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RELATIONSHIP BETWEEN INSTRUCTIONAL CHANGE AND THE EXTENT TO WHICH SCHOOL ADMINISTRATORS AND TEACHERS AGREE ON THE LOCATION OF RESPONSIBILITIES FOR ADMINISTRATIVE DECISIONS.

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*TEACHERS, *DECISION MAKING SKILLS, *ADMINISTRATOR ATTITUDES, *SUPERVISORS, EDUCATIONAL CHANGES, *INSTRUCTIONAL INNOVATION, MADISON, WISCONSIN

THIS STUDY WAS BASED ON THE THESIS THAT THE EXTENT OF CONGRUENCE AMONG TEACHERS, ADMINISTRATORS, AND SUPERVISORS WAS RELATED, IN A POSITIVE MANNER AT AN APPRECIABLE LEVEL OF SIGNIFICANCE, TO THE INCIDENCE OF PLANNING FOR INSTRUCTIONAL CHANGE AND TO THE EXTENT OF THE IMPLEMENTATION OF THIS PLANNING. TEACHERS, ADMINISTRATORS, AND SUPERVISORS (N 6183) RESPONDED TO SUCH DECISION-POINT QUESTIONS AS (1) WHO MAKES THIS DECISION, (2) WHO ELSE PARTICIPATES IN MAKING THIS DECISION, AND (3) HOW DID YOU PARTICIPATE IN THIS DECISION. RESULTS INDICATED THAT THE RELATIONSHIP BETWEEN THE EXTENT OF CONGRUENCE IN STAFF PERCEPTIONS OF DECISION-POINT LOCATION WAS NOT SIGNIFICANTLY RELATED TO THE PRODUCTION OF CURRICULAR PLANS AND THE IMPLEMENTATION OF THESE PLANS. (LP)

RELATIONSHIP BETWEEN INSTRUCTIONAL CHANGE AND THE EXTENT TO WHICH SCHOOL ADMINISTRATORS AND TEACHERS AGREE ON THE LOCATION OF RESPONSIBILITIES FOR ADMINISTRATIVE DECISIONS

Cooperative Research Project No. 5-0443 (1913)

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Seldom is any research project carried forward without the assistance of many cooperative and dedicated people. This project is no exception in this respect. Rather than to specify individuals for citations of merit and expressions of appreciation, the groups will be identified for appropriate expression.

The school administrators and their respective school districts in the State of Wisconsin always have exhibited a high degree of cooperativeness toward The University of Wisconsin as well as a commendable level of professionalism. The responses of the school administrators and their respective staffs proved to be no exception with respect to this project. The members of the research staff wish to acknowledge their appreciation for this brand of cooperation and professionalism and to indicate their continuing satisfaction in having colleagues in the profession of the type encountered in the thirty-one cooperating school systems.

A number of graduate assistants have been associated with the project in a variety of relationships. The names of those who have participated are recorded in Chapter IV. In this chapter, brief citations are given with respect to specific contributions. Each one made a unique and substantial contribution to the entire project and extended the scope of the project through their tangential studies.

Appreciation also is acknowledged for the support provided by the Cooperative Research Program of the Office of Education, U.S. Department of Health, Education, and Welfare. At the same time a similar note of appreciation is expressed to the State of Wisconsin for contributions of support in the form of budgeted funds for The University of Wisconsin. The research staff hereby records that the support from the two agencies has been substantial both with respect to financial assistance and with respect to professional encouragement.

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CHAPTER I

BASES FOR THE STUDY

This research was based upon the assumption that cogent and systematic relationships exist between the nature of the administration and the educational program of schools. To investigate some of these relationships, the research was conducted with regard to a particular theoretical point of view. It was concerned with three major variables,—the perception of decision making roles, planned curricular change, and implemented curricular change. It dealt tangentially with several intermediate ancillary variables. In this chapter the salient concepts relating to each of the aforementioned are discussed, the basic hypotheses presented, and a brief overview of the report is given.

The Theoretical Basis

Administration, in general, has been conceptualized from two approaches, representing the sociological and the psychological points of view. Gouldner[1] referred to these two approaches in terms of the rational model and the natural system model. In the rational model, the organization is viewed much like a machine with manipulable parts which the administration may modify to increase the efficiency of the whole—virtually "organization against people."

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[1]Alvin W. Gouldner, "Organizational Analysis", Sociology Today: Problems and Prospects, Merton, Bloom, and Cottrell, eds. (New York: Basic Books, 1959).

