., p.VI-2 to VI-10.

7 Ibid., p.1.

8 William S. MacKillican, and I.I. Dow, Measuring School Leadership: A Factor Analysis of Likert's Profile of a School, Paper presented at the Annual Conference of the Canadian Association for the Study of Educational Administration, Québec City, June, 1976.

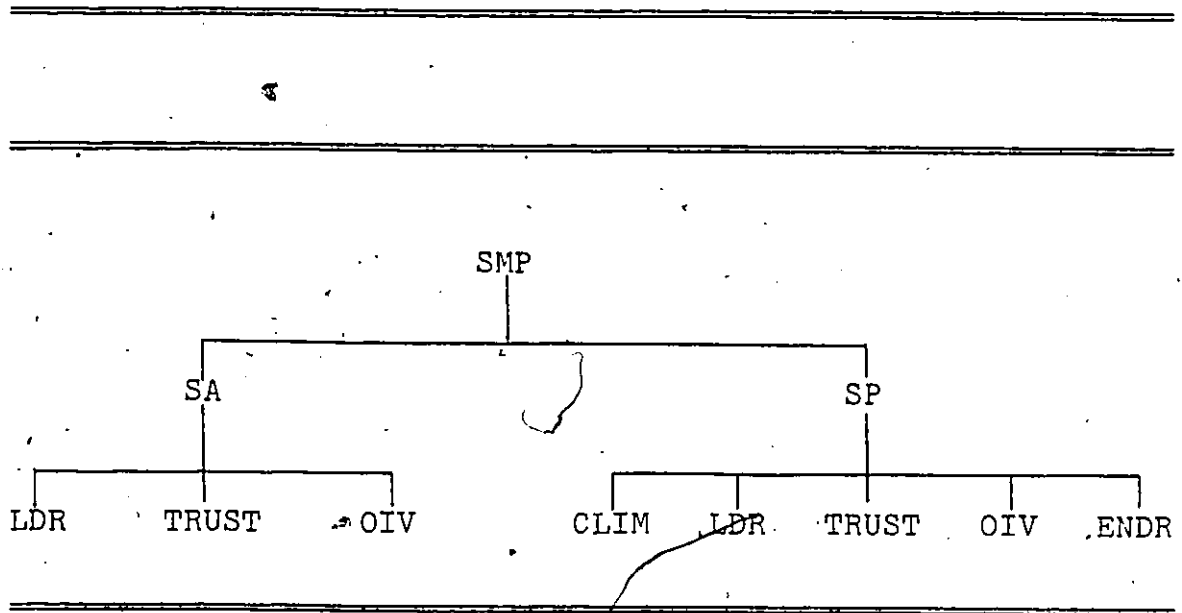
, than one level within a school. The relationship among the factors is shown in Figure 4.⁹

Butterfield and Farris¹⁰ tested a parallel instrument, The Likert Organizational Profile, using bank employees as a sample. The instrument (20 items) did not yield the six dimensions predicted by Likert's theory. Factors were only partially consistent over time and for different hierarchical levels of the bank system. Retrospective scores were quite accurate over three time periods. Test-retest reliability of the Likert Organizational Profile, as a whole was moderate. Likert Organizational Profile scores for the bank employees were positively related to objective measures of employee satisfaction. The authors concluded that the Profile appeared useful for current and retrospective organization studies.

When one notes the similar conclusion MacKillican made and recognizes the better reliability of the Profile of a School, it is apparent that support exists for the instrument as a measure of organizational practices.

9 Ibid., p.12.

10 D. Anthony Butterfield and George F. Farris, "The Likert Organizational Profile - Methodological Analysis and Test of System 4 Theory in Brazil", in the Journal of Applied Psychology, Vol. 59, No. 1, 1974, p.15-23.



- SMP: school management pattern
- SA: self-assessment
- SP: subordinate perception
- LDR: leadership
- TRUST: trust
- OIV: other intervening variables
- CLIM: climate and
- ENDR: end-results

Figure 4 - An Organization to Show the Relationship Among the Different Components of the "Profile of a School"

B. The Classroom Environment Index.¹¹ The Classroom Environment Index (CEI) was used in this study to measure the effectiveness of the elementary school environment as perceived by students.

Murray's need-press model¹² served as the theoretical basis for the development of the "parent" instruments, the Activity Index, the College Characteristics Index, the Evening College Characteristics Index, the Organizational Climate Index, and the High School Characteristics Index. The CEI is the most recent, utilizing many of the components of the other indexes and possessing the same structure, scales and format.

Like the other instruments the CEI consists of thirty scales¹³ which represent external environmental counterparts of the thirty personality needs used by Stern in the development of the Activity Index, an instrument which measures personality needs. Like the other instruments the CEI was developed by transposing each of the items of the Activity Index to their environmental counterparts. Each of the thirty scales of the CEI consists of ten items making a sum of three-hundred. The instrument has been designed to permit

11 See Appendix 3.

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

13 George Stern, People in Context, John Wiley Toronto, 1970, p.16.

using the first 150 items with one group and the second 150 items with another group although, ideally, each person ought to respond to all 300 items.

Stern and Walker¹⁴ derived six first-order factors and claimed that factors one to four represented a developmental press which describes conditions that facilitate growth and development. Factors five and six dealt with control press which refers to organizational control and maintenance.

The factors were defined as follows:

Developmental Press.

1. Humanistic 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 includes aspects of achievement together with elements of contemplation and social concern.

2. Group Intellectual Life: Classrooms high on this factor are characterized by fun-loving, friendly, actively-outgoing environments which provide for mutually supportive group activities. It includes aspects of intellectuality, reflectiveness, objective thinking and practicality.

3. Achievement Standards: This factor is characterized by high standards of achievement, an emphasis on striving for success through personal effort and on planned, purposeful and

14 George G. Stern and William J. Walker, The Measurement of Classroom Environmental Press, paper delivered to the American Educational Research Association, Annual Meeting, 1973, 1-28 p.

organized activities. A degree of intense emotional expression is in evidence.

4. Personal Dignity: Classrooms scoring high on this factor are characterized by a stress on individual responsibility and personal autonomy. Tolerance, self-confidence and friendliness are also evident.

Control Press

Control press describes the degree to which there is an emphasis on orderliness, bureaucratic, administrative procedures and cautiousness. Self-aggrandizement is de-emphasized. A high control press is also associated with the absence of a press for science.

5. Orderliness: This factor reflects an emphasis on organization and structure within the academic environment along with administrative concern for the physical well being of students. Caution, and seriousness are evident.

6. Non-Science: This factor reflects environments with an absence of an interest in the natural sciences together with a lack of aspects associated with sexuality and egotism.

These press scores were used as the dependent variables in this study. Table I¹⁵ contains correlations for the factors based on data from 488 students in 31 classrooms analysed by Walker and Stern.

Table II presents the factor loadings for the six factors of the CEI Form 1170.¹⁶

¹⁵ Ibid., p.20.

¹⁶ George G. Stern and William Walker Op.Cit., p.20.

Table I.-
Correlation Matrix for First-Order CEI 1170 Factors
n=448

CEI Factor	1	2	3	4	5	6
1. Humanistic Intellectual Climate		.63	.27	.39	-.36	.13
2. Group Intellectual Life			.30	.54	-.15	-.03
3. Achievement Standards				.31	.09	.06
4. Personal Dignity					.04	-.25
5. Orderliness						-.30
6. Science						

Table II.-
Second-Order Rotated CEI 1170 Factors

	I Developmental Press	II Control Press
1. Humanistic Intellectual Climate	<u>.75</u>	-.44
2. Group Intellectual Life	<u>.85</u>	-.14
3. Achievement Standards	<u>.56</u>	.09
4. Personal Dignity	<u>.79</u>	.27
5. Orderliness	-.11	<u>.80</u>
6. Science	-.14	<u>-.75</u>

The results were similar to the other Stern indexes and the matrix suggested two unrelated clusters which proved to be two interpretable factors.