Exponents of this view follow essentially Weberian principles of bureaucracy, of which some of the most salient characteristics are: (1) behavior within the organization is bound by normative or technical rules, (2) labor is divided into a high degree of specialization, (3) offices are organized following the principles of hierarchy, and (4) administrative acts and decisions are codified into written rules.[2] Selznick[3], Gouldner[4], and Merton[5] have developed various models of this approach, based in part upon Weberian principles, in order to describe modern organizational phenomena.

The second view of administration is the natural system model. This model is one in which the organization is perceived as being spontaneously maintained by individuals who have needs which must be satisfied regardless of the plans of the creators or maintainers of the organization. The natural system model was expounded most effectively by Roethlisberger[6], Mayo[7], Lewin[8],

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[2]Max Weber, The Theory of Social and Economic Organization, Translation by Talcott Parsons (Glencoe, Illinois: Free Press and Falcon's Wing Press, 1947), pp. 330-332.

[3]Philip Selznick, Leadership in Administration (Evanston, Illinois: Row Peterson, 1947).

[4]Gouldner, op. cit.

[5]Robert Merton, Social Theory and Social Structure (rev. ed.; Glencoe, Illinois: Free Press, 1957).

[6]Fritz J. Roethlisberger and William J. Dickson, Management and the Worker (Cambridge, Massachusetts: Harvard University Press, 1939).

[7]Elton Mayo, The Social Problems of an Industrial Civilization (Boston: Harvard Business School, 1945).

[8]Kurt Lewin, Resolving Social Conflict (New York: Harper and Brothers, Publishers, 1948).

and, more recently, Argyris[9]. This view appropriately can be represented as holding that individuals are the most significant component of an organization and that although formal organization exists, it does so at the pleasure of individuals singly or collectively in the informal organization. The aim of the informal organization is to achieve the goals of the individuals rather than the goals of the organization—virtually "people against organization."

As many have recognized, somewhere between these divergent views lie more productive means for analyzing administration and its relationship to the educational program. One of these, a social system theory, attempts to synthesize these divergent views. It was in terms of this theory that the research reported herein was conducted.

Parsons[10] and his colleagues proposed a basic theory of human action which delineates the primary components of social system theory. Getzels[11] and others adapted this theory into a functional model of administration as a social process, in which a social system was defined as two or more people interacting to achieve common goals. This social system involves both normative and personalistic dimensions which are conceptually independent and phenomenally interactive. One dimension, the normative, is described by

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[9]Chris Argyris, Personality and Organization (New York: Harper and Brothers, Publishers, 1957).

[10]Talcott Parsons, The Social System (Glencoe, Illinois: Free Press, 1951).

Talcott Parsons and E. A. Shils, Toward A General Theory of Action (Cambridge, Massachusetts: Harvard University Press, 1951)

[11]Jacob W. Getzels and Egon G. Guba, "Social Behavior and the Administrative Process", School Review 55 (Winter, 1957), 423-44; Jacob W. Getzels and Herbert A. Thelen, "The Classroom Group as a Unique Social System," Dynamics of Instructional Groups, N.S.S.E. Yearbook, Part II (Chicago: The Society, 1960), 53-82.

values within the culture and roles within the organization. The other dimension, the personal, is described by the values held by the individual and the need-dispositions within the individual. The elements comprising the two dimensions of this social system interact within the framework of the system to produce observed behavior.

According to this theory, administration may be examined from three stances. Structurally, administration may be considered as a hierarchy of superordinate-subordinate relationships within this social system. Functionally, within this hierarchy of relationships is the locus for allocating and integrating roles in order to achieve the goals of this system. Operationally, administrative processes take place in environments characterized by person-to-person relationships. Thus, any given superordinate-subordinate relationship within the administrative structure is enacted in two dynamic and separate personal situations, one embedded in the other. This relationship is perceived and organized by each incumbent in terms of his needs and goals, skills and experiences. The two situations are related to the extent that the individuals' perceptions are mutual.

Theoretically, the central question and primary antecedent variable thus becomes, "To what extent do complementary role incumbents in a given social system tend to agree or disagree in their perceptions of their respective roles?"

Roles within an organization may be defined in numerous ways--by the tasks one performs, by the processes one utilizes, by the products of one's services, or by the decisions one makes.

The Perception of Decision-Making Roles

Authorities for years have argued cogently that decision making is at the heart of administration. Originally discussed by Barnard,[12] the importance of decision making was expanded by Simon,[13] who wrote, "The task of deciding pervades the entire administrative organization quite as much as does the task of doing—indeed, it is integrally tied up with the latter." McCamy[14] made the same point when he stated that "The making of decisions is at the very center of the process of administration". Griffiths[15] recently applied Bross'[16] design for decision making to the educational organization, defining decisions as judgments which effect a course of action.

Decision making was selected, therefore, as a focus for study, not only because of the heuristic value of the concept itself, but also because of several utilitarian factors. First, decision making may involve numerous complementary role incumbents—since it is possible to share in the process of decision making and to share with varying degrees of frequency and intensity. Second, decision making occurs within all formal organizations--albeit at differing levels of centralization or decentralization. Third, decision making may be perceived or inferred by persons who engage in or observe an

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[12]Chester Barnard, The Functions of the Executive (Cambridge, Massachusetts: Harvard University Press, 1948).

[13]Herbert Simon, Administrative Behavior (2nd ed.; New York: MacMillan, 1957), p. 1.

[14]James McCamy, "An Analysis of the Process of Decision Making," Public Administrative Review, No. 7, 1947.

[15]Daniel E. Griffiths, Administrative Theory (New York: Appleton-Century-Crofts, 1959).

[16]Irwin D. J. Bross, Design for Decision (New York: MacMillan Company, 1953).

interaction. And, finally, decision making bridges conceptually the rational (normative) system model and the natural (personal) system model. It is compatible, in this regard, with the theoretical framework used, social system theory.

Operationally, the central question and primary antecedent variable then becomes "To what extent is there congruence in the perceptions of the decision making responsibilities of personnel within public school systems?" or, put differently, "To what extent do administrators and teachers in a given school system tend to agree or disagree in their perceptions of decision making roles and responsibilities?"

Numerous investigations of decision making roles recently have been conducted. These studies usually end at the point of highlighting the nature and extent of conflict in role expectations or perceptions. These studies however, pointed to the crucial need for determining the extent to which conflict in decision making roles relates to the educational program. This program was defined in terms of such significant criterion variables as planned curricular change and implemented curricular change.

The Educational Program

The educational program is typically defined as the curriculum of the school. Since the term curriculum came into use a variety of definitions has been attached to it. According to Ragan,[17] curriculum traditionally has meant the subjects taught in school--the course of study. Eye and

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[17] William B. Ragan, Modern Elementary Curriculum (3rd ed.; New York: Holt, Rinehart, and Winston, 1966), p. 4.

Netzer[18] stated that the most common definition of curriculum is that it constitutes all of the educative experiences that come under the direction and control of the school. Shane and McSwain suggested that curriculum consists of two separate, but related entities:

> First in written form as a record of group consensus as to methods, materials, scope and sequence, and second, under the skin of the teacher and child as the sum of experiences and guides-to-action that each has interpreted for himself as the outcomes of their interactions in school.[19]

It is the written curricular plans to which most people refer when speaking of the educational program. Regarding these, the following salient questions may be raised: "To what extent do written curricular plans represent planned instructional change?" and "To what extent are these plans implemented in the teaching-learning situation?"

Planned Instructional Change

Instructional change has received considerable attention, though not to the point of examining and quantifying the extent of change represented in written curricular plans. Curricular workers are aware of the need to know more about the intricacies of curricular planning and implementation.

The impetus for examining change in curriculum may be traced to a general emphasis placed on educational change. Barrington expressed as follows the reason for the importance of change in education:

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[18] Glen G. Eye and Lanore A. Netzer, Supervision of Instruction: A Phase of Administration (New York: Harper and Row, Publishers, 1965), p. 313.

[19] Harold Shane and E. T. McSwain, Evaluation and the Elementary Curriculum (New York: Henry Holt and Company, 1958), p. 171.