Interpretation of the six first order factors in relationship to the second order structure is presented in Tables III¹⁷ and IV.¹⁸

2. The Sample

The population for this study consisted of teachers and students from public elementary schools in the Carleton and Ottawa Boards of Education. These two boards were selected because of their accessibility for data collection. The design of the study required the collection of management practices data from a sample of teachers. This was phase one. Schools within these two boards were identified by selecting those schools where principals had held responsibility for a minimum of two years. This selection was made from the Ontario Ministry of Education's Directory of Schools.¹⁹ Each of these schools was required to have a minimum of ten teachers, use English as the language of

17 Ibid., p.22-23.

18 Ibid., p.23.

19 Ontario Ministry of Education, Directory of Schools, Toronto, Ministry of Education, 1976.

Table III.-

Interpretation of the First-Order Factors in Relationship
to the Second-Order Structure: Developmental Press

	Scale(number)	Factor Loading
DEVELOPMENTAL PRESS		
Humanistic Intellectual Climate		
Fantasied Achievement	(15)	.70
Change	(6)	.54
Reflectiveness	(25)	.53
Ego Achievement	(11)	.52
Humanities, Social Science	(17)	.52
Understanding	(30)	.43
Group Intellectual Life		
Harm Avoidance	(16)	.67
Supplication	(29)	.65
Nurturance	(20)	.63
Objectivity	(21)	.60
Understanding	(30)	.59
Practicalness	(24)	.59
Reflectiveness	(25)	.57
Achievement Standards		
Achievement	(2)	.71
Energy	(13)	.64
Adaptability	(3)	.60
Conjunctivity	(7)	.51
Emotionality	(12)	.45
Personal Dignity		
Aggression	(5)	-.77
Dominance	(10)	-.76
Abasement	(1)	-.74
Deference	(9)	.66
Counteraction	(8)	.57
Affiliation	(4)	.56

Table IV.-

Interpretation of the First-Order Factors in Relationship
to the Second-Order Structure: Control Press

	Scale (number)	Factor Loading
CONTROL PRESS		
Orderliness		
Impulsiveness	(18)	-.71
Play	(23)	-.65
Order	(22)	.65
Exhibitionism	(14)	-.54
Sensuality	(27)	-.47
Non-Science		
Science	(26)	-.73
Sexuality	(28)	-.59
Narcisism	(19)	-.43

instruction, and to offer a program to grade seven and eight students, to be included in the sample. Each school yielded five to twelve teacher responses to the management practices instrument, thus enabling the designation of schools as either high or low on school management patterns. Schools from both of these extremes became the second sample. In phase two, students from a randomly-selected grade seven and a randomly selected grade eight class within each of these schools, completed the Classroom Environment Index.

The decision to incorporate these criteria was reasoned on several grounds. The CEI and the Profile of a School were available only in the English language. Research on the Leader Behavior Description Questionnaire (LBDQ) suggested that five to eight teacher responses would represent an adequate measure of school management practices.²⁰ Students below grade seven were excluded to eliminate any difficulty in responding to, and comprehending the CEI. The decision to delete schools, whose principals had less than two years experience within the school was predicated on the evidence that approximately this length of time is required

²⁰ Andrew Halpin, quoted in Ralph Stogdill, Manual for the Leader Behavior Questionnaire, Form XII, Columbus, Ohio, Bureau of Business Research, College of Commerce and Administration, The Ohio State University, 1963, 13 p.

for a change in leadership to affect output variables.²¹

In view of these constraining factors a list comprising twenty-four schools met the criteria and agreed to participate in the study.

The second sample consisted of schools utilized in the next phase of the study. Those schools which produced high or low scores on the School Management Patterns Questionnaire (Profile of a School) were used to indicate the polar extremities of the continuum represented in Likert's theory. The low SMP schools were defined as "those schools in the initial sample with a lower quartile score". The SMP scores for these institutions ranged from 4.93 to 5.35. Since Likert provided a mean score of 5.36,²² all of these schools registered below the comparable mean. The high SMP schools were defined as "those schools in the initial sample with an upper quartile score". These institutions had SMP scores ranging from 5.91 to 6.42.

An aggregate of 223 teachers from 24 schools responded to phase one, and 561 students from 11 schools participated in phase two. Table V shows the schools

21 Rensis Likert, Op.Cit., 1961, p.196-206.

22 Rensis Likert Associates, The Likert Profile of a School, New Survey Instruments for Public Schools to Improve Organizational Effectiveness, Manual for Questionnaire Use, Ann Arbor, Michigan, 1972, Appendix A 4-3.

Table V.

Characteristics of Schools Included in the Experimental Sample

n=11

School	Total Number of Teachers	Total Number of Students	Grade Organization	Board of Education
21	23	494	K-8	CBE
30	32	690	7-8	CBE
37	25	465	6-8	OBE
35	36	672	JK-8	OBE
50	36	793	JK-8	OBE
36	27	543	JK-8	OBE
24	23	500	K-8	CBE
42	36	718	JK-8	OBE
40	33	666	JK-8	OBE
44	16	235	JK-8	OBE
27	31	700	6-8	CBE

involved in the study, the boards in which they are located, their grade organization, the total number of staff and the enrolment.

3. Collection and Organization of the Data

Permission to gather data was obtained from the Regional Research Coordinators of the Ontario Ministry of Education and from the Directors of each board. Specific requests were then forwarded to principals in whose schools the data would be collected. Of this group, twenty-four agreed to participate in the study. From each school staff list the researcher randomly selected an administering teacher and a representative group of up to twelve teachers. The administering teacher was prepared on exact procedures to be followed and left with instruction sheets and instruments. Neither the principal nor the vice-principal were present when the teachers completed the Likert Profile of a School. Staffs were assured anonymity and confidentiality of results. The administering teacher returned the responses to the researcher (n=223). A cut-off date was established so that analysis could begin.

Schools were given an identification number and coded on to the computerized answer form by the researcher and scored with the use of the University of Ottawa optical scanner. A program was used which checked for blank items

and the results transferred to computer tape. The Statistical Package for the Social Sciences (SPSS)²³ program "Aggregate" transformed the data from teacher scores to school scores. These scores represented each of the five cluster scores; climate, leadership, trust, other intervening variables and end-result variables and the global score school management patterns and two subcategories, subordinate perception and self-assessment.

Schools were arrayed on a continuum from high to low on the basis of SMP scores. The extremes at each end became the sample from which student data was collected. Two return visits were made to each school. The first was to randomly select a grade seven and grade eight class and to leave parental permission forms. During May, 1977, the second visitation involved the researcher administering the Classroom Environment Index.

Schools which satisfied the criteria for inclusion were assigned to the appropriate cells of the research design. Data collection in the second phase was terminated in early June 1977. There were six high SMP schools and five low SMP schools. Schools participating in the second

²³ Norman H. Nie et al., Statistical Package for The Social Sciences, 2nd Ed., New York, McGraw-Hill, 1975, p.203-215.

phase were contacted for data collection starting with the two extremes of the continuum ensuring that the two cells had mean scores that included the most extreme schools as scored in the initial phase.

4. Plan for the Statistical Analysis

The research hypothesis of the study was concerned with the relationship between teacher perception of management patterns and student perception of environmental press. The effects of variables such as grade level, between school differences, and sex on student perception of environment were also examined. A relationship was hypothesized between the following: SMP and press factors; grade and press factors; sex and press factors; and schools nested within SMP and press.

The statistical treatment for the analysis was multivariate analysis of variance with sex and grade level as blocking variables and the six CEI factor mean scores as the variates. These mean scores were generated from the 30 scale scores of the CEI and scored at the University of Syracuse. The analysis was done within the full rank linear model approach²⁴ using the generalized variance ratio or

²⁴ James E. Carlson and Neil H. Timm, Full Rank Univariate Linear Model Computer Program Manual (FRULM), University of Pittsburg, 1974.

U statistic.²⁵ In the next Chapter the results of the study are presented and analysed.

25 James E. Carlson, Full Rank Multivariate Linear Model Computer Program, University of Ottawa, 1979.

CHAPTER III

ANALYSIS OF DATA

The research results are presented in this chapter. Descriptive statistics and the results of testing the hypotheses of the study are analysed. Section 1 outlines the preliminary analysis. Section 2 presents the results of testing the hypotheses. In Section 3 an exploratory analysis of the Profile of a School is described with an accompanying summary. Raw data for these analyses are presented in Appendix 4, 5 and 6.

1. Preliminary Analysis

The data from the teacher responses produced School Management Pattern factor scores as outlined in Table VI. The range of scores extended from 4.93 to 6.42 indicating that most schools could be classified as the consultative type of management pattern in Likert's schema.¹ The range of scores includes four schools in System 4 and twenty in System 3. The design of the study included five hypotheses which were analysed using a full rank linear model.² The statistical treatment was multivariate analysis

¹ Rensis Likert Associates, Manual for Questionnaire Use, Figure 8 Section X, 1972, p.3.

² James E. Carlson, and Neil H. Timm, Full Rank Univariate Linear Model Computer Program Manual, (FRULM), University of Pittsburg, 1974.

Table VI

Characteristics of Teacher Perception of SMP
in the Experimental Sample.
(n=24)

<u>School</u>	<u>SMP</u>	<u>N Teachers</u>	<u>Rank</u>
20	5.87	9	7
21	6.42	9	1
22	5.54	8	18
23	5.56	12	16
24	5.35	5	20
25	5.87	8	8
26	5.56	7	17
27	4.93	8	24
30	6.33	10	2
32	5.80	5	11
33	5.61	8	15
34	5.69	9	14
35	6.02	9	4
36	5.91	8	6
37	6.04	9	3
38	5.93	9	9
40	5.27	7	22
42	5.30	7	21
43	5.52	9	19
44	5.26	7	23
45	5.81	9	10
47	5.78	9	13
48	5.79	8	12
50	5.99	8	5

of variance. These hypotheses and the results of testing them are presented to confirm or reject the relationships between the variables of the study.

2. Results of Testing the Hypotheses

The hypotheses of the study are as follows:

1. High School Management Pattern Elementary Schools will score significantly higher than Low School Management Pattern Elementary Schools in the Developmental Press scores, Humanistic Intellectual Climate, Group Intellectual Life, Achievement Standards and Personal Dignity, and lower on the Control Press Orderliness and Non-science.
2. There is no difference between grade levels and student perception of environmental press.
3. There is no difference between sex classification and student perception of environmental press.
4. There is no difference in environmental press between schools within High SMP.
5. There is no difference in environmental press between schools within Low SMP.

The dimensions for each type of press were treated separately in this study to determine what factor was contributing to mean differences. Stern hypothesized that these factors were related to Developmental and Control Press. They had been developed as second order factors. In this study these two terms will be used as a convenient summary where it is appropriate.

Tables VII and VIII for example present characteristics of schools, the sum of the first four factors (Developmental Press) and the last two factors (Control Press) as well as the ranking of each school according to SMP and the number of students who responded in each school.

Table IX presents mean scores for the High SMP and Low SMP schools. It indicates that all four of the Developmental Press factors are perceived higher in High SMP schools. Control Press factors are both perceived to be higher in Low SMP schools.

The multivariate F-ratios for the hypotheses and the blocking variables are reported in Table X. The corresponding univariate F-ratios for the significant hypotheses are presented in Table XI. These should be considered as descriptive rather than inferential.

The test of the first hypothesis indicated that the difference in perception of press between high and low SMP schools is significant at the .0001 level of statistical significance. The mean scores for the first four factors which Stern called Developmental Press are 114.694 in high SMP schools and 111.642 in low SMP schools. The mean scores for factor five and six which Stern called Control Press were 37.80 in high SMP schools and 38.03 in low SMP schools which means that students in high SMP schools perceive the

Table VII

Characteristics of Schools as Perceived by Students
in the Experimental Sample: Developmental Press
(n=562)

<u>School</u>	<u>Rank</u>	<u>Developmental Press</u>	<u>Number of Respondents</u>
21	1	116.61	55
30	2	113.26	31
37	3	112.80	58
35	4	112.51	57
50	5	115.46	59
36	6	116.82	47
24	20	107.33	56
42	21	109.40	51
40	22	115.24	52
44	23	117.25	44
27	24	108.99	52

Table VIII

Characteristics of the Schools as Perceived by Students
in the Experimental Sample: Control Press
(n=562)

<u>School</u>	<u>Rank</u>	<u>Control Press</u>	<u>Number of Respondents</u>
21	1	36.47	55
30	2	38.39	31
37	3	36.78	58
35	4	36.40	57
50	5	38.10	59
36	6	37.99	47
24	20	37.98	56
42	21	35.87	51
40	22	37.68	52
44	23	38.35	44
27	24	39.25	52

Table IX

Mean Scores for High SMP Schools and Low SMP Schools for
Each of the Six Second-Order Factors of the
Classroom Environment Index

<u>Factor (Press)</u>	<u>High SMP Schools</u>	<u>Low SMP Schools</u>
Humanistic, Intellectual Climate	29.665	28.917
Group Intellectual Life	29.574	28.336
Achievement Standards	26.442	25.292
Personal Dignity	29.110	29.097
Orderliness	22.513	22.896
Non-Science	14.773	14.913

Table X

F - Ratio for Multivariate Test of Equality
of Classroom Environment Index Mean Vectors

Hypotheses	df ₁	df ₂	F	P
H ₁ (SMP)	6	514	194.587	.0001
H ₂ (Grade)	6	514	2.881	.0090
H ₃ (Sex)	6	514	.594	.7355
H ₄ (Sch(HiSMP))	30	2058	3.141	.0001
H ₅ (Sch(LoSMP))	24	1799	4.873	.0001

ANALYSIS OF DATA

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Table XI

F Ratios for Univariate Test of Equality of
Classroom Environment Index Mean Scores
Between High SMP Schools and Low SMP Schools

CEI Factor	df ₁	df ₂	F	P
1. Humanistic Intellectual Climate	1	519	344.696	.0001
2. Group Intellectual Life	1	519	281.345	.0001
3. Achievement Standards	1	519	390.337	.0001
4. Personal Dignity	1	519	298.216	.0001
5. Orderliness	1	519	170.208	.0001
6. Non-Science	1	519	108.537	.0001

environment to be higher in developmental press and lower in control press than students in low SMP schools. This was as Stern had hypothesized. This means that schools reflecting the System 4 end of Likert's continuum tend to be markedly more effective than schools at the System 2 end of the continuum. Since most of the schools of this study tend to be System 3 this difference is even greater.

The mean differences between high and low SMP schools differed significantly for all six factors. The F ratios are indicated in Table XI.

Mean scores from Table XII illustrate that grade seven students tend to see a more positive environmental press than do the grade eight students. The univariate F ratios reported in Table XIII suggest that the differences are accounted for by the factors Humanistic Intellectual Climate and Group Intellectual Life of the Development Press and Non-Science of the Control Press. The multivariate F ratio for this second hypothesis is significant at the .0090 level.

The multivariate F ratio for the third hypothesis is not significant. Schools with high SMP and schools with low SMP do not differ in effectiveness as far as the sex of the student is concerned.

Table XII

Mean Scores of Grade Seven and Eight
Students in High and Low SMP Schools

SMP	Press	Grade 7	Grade 8
High	Developmental	115.80	113.78
	Control	37.05	37.44
Low	Developmental	114.42	112.56
	Control	38.15	37.47
Average	Developmental	115.11	113.23
	Control	37.60	37.46

Table XIII

F Ratios for Univariate Test of Equality of Classroom Environment Index Mean Scores between Grades 7 and 8

CEI Factor	df ₁	df ₂	F	P
1. Humanistic Intellectual Climate	1	519	6.167	.0133
2. Group Intellectual Life	1	519	7.918	.0051
3. Achievement Standards	1	519	.373	.5418
4. Personal Dignity	1	519	.044	.8331
5. Orderliness	1	519	2.400	.1219
6. Non-Science	1	519	6.248	.0128

The fourth hypothesis indicates a significant difference of $P=.0001$ between the six schools nested within high SMP. Most of the mean differences shown in using the univariate test as indicated in Table XIV suggests that the difference is to be found in the scores Group Intellectual Life, Achievement Standards and the Control factors Orderliness and Non-Science. This suggests the press for the maintenance of institutional and societal norms in combination with degrees of press for friendly, cooperative, fun loving environments with high achievement standards differentiates among the schools with high SMP. This means that good schools as perceived by students are different in that some are more enthusiastic, some more controlled than others and one could surmise the need for greater order within enthusiastic environments where there is considerable outgoing, friendly activity.

The test of the fifth hypothesis indicates that the differences between schools nested within low SMP is also significant, $P=.0001$. Again most of the mean difference shown in using the univariate test as is indicated in Table XV suggests that the difference is found in Group Intellectual Life, Achievement Standards, Personal Dignity, Orderliness and Non-Science. Differences between schools within the lower end of system three include differences in

Table XIV

F ratios for Univariate Test of Equality of Classroom Environment Index Mean Scores between Schools nested within High SMP

CEI Factor	df ₁	df ₂	F	P
1. Humanistic Intellectual Climate.	5	519	1.429	.2120
2. Group Intellectual Life	5	519	5.758	.0001
3. Achievement Standards	5	519	3.164	.0080
4. Personal Dignity	5	519	1.352	.2409
5. Orderliness	5	519	3.608	.0032
6. Non-Science	5	519	3.973	.0015

Table XV

F Ratios for Univariate Test of Equality of Classroom Environment Index Mean Scores between Schools nested within Low SMP

CEI Factor	df ₁	df ₂	F	P
1. Humanistic Intellectual Climate	4	519	2.586	.0362
2. Group Intellectual Life	4	519	11.620	.0001
3. Achievement Standards	4	519	4.756	.0009
4. Personal Dignity	4	519	4.634	.0011
5. Orderliness	4	519	4.211	.0023
6. Non-Science	4	519	4.838	.0008

Personal Dignity not evident in the schools of high SMP. Also, differences in Humanistic Intellectual Climate at the .05 level of statistical significance are to be found between schools at the lower end of Likert's System 3 continuum. This means that there are similar differences between low SMP schools and also between high SMP schools in terms of control press, however, only high SMP schools are similar in terms of Personal Dignity and Humanistic Intellectual Climate.

In summation, the results of testing the five hypotheses of the study are as follows:

1. Elementary schools perceived by teacher to have high School Management Patterns tend to have higher student perceptions of Developmental Press factors; Humanistic Intellectual Climate; Group Intellectual Life; Achievement Standards; Personal Dignity and lower scores on Control Press, Orderliness and Non-Science.
2. Grade seven students tend to see their schools as being more effective than grade eight students in Humanistic Intellectual Climate and Group Intellectual Life.
3. Boys do not see the effectiveness of schools as measured by press scores significantly different than girls.
4. There are significant differences in perceptions of press between schools nested within high SMP.
5. There are significant differences in perceptions of press between schools nested within low SMP.

3. Factor Analysis of the Profile of a School

In this section a factor analysis of the Profile of a School is outlined. This operation was deemed necessary for two reasons. First, in situations where students perceive high degrees of developmental press there should be theoretically high degrees of student influence. This reflects the theory that each person creates a press on others and therefore students also influence teachers. Second, MacKillican established the factor TI and SI to represent differing levels of this influence factor and suggested the need for a replication of his factor analysis of the Profile of a School. Since the Profile of a School and the CEI appear to be related it is of interest to determine whether press and SI are also related. The remainder of this section will present the factor analysis.

One of the criticisms of theoreticians like Likert is that although they depend heavily on survey research and data feedback from human organizations, their approach is broadly eclectic.³ This criticism partly accounts for MacKillican suggesting that the variables of the Likert instrument might be reorganized and used rather than the global SMP factor score. Added to this concern are the

³ James B. Lau, Behavior in Organizations, Georgetown, Ontario, Irwin Dorsey Ltd., 1976, p.221.

indications of the Franklin model that the causality link needs to be measured at differing levels of an organization. Further the relationships shown by the present study suggest the need to analyse the findings of the present study in an exploratory manner. Although MacKillican was able to add supporting evidence to the strength of the relationships between PI and TI, TL and SI, and classroom openness both of the instruments used in his study reflected only the teacher's perception. If teacher perception is accurate then according to Likert's theory high student influence factor scores should be reflected in high developmental press. Further the strength of the relationship should increase. To determine this, a factor analysis was done to verify the consistency of the MacKillican factors. The results of the factor analysis using the data that was collected from teachers who participated in the study are reported next. An exploratory analysis of the Profile of a School was conducted by means of eight factor, seven factor, five factor and four factor analyses. The criterion of a coefficient of .45 as a minimum value was used for an item to be retained for analysis. A second criterion required that an item have a coefficient of less than .20 on all factors except the one in which it was most highly loaded.

Results of the factor analysis were similar to those obtained by MacKillican. Table XVI illustrates the results of a comparison of items that loaded on different factors and the rotated factors are outlined in Appendix 6. This confirms the findings of MacKillican and supports the use of a revised form of the instrument in future studies. Oblique rotations were specified because the factors should have proven to be correlated, and they were. As MacKillican discovered, factor one items dealt with leadership behavior of the principal; factor two items dealt with leadership behavior of the teacher; factor three contained those questions about the amount of influence students had on school matters that affected them and factor four contained items that dealt with teacher influence. Also as MacKillican had found, the fifth factor was undistinguishable. The items of these factors are listed in Appendix 6.

Likert maintained that the intervening variables at one level in an organization act as the causal variables at the next lower level. PL therefore would be causal to TI at the school level which in turn is causal to TL and SI at the classroom level. This causality chain is reflected theoretically in end-result variables such as environmental press. The order of the regression of the four SMP factors on SMP was checked to determine their contribution to SMP.

Table XVI

A Comparison of Items from the "Profile of a School", Form Three, that were identified by Factor Analysis and Used to Calculate a revised School Management Pattern Score and Six Sub Scores for Each of the Samples Used by MacKillican and the Sample used in the Present Study.

Variable	Item Numbers	n
SMP	MacK 1-5, 8-16, 18, 20-30, 32, 42-46, 48, 50-53, 56-59, 61. Donn 1-18; 20-30, 32, 33, 37, 40-48, 50, 52-59, 61-65.	(42) (53)
SA	MacK 1-5, 8-16, 18, 20-25. Donn 1-15, 18, 20-25, 33.	(21) (23)
SP	MacK 26-30, 32, 42-46, 48, 50-53, 56-59, 61. Donn 16-17, 26-30, 32, 37, 40-48, 50, 52-59, 61-65	(21) (32)
PL	MacK 26-30, 32, 42-46, 48, 50-53, 59. Donn 26-30, 32, 37, 40-47, 50, 52, 53, 59, 62.	(17) (20)
TI	MacK 56-58, 61. Donn 16, 17, 48, 54-58, 61, 63-65.	(4) (12)
TL	MacK 1-5, 10, 16, 18, 20-25. Donn 1-7, 10, 18, 20-25, 33.	(14) (16)
SI	MacK 8, 8, 11-15. Donn 8, 9, 11-15.	(7) (7)
Items of the <u>Profile of a School</u> Form III that did not emerge in the factor analysis:		
	MacK 6, 7, 17, 19, 31, 33-41, 47, 49, 54, 55, 60, 62-65. Donn 19, 31, 34-36, 38-39, 49, 51, 60.	(23) (10)

The SPSS program Regression⁴ indicated that the relationship between PL and TI was .63; between TI and TL was .46 and between TL and SI was .41. This confirms the relationship established by MacKillican in support of Likert's theory. When loaded on SMP the correlation coefficients were: PL-.86; TI-.81; TL-.72 and SI-.51 which also supports the theory. These coefficients are in descending order suggesting that in terms of management practices the relationship between PL and SMP is the strongest. These are presented in Table XVII.

Rank correlations were generated to determine the relationships between press and the Likert variables. The non-parametric Kendall's Tau was calculated for each combination of the variables. Results were placed in a correlation matrix. These are presented in Table XVIII. The reason for rank correlations is that in these exploratory procedures school scores were used, not individual student scores and these school scores were based only on the high and low categories as indicated by SMP. This analysis is in order in that there is no surety of the normality of the distributions since data for all schools was not available.

⁴ Norman H. Nie, et al., Statistical Package for the Social Sciences, 2nd Ed., New York, McGraw Hill, 1975, p.320-360.

Table XVII

Correlation Coefficients of the Regression Analysis of
the Four Factors on SMP
(n = 223)

	SMP	SI	TI	TL	PL
SMP	1.000	0.513	0.805	0.712	0.858
SI	0.513	1.000	0.289	0.412	0.210
TI	0.805	0.289	1.000	0.456	0.626
TL	0.712	0.412	0.456	1.000	0.363
PL	0.858	0.210	0.626	0.363	1.000

Table XVIII

Matrix of Rank Order Correlations between
Press and the Likert Variables; PL, TI, TL, and SI.

	Press	SMP	PL	TI	TL	SI
Press	1.000	0.200	0.309	0.236	0.091	-0.110
SMP		1.000	0.673	0.673	0.600	0.624
PL			1.000	0.491	0.345	0.294
TI				1.000	0.418	0.404
TL					1.000	0.514
SI						1.000

Table XVIII illustrates also, there is no significant relationship between ~~p~~ress and SI as had been anticipated according to the theory.⁵ This appears to be explained partially by the fact that two differing groups of people, teachers and students are providing their perceptions. This may also suggest that the path analysis direction should be utilized in future studies.

⁵ See p.106 of this study.

CHAPTER IV

DISCUSSION OF THE RESULTS

This study was undertaken to investigate the relationship between teacher and student perceptions of school environments. Testable statements were developed from the literature and presented in Chapter I. Preceding chapters described the sample, methods of obtaining the data and the statistical procedures used in the analysis. The purpose of the present chapter is to discuss the results of testing the five hypotheses. Included in this discussion will be consideration of the factor analysis of the Profile of a School and the implications of the study.

1. Press Differences between High and Low SMP Schools

The first hypothesis of the research predicted that high SMP schools would be more effective than low SMP schools as measured by student perception of press. High SMP scores were related to high developmental press. Those schools perceived to be effective in management patterns by teachers were perceived to have high developmental press. Likert suggests that high SMP schools (System 4) are more effective than low SMP schools. Thus the study empirically supports the theory .

Stern identified the similar source of psychometrics from which the F scale for measuring authoritarianism by Adorno et al. and the Indexes are derived.¹

Results confirm therefore, the inference that the theories of Likert and Stern would be related.

Schools reflecting high SMP scores were hypothesized to have a lower control press climate than schools reflecting a low SMP score. This hypothesis was supported also. Pupil Control Ideology studies reflect this direction. More autocratic management patterns with less responsive interaction-influence systems are related to higher normative control, suggesting the potential for greater degrees of alienation. This was reflected in the studies of Appleberry and Hoy.²

Interestingly, the differences in mean scores of the control press factors were not as great as those of the developmental press factors. The factor Non-Science tended to be the dominating variable in the univariate analysis of variance. This may be partially

1 George Stern, People in Context, John Wiley, Toronto, 1970, p.291.

2 James B. Appleberry and Wayne K. Hoy, "The Pupil Control Ideology of Professional Personnel in 'Open' and 'Closed' Elementary Schools", in Educational Administration Quarterly, Vol 5, 1969, p.74-85.

explained by the fact that Orderliness, the other factor of Control Press loaded on Developmental Press in the Organizational Climate Index, an instrument structurally similar to the CEI, therefore, orderliness, which contributes to control press may be viewed differently in high and low SMP schools. Orderliness may be an accepted value in the more effective schools. This may be accentuated since the schools were categorized as ~~System~~ 3 and 4, the more effective end of Likert's continuum. Also, Stern³ reported most of the variance of the HSCI was accounted for by the Developmental Press factor.

The assumption on which the first hypothesis was based is that high SMP schools have established the type of climate within which quality decisions can be made. According to the theory, this required considerable influence from both superiors and subordinates. This influence is reflected in perceptions of press and the consequent satisfaction of needs. Pheysey et. al.,⁴ concluded that perceptions of press may be quite independent of the causal variable organizational structure, and dominated by the intervening variables

3 George Stern, Op.Cit., p.254.

4 D.C. Pheysey, R.L. Payne and D.S. Pugh. "Influence of Structure at Organizational and Group Levels" in Administrative Science Quarterly, 1971, Vol 16, No.1, p.66.

or by leadership variables or small organizational size. They noted the multidimensionality of the concept organizational climate which is reflected also in Likert's theory. The between school differences of the present study suggest that other factors are entering the relationship and affecting results which supports the findings of Pheysey et. al. in that there are complexities of the inter-relationships. One can conclude therefore that there is general support for assuming that climates are established.

Pheysey et. al. also concluded that leadership may dominate perceptions of press. The relationships between PL, TI, TL, and SI indicated that the Principal Leadership-Teacher Influence relationship was strongest.⁵ Further, PL correlated with SMP more than any of the other factors.

The findings of several other empirical studies have been supported by the results of the present study.

MacKay found that the behaviors thrust and consideration of the Principal provided the major contribution to the relationship between principal and teacher. This is similar to the high relationship of the present study between PL and TI.

5 These relationships were described previously p.110.

Hall noted the difference in perceptions of students and teachers. This was reflected in the present study where relationships between SI as perceived by teachers and press as perceived by students was not related.

Garland⁶ found that the three significant factors of press were concerned with the non-cognitive aspects of school environments, that is the quality of interpersonal relationships between staff and students characterized by dignity and respect. It is noteworthy that all press variables of the present study were significantly related to SMP, at the same time, with such a small sample and a powerful test of significance caution must be used in generalizing these results.

6 Parnel Garland, The Effect of Principal-Teacher Interaction on Secondary School Environments, Unpublished doctoral dissertation, University of Ottawa, 1973, p.138.

2. Differences in Perception of Grade Seven and Eight Students.

The second hypothesis predicted no difference in perception by students of differing grade levels. This hypothesis was rejected. Grade seven students saw school more favorably than grade eight students. This conflicts with the results described by Wright. Wright's study,⁷ in examining grade 9-12 students found no difference. He did note that some studies had found differences. Part of the answer may lie in the age of the students. Grade seven students often are involved in rotary subject patterns for the first time. By the time they have finished their grade eight year there is no novelty effect. Students are also looking toward high school which may in fact influence their perception. The univariate analysis of variance indicated that humanistic intellectual climate, group intellectual life and non-science contributed to this difference. These variables may reflect the press on thinking processes within friendly supportive groups. Since this declines in grade eight one could question whether there has been sufficient change in program for this level of student.

7 William R. Wright, Environmental Press as Perceived by High School Students and its Relationship to Organizational Climate, Unpublished doctoral dissertation, Lafayette, Purdue University, 1970, XI-505.

Expectancy of things to come may affect motivations and therefore perceptions of press. Older adolescents are experiencing considerably greater freedom outside of school and this may influence a view of school that lowers perceptions of developmental press.

3. Differences in Perception of Press Between Boys and Girls.

The sex of students did not contribute to significant differences in perception of press. This finding supports those studies that found no difference and may reflect the current deemphasis on sex-role stereotyping.

Walsh⁸ found differences in the self-concept of this age-group of students. Although one could infer that this affects perceptions it may be that the relationship between self-concept and perceptions of environment may be less marked according to the sex of students.

4. Differences in Perceptions of Students Between Schools.

The last two hypotheses predicted no differences in perceptions of press between schools within high and low SMP.

⁸ Andrea Joy K. Walsh, A Descriptive Analysis of Self-Concept of Middle High School Students in Michigan Based Upon High and Low Implementation of the Eighteen Basic Characteristics of Middle School Concept, Unpublished doctoral dissertation, Michigan State University, 1977, 164p.

Winfrey⁹ had found differences in a study of high schools and this research supported his findings. The univariate analysis of variance indicated that the difference between schools within high SMP is to be found in scores for Group Intellectual Life, Achievement Standards, Orderliness and Non-Science. These variables reflect controlling aspects of schools as well as press for cognitive processes. They may reflect both the latent and the stated curriculum that constitute the functions of schools.

The differences between schools within low SMP reflected differences in the same factors as high SMP, but included Personal Dignity. This reflects the Likert theory in that low SMP schools have a less effective way of generating quality decisions and may treat people in a condescending manner.

The significant findings of between school differences within high and low SMP suggest a need to examine individual schools where there may be variables that have not been controlled in the present study.

⁹ James K. Winfrey, The Appraisal of Institutional Press as Perceived by Selected Groups of Minneapolis Area High School Students, Unpublished doctoral dissertation, University of Minnesota, Minneapolis, Minnesota, 1963.

5. Between Level Differences in Perception.

The factor analysis of the Likert instrument suggested a relationship chain from PL to TI to TL to SI. This analysis is important to this study in that it examines between level differences.¹⁰ If leadership is valued then there is a logical sequence that would suggest an additional factor, student leadership, which would be an end-result. PL would stimulate TL which in turn would stimulate SL. The descending order of the relationship places a high value on principal leadership which has been confirmed by numerous studies.¹¹ (Figure 5)

There was no relationship found between SI and press. It was predicted that student influence and press should have been related. It may have been that members of two different levels of an organization were responding to the two instruments, and that the SI-factor represents the more positive perception of teachers than their subordinates.

The Likert instrument in its factor analysed form measures teacher perceptions of PL, TI, TL and SI. It presents an ideal system which may need to be expanded to

10 As perceived by teachers only.

11 John W. Hall, "A Comparison of Halpin and Croft's Organizational Climates and Likert's Organizational Systems", in Administrative Science Quarterly, Vol. 17, December, 1971, p.586-590.

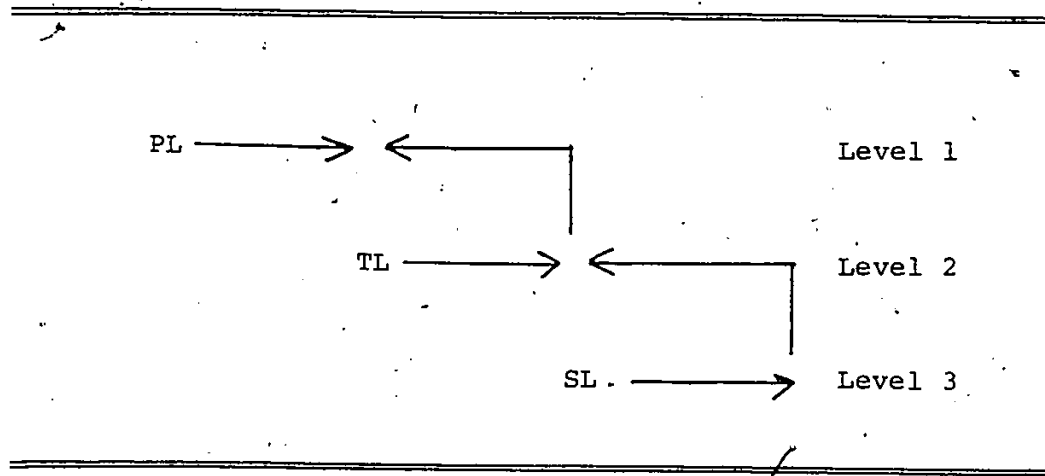


Figure 5 - Three Levels of the Interaction Influence System

more greatly differentiate schools which have moved to System 3 and 4 (Figure 6). The System 5 that Likert notes in his most recent book¹² may be the expansion needed. This may increase the contingency concept that his theory alludes to but does not reflect to any great extent.

The preceding section attempted to indicate an analysis of the between level differences as reflected by a reorganized set of factors of the Likert Profile of a School and Stern's Environment Press. There was no significant relationship between SI and press but there was suggestion of a relationship chain from PL to SI.

In summary, this chapter has discussed the results of the study in relation to the theory outlined in Chapter 1. The next chapter will present the summary, the conclusions and the implications of the thesis.

¹² Rensis Likert, New Ways of Managing Conflict, Toronto, McGraw Hill, 1976, VII-375p.

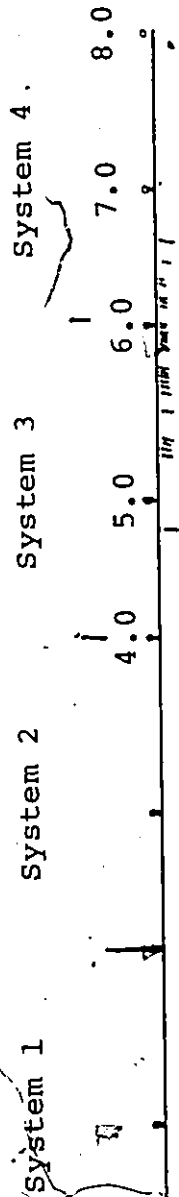


Figure 6 - Current (1977) Graphic Presentation of the Distribution of Schools Using the Profile of a School Instrument

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

This study examined the relationship between school management patterns and the perception of educational environments as perceived by teachers and adolescent students. The rationale was based on the conceptual frameworks of Rensis Likert and George Stern. Likert conceptualized that a System 4 school management pattern would be more effective in terms of its end-result variables. He hypothesized that there is a set of intervening variables which influence the end-result. Stern's empirically derived constructs served as a measure of environmental effectiveness. These constructs have been operationalized by Walker and Stern in the Classroom Environment Inventory. The selection of the Stern theory of effective environments was determined on the assumption that organizations have manifest and latent functions and that a primary task of a school is the creation of a developmental educational environment.

The study made two theoretical contributions. First, the theories of Likert and Stern were related. School management patterns were related consistently to developmental and control press. Developmental Press appears to be a multi-dimensional construct. One cannot conclude causal relationships from research of this nature, however, support exists to suggest

further research that would investigate the nature of this relationship. Second, Likert's theory of management patterns was extended. The shifting of schools toward a System 5 over a seven year period is suggestive of a direction. It would be worthwhile to develop the attributes of such a system and to devise an instrument to measure them. The factor analysis of Form 3 of the Profile of a School indicated four distinct factors, permitting future studies to use a reorganized version of the instrument. It would be important to include goal items which did not emerge in the instrument. Further, a student leadership section, if included would be a logical extension of the relationships PL, TI, TL, SI, SL.

The question of the research was: Is there a relationship between press and school management patterns? And the hypotheses were:

1. High School Management Pattern Elementary Schools will score significantly higher than Low School Management Pattern Elementary Schools in the Developmental Press scores, Humanistic Intellectual Climate, Group Intellectual Life Achievement Standards and Personal Dignity, and lower on the Control Press Orderliness and Non-Science.
2. There is no difference between grade levels and student perception of environmental press.
3. There is no difference between sex classification and student perception of environmental press.

4. There is no difference in environmental press between schools within High SMP.
5. There is no difference in environmental press between schools within Low SMP.

The collection of data was carried out in two phases. Likert's Profile of a School was administered to those schools of two boards of education that met the criteria for inclusion in the study. Twenty four schools were selected and two hundred and twenty three teachers responded. In the second phase of the study, the CEI was administered to grade seven and eight students in eleven of the twenty four schools selected on the basis of responses obtained in the first phase.

The hypotheses were analysed by means of Carlson's Full Rank Multivariate Linear Model Computer Program. The statistical treatment was multivariate analysis of variance using individual students as the unit of analysis.

The conclusions of the study were: There is a difference in effectiveness between the two groups of schools. This difference is attributable to the climate of the schools, although grade level and schools nested within SMP contributed also to the differences. The Profile of a School instrument in its reorganized form measures principal leadership, teacher influence, teacher leadership and student influence and measures two levels of organizational functioning.

- Implications: Likert suggested that high SMP schools have well developed interaction-influence systems, that include those processes needed to effect quality decisions. Intermediate or middle schools that implement processes suggested by Likert and improve their interaction-influence system should create an improved environment for students.

The management patterns initiated by a principal are a contributor to press. This suggests that training of principals in management systems theory could be an important asset to school boards in their attempt to improve school environments. Training programs that identify and apply System 4 principles and practices could help change conditions in a school and thereby change the press on students.

There was a strong correlation between PL and the perception of teachers of TI. The strongest correlation with press was that of PL. Implied in this is the need for principals to be significant parts of the school environment. Activities such as school assemblies where principals are visible might be an example of ways that a principal integrates a differentiated system as complex as a school. This example of principal leadership needs to be extended to many situations so that the visibility of principals is felt and thereby contributes to press.

It is important that the internal state of the organization as well as achievement output be measured, valued and maintained. Types of activities which achievement standards measure are given high official priority in lists of educational objectives and are reflected in the two groups of schools in terms of effectiveness. Importance of achievement that the "basics" movement may have generated suggests the need to ensure that other more human variables such as Humanistic Intellectual Climate and Personal Dignity do not become deprioritized.

Directions that future research might take in extending this study are: 1. It would be of interest to know, within a system what the various press were at different levels; elementary, intermediate and secondary. Moreover, it would be worthwhile collecting more than one wave of data to determine any change; 2. The expansion of the revised factor analysed Profile of a School to include goal items and also student leadership items would enhance the value of the instrument.

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These authors empirically tested the Likert theory using bank employees. They found that the parallel instrument, the Likert Organizational Profile, was useful in studying present and past organizational practices.

Combs, Arthur W. et al., Perceptual Psychology: A Humanistic Approach to the Study of Persons, New York, Harper and Row, 1976.

The author outlines a frame of reference for the study of persons capable of application to both holistic and atomistic approaches to understanding human behavior.

Donnelly, Bert, "An Examination of the Relationship Between Structure and the Environmental Press for the Satisfaction of Needs of Children of Exceptional Ability", unpublished interim report, Faculty of Education, University of Ottawa, 1973, 59 p.

This study found differences in perception of school environment by gifted boys compared to gifted girls. The author found segregated structure was perceived more positively than integrated structures.

Dow, I. I., "An Empirical Study of the Relationship Between Administrative Atmosphere and Supervisory Expectations held by Teachers for the Principal", unpublished doctoral dissertation, University of Ottawa, 1971, x-132 p.

An examination of supervisory expectations in high and low schools as measured by Likert's Profile of a School. Dow found that teachers did not differ in their ideal supervisory expectations. He found significant differences in discrepancy scores between ideal and actual supervisory expectations in both high and low SMP schools. He also found significant differences among ideal supervisory expectations in both types of schools.

Dow, Ian and Bert Donnelly, An Analysis of Costs and Effectiveness of Enrichment Programs for Students in Grade Seven and Eight in Selected Boards of Education of Ontario Elementary Schools, University of Ottawa, Canada, 1977; p. 86.

The authors found that different enrichment programs could be differentiated in terms of effectiveness using the Classroom Environment Index and that there were significant differences in costs. The sample used included the two boards of the present study. Useful tables were utilized for normative comparison.

Franklin, Jerome Lee, "A Path Analytic Approach to Describing Causal Relationships Among Social-Psychological Variables in Multi-level Organizations", unpublished doctoral dissertation, University of Michigan, 1973, 147 p.

The author built a model based on Likert's theory to attempt to explain relationships among causal, intervening and end-result variables. Path analysis represented the analytic strategy to test the hypothesis that the causality chain was from Organizational Climate to Managerial Leadership to peer leadership to group process. The model was supported.

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This book identified several functions of schools and was particularly influential in directing this study to a multivalued output measure rather than a single valued measure such as achievement scores.

Garland, Parnell, "The Effect of Principal-Teacher Interaction on Secondary School Environments", unpublished doctoral dissertation, University of Ottawa, 1973, 233 p.

This study was particularly useful in that the author used the Stern indices on an Ontario population. He found that results did not provide strong support for Fiedler's contingency model or his concept of organizational engineering. He found that 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 was Fiedler's contingency model.

Hall, J. W., "A Comparison of Halpin and Crofts' Organizational Climate and Likert and Likert's Organizational Systems", unpublished doctoral dissertation, University of Maryland, 1968, x-135 p.

The author found a positive relationship between the OCDQ and part one of the Likert and Likert Instrument describing the relationship between teachers and principals.

Hall, Richard A., Organizations Structure and Process, Englewood Cliffs, N. J., Prentice Hall, 1972, 354 p.

The author presents a structuralist's viewpoint of organizations and the way this viewpoint deals with conflict and change. It is a useful book in accounting for causal variables, other than climate.

Kelly, George A., A Theory of Personality: The Psychology of Personal Constructs, New York, Norton and Company, 1963, 190 p.

The author presents a systematic overview of the function and role of theory. The book is useful in helping define terms such as constructs and frames of reference. It is based upon the philosophy of constructive alternativism.

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

The author interpreted a number of experimental investigations through the concept of a force field. He elaborated the influence of environment on development.

Lieberman, Ann, "The Effects of Principal Leadership on Teacher Morale, Professionalism and Style in the Classroom", unpublished doctoral dissertation, University of California, 1969.

The author related teacher style in the classroom to the leadership mode of the principal and found a weak positive relationship between principal authority and teacher authority in the classroom. The study used grade five and six students.

Likert, Rensis, New Patterns of Management, Toronto, 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 the integrative structure required by a systems theory.

Likert, Rensis, The Human Organization: Its Management and Value, Toronto, McGraw-Hill, 1967, ix-258 p.

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

-----, New Ways of Managing Conflict, Toronto, McGraw-Hill, 1976, vii-375 p.

The author applies System Four management theory to the process of managing conflict. Likert accounts for power in System Four theory and how it can be used to produce win-win situations throughout the world.

Mackay, Alexander Bruce, "Principals, Teachers and Elementary Youth: Measurement of Selected Variables of Teacher-Principal Social Interaction and Educational Environment", unpublished doctoral dissertation, University of Massachusetts, 1971, 159 p.

This study related Halpin's OCDQ to the Environment Instrument the ESES using Grade 5 and 6 students as the criterion sample. Results indicated a high degree of relationship between the behavior of teachers and the environment. Principal variables were significantly related to the set of teacher variables.

MacKillican, William S., "An Empirical Study of the Relationship Between School Management Patterns and the Change Towards Classroom Openness", unpublished doctoral dissertation, University of Ottawa, 1975, 191 p.

The author tested the innovative aspects of Likert's Management System Theory. He also did a factor analysis of the Likert instrument and reorganized it. He found that the management patterns of schools are related to their ability to adopt such innovations as classroom openness.

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

The author outlined a theory of motivation based on human needs.

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

This book outlines research related to a theory that developed the need press model. A description of the procedures used in developing a taxonomy of psychogenic needs is also outlined.

Pheysey, Diana C., Roy L. Payne, and Derek S. Pugh, "Influence of Structure at Organizational and Group Levels," Administrative Science Quarterly, Vol. 16, No. 1, 1971, p.61-73.

This paper presented an attempt to explore the relationships between organizational structure and organizational climate across two levels. One measure of climate utilized the OCI, one of Stern's press instruments.

Rensis Likert Associates, The Likert Profile of a School, New Survey Instruments for Public Schools to Improve Organizational Effectiveness, Manual for Questionnaire Use, Ann Arbor, Michigan, 1972, x-68 p.

The author presents reliability and validity data directions for questionnaire use and a summary of several studies giving support to the use of the instruments.

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

This author presents the results of a lifetime of research with the need press model. It is an extension of Henry Murray and Kurt Lewin's work through extensive factor analytic procedures that are outlined in the book.

Stern, George G. and William Walker, The Measurement of Classroom Environmental Press, paper delivered to the American Educational Research Association, Annual Meeting, 1973, 1-28 p.

The authors outlined the development of a new instrument designed to measure the effectiveness of classroom environments. This instrument, more specific than the other institutional indices, reflected the dominant effect which the classroom plays, particularly in elementary schools.

Thompson, James D., Organizations in Action, Toronto, McGraw-Hill, 1967, 192 p.

The author presents an excellent overview of technology as a causal variable. The book states forcefully the need to study organizations in toto as an open system.

Wright, William Ronald, "Environmental Press as Perceived by High School Students and its Relationship to Organizational Climate", unpublished doctoral dissertation, Lafayette, Purdue University, 1970, xi-505 p.

The author found that schools with open climates as measured by the OCDQ also had high press conditions as measured by the High School Characteristics Index.

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IN APPENDICES 1 to 3 and 6 NOT
MICROFILMED

page

- 137 - Need-Press Scale Definitions (George G. Stern)
143 ff. - Profile of a School; Teacher's Questionnaire, Form 3

MAY BE OBTAINED FROM

Rensis Likert Associates, Inc.
630 City Center Building
Ann Arbor, Michigan 48108

- 152 ff. - Classroom Environment Index by George G. Stern and William
J. Walker. (Form 971 (Parts 1 and 2))

MAY BE OBTAINED FROM

George G. Stern
Syracuse University
Syracuse, New York, U.S.A.

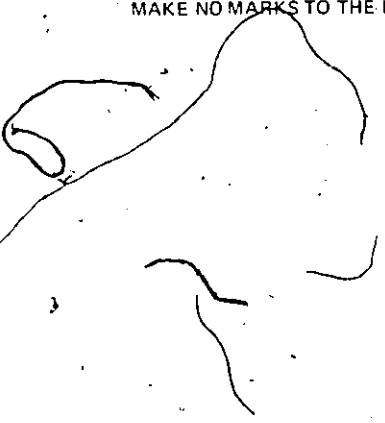
- 156 - Answer sheet for Stern Personality and Environment Indexes
170 - 174 Profile of a School Factor Items; being a reorganization of
the items contained in Likert's Profile of a School.



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149

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APPENDIX 3

LETTERS AND INSTRUMENT USED TO TEST
STUDENT PERCEPTION OF THE ENVIRONMENT

Dear Parent:

Your son/daughter has been selected to complete a questionnaire that measures perceptions of the school environment. This is a research project that is attempting to measure variables that contribute to effective school environments. Your permission is requested to allow your son/daughter to take part in this project.

Students will not be identified other than by sex and grade level.

Yours sincerely,

Bert J. Donnelly

Permission Granted

Signature

I do not wish my son/daughter to take part. _____

APPENDIX 4

LIKERT DATA FROM PROFILE OF A SCHOOL

PAGE NUMBERS NOT IN RIGHT SEQUENCE
L'ORDRE DES PAGES EST INCORRECT

APPENDIX 5

CLASSROOM ENVIRONMENT INDEX FACTOR SCORES
FOR EACH INDIVIDUAL STUDENT

CLASSROOM ENVIRONMENT INDEX FACTOR SCORES FOR INDIVIDUALS

36	343224299216	36	323725317016	35	3327333292616	35	232027272112
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36	262524302013	36	242524282017	35	333030331916	35	323028302512
36	312221262017	36	252128262316	35	282927242617	35	292629302315
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36	293023312012	36	282227312218	35	333930332418	35	302526251920
36	352618252313	36	313230332420	35	282525272414	35	302827261915
36	292426252714	36	383632241918	35	303127241918	35	242627282113
36	262124292416	36	303430262117	35	302425282012	35	302230301909
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36	293627272909	35	262727322213	35	322424272217	30	222429322718
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36	273326352816	35	313431342008	35	242727342115	30	243224342910
36	313423282712	35	313225312312	35	232824272010	30	292922292415
36	212231312114	35	302424332011	35	242526292412	30	262628282312
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36	333228322412	35	343728311824	35	302623312917	30	282730291913
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36	252825282516	35		35	343636222118		

SCHOOL NUMBER - FIRST TWO DIGITS, FACTOR SCORES - TWO DIGITS EACH.
 FACTORS: 1 - HUMANISTIC INTELLECTUAL CLIMATE; 2 - GROUP INTELLECTUAL LIFE;
 3 - ACHIEVEMENT STANDARDS; 4 - PERSONAL DIGNITY;
 5 - ORDERLINESS; 6 - NON-SCIENCE

CLASSROOM ENVIRONMENT INDEX FACTOR SCORES FOR INDIVIDUALS

24	242616242413	24	2625263127616	42	302316301615	42	303428332314	44	3635223227419
24	292326352117	24	182322272213	42	363021272215	42	322626262312	44	333629251716
24	302229242314	24	282223332114	42	272616272216	42	273324331814	44	212922301815
24	282523262418	24	282721312413	42	282421272316	42	272229252113	44	383632342214
24	312028222411	24	252623292413	42	312619252016	42	273525322913	44	373622312119
24	282529302710	24	252222292911	42	292220252512	42	273429272116	44	273625301719
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24	2321222252215			42	232929321412				

SCHOOL NUMBER - FIRST TWO DIGITS, FACTOR SCORES - TWO DIGITS EACH
 FACTORS: 1 - HUMANISTIC INTELLECTUAL CLIMATE; 2 - GROUP INTELLECTUAL LIFE;
 3 - ACHIEVEMENT STANDARDS; 4 - PERSONAL DIGNITY;
 5 - ORDERLINESS; 6 - NON-SCIENCE

CLASSROOM ENVIRONMENT INDEX FACTOR SCORES FOR INDIVIDUALS

30	263928302411	50	3132302741920	50	2825213273015	40	302627332213	37	292629282115
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SCHOOL NUMBER - FIRST TWO DIGITS, FACTOR SCORES - TWO DIGITS EACH.
 FACTORS: 1 - HUMANISTIC INTELLECTUAL CLIMATE; 2 - GROUP INTELLECTUAL LIFE;
 3 - ACHIEVEMENT STANDARDS; 4 - PERSONAL DIGNITY;
 5 - ORDERLINESS; 6 - NON-SCIENCE.

CLASSROOM ENVIRONMENT INDEX FACTOR SCORES FOR INDIVIDUALS

21	303732302417	21	293726282318	40	332525241916	27	302325252416	37	343029291417
21	313525362815	21	292428361414	27	313231282415	27	251926261816	37	313324282115
21	283333351818	21	283124282308	27	322222272218	27	242425282316	37	342921292414
21	303529241617	21	322826232913	27	273027292415	27	262024232017	37	373123312117
21	313530322414	21	313031312216	27	292821262817	27	332922323017	37	262131311712
21	273323272311	21	323835262219	27	242626261818	27	372828262415	37	272330302215
21	353123311913	21	312526252714	27	232527302312	27	353028272317	37	212521282414
21	283225291811	21	312821281713	27	2519202041815	27	303127271916	37	193030291916
21	212424292216	21	313123317013	27	302622292113	27	293029252720	37	283529312616
21	262727331907	21	383124312214	27	253226302213	27	312721342113	37	312826302117
21	3136330292021	21	342621252314	27	343122261912	27	343321242319	37	313027262318
21	263028322314	21	433925262011	27	252524252812	27	262521192214	37	262829282414
21	313128342516	21	232624272010	27	232426272118	27	252522302215	37	353131232317
21	232422272011	21	323427272815	27	302628282313	27	273025292413	37	352527251919
21	353728262220	21	272925331914	27	292325322214	27	303021292508	37	333326372312
21	283327261715	21	333229292213	27	303122271915	27	303329352118	37	322728311817
21	292829302215	21	363022302215	27	303726292120	27	2827222312512	37	232828322618
21	283832392114	21	262921362511	27	292823242117	27	252930342718	37	263225293015
21	332529262413	21	282823272321	27	262529302416	27	293126302916	37	242223302214
21	373926262114	21	313030342211	27	303025322812	27	262829302217	37	252424382116
21	333025312515	21	363325252419	27	252325272718	27	303127272613	37	282525331716
21	282224301817	21	282620282214	27	262219212514	27	282631262814	37	302224271914
21	343120231918	21	313519302516	27	312527302418	27	263224332411	37	272320302012
21	343524272413	21	262724372114	27	242825252510	24	272023292813	37	262225302917
21	242729241717	36	333733291815	27	282121282813	24	312521332011	37	302119302215
21	272828262317	36	283232292817	27	272527292319	24	323832262320	37	3136222341909
21	273024322713	36	3234313332215	27	282123312518	24	282825322813	37	333931292120
21	303220271318	36	253629332812	27	263130272818	24	333423352414	37	293120271914
21	333326272111	36	293924382812	27	373528252413	24	333025272016	37	303023341616
21	303327262611			27	241921312214			37	253426332714

SCHOOL NUMBER - FIRST TWO DIGITS, FACTOR SCORES - TWO DIGITS EACH.
 FACTORS: 1 - HUMANISTIC INTELLECTUAL CLIMATE; 2 - GROUP INTELLECTUAL LIFE;
 3 - ACHIEVEMENT STANDARDS; 4 - PERSONAL DIGNITY;
 5 - ORDERLINESS; 6 - NON-SCIENCE.

APPENDIX 7

ABSTRACT OF

THE RELATIONSHIP BETWEEN SCHOOL MANAGEMENT PATTERNS
AND ENVIRONMENTAL PRESS ON STUDENTS
IN GRADE SEVEN AND EIGHT

ABSTRACT OF

The Relationship Between School Management
Patterns and Environmental Press on Students
in Grade Seven and Eight¹

The study investigated the relationship between principal-teacher-student interaction and school effectiveness using the theoretical models developed by Likert and Stern. The organizational dimension School Management Patterns was the predictor variable and Walker and Stern's school press factors were the criterion variables.

The hypothesis of the research was as follows: High School Management Pattern elementary schools will score significantly higher than Low School Management Pattern elementary schools in the Developmental press scores, and lower on the Control press scores.

The sample of schools was randomly selected from two school boards selected from the regional municipality of Ottawa-Carleton. The most authoritarian and the most participatory schools were then utilized for the investigation of perceived environmental press.

¹ Bert Donnelly, doctoral thesis presented to the School of Graduate Studies of the University of Ottawa, Ontario, 1979. 177 p.

The measuring instruments included the Profile of a School, Form Three, and the Classroom Environment Index.

The study was conducted in two phases: in the first phase School Management Pattern data was obtained from twenty-four schools and 223 teachers; in the second phase press data was obtained from eleven schools and 562 students. The statistical treatment was multivariate analysis of variance with sex and grade level as blocking variables. The analysis utilized the full rank linear model approach (FRULM). A factor analysis was conducted on the Profile of a School.

The following conclusions were made from the results:

1. There is a difference in perceptions of effectiveness between the two groups of schools. Much of this difference is attributable to the climate of schools although there were also grade level and between school differences.
2. The Profile of a School instrument in its reorganized form measures principal leadership, teacher influence, teacher leadership and student influence and measures two levels of organizational functioning.