> Education needs to comply with the law of dynamic survival not only because of change in our social order, but because of newer insights into the learning process, the conditioners of behavior, the tools of teaching, and the powers of education in the lives of people.... These new insights have led to new educational practices or inventions which are designed to take the place of outdated practices. Only by being aware of changing social needs and by being willing to break with tradition and discard outmoded practices can education meet the challenge which it faces today.[20]

In 1951, Ross summarized in part the attention devoted to educational change throughout the 1930's and 1940's as indicated in the studies by Mort and his associates. Under the term, adaptability, these educators examined the systematic readiness and capacity of schools to adopt innovations, adapt to environmental changes, and continue functioning.[21] Representative of these studies was that conducted by Mort and Cornell in which they concluded that diffusion of innovation is a slow process. "...We infer it will take a half century for the average adaptation to diffuse completely."[22]

Recently, there has been a renewed emphasis upon the importance of educational change and innovation. As Pellegrin commented, curricular change is a topic of interest both to the practitioner and to the theoretician.

> Within the field of education there are also many pressures for change. There is widespread recognition among educators that there are notable deficiencies and limitations in the content, organization, and administration of the curriculum. At the same time, there has arisen a higher level of aspiration, a feeling that education can increase its contributions to the welfare

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[20]Thomas M. Barrington, The Introduction of Selected Educational Practices into Teachers Colleges and Their Laboratory Schools (Institute of Administrative Research, No. 8; New York: Bureau of Publications, Teachers College, Columbia University, 1953), p. 5.

[21]Donald H. Ross, (ed.) Administration for Adaptability (2nd ed. rev.; New York: Metropolital School Study Council, Teachers College, Columbia University, 1958), p. vi.

[22]Paul R. Mort and Francis G. Cornell, American Schools in Transition (New York: Bureau of Publications, Teachers College, Columbia University, 1941), p. 53.

> of society. There is, in short, a belief that changes in education are necessary and desirable....[23]

As typically defined, change simply conveys the meaning of alteration or modification. In the field of education, however, the connotation of the word includes the concept of betterment or improvement. Illustrative of this usage is the proposition developed about the supervision of instruction by Eye and Netzer who stated that "The major function of supervision is that of influencing situations, persons, and relationships for the purpose of stimulating change that may be evaluated as improvement."[24]

Social scientists generally have contributed much toward an understanding of change. Doll recognized this when he stated the following:

> Whatever social scientists and educators have learned about the process of change in individuals and groups may generally be applied to the process of improving persons and institutions. With reference to improvement of the curriculum, the educator must, of course, make further applications of the findings of social psychology, sociology and the other social sciences to his own field.[25]

Lippitt, Watson, and Westley[26] commented that change processes in organizations may be classified as spontaneous, developmental within the system, fortuitous, unplanned outside the system, or planned within the system.

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[23]Roland J. Pellegrin, "The Place of Research in Planned Change," Change Processes in the Public Schools, A Report of a Seminar prepared by the Center for Advanced Study of Educational Administration (Eugene: University of Oregon Press, 1965), p. 65.

[24]Eye and Netzer, op. cit., p. 53.

[25]Roland C. Doll, Curriculum Improvement: Decision Making and Process (Boston: Allyn and Bacon, Inc., 1964), p. 124.

[26]Ronald Lippitt, Jeanne Watson and Bruce Westley, The Dynamics of Planned Change (New York: Harcourt, Brace and Company, 1958), p. 10.

Planned change they defined as that which originates in a decision to make a deliberate effort to improve the system. Bennis[27] categorized planned change as one of eight types in a paradigm of change processes. He described planned change as entailing mutual goal setting by one or both parties of the change relationship--the parties having equal power and deliberativeness or intentionality.

The stages by which planned change occurs also have received the attention of social scientists. According to Loomis,[28] change occurs in three stages. The first stage is initiation, which includes ideas and decisions regarding the nature, direction and extent of change. Sentiment pertaining to the change is communicated in the second stage, legitimization. The third stage involves achieving congruence among those systems of values which are held by persons seeking to create change and those affected by the proposed change. Lewin, too, viewed the process of change as consisting of three stages. He stated that "A successful change includes, therefore, three aspects: unfreezing (if necessary) the present level, moving to the new level, and freezing group life on the new level."[29] Considering change as innovation, Rogers[30] conceptualized five steps in the change process: awareness, interest, evaluation, trial and adoption.

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[27]Warren G. Bennis, "A Typology of Change Process," The Planning of Change (Warren G. Bennis, Kenneth D. Benne and Robert Chin, eds.) (New York: Holt, Rinehart and Winston, 1962), p. 154.

[28]Charles P. Loomis, "Tentative Types of Directed Social Change Involving Systematic Linkage," Rural Sociology, XXIV (December, 1959), p 384.

[29]Kurt Lewin, "Frontiers in Group Dynamics," Human Relations, I (January, 1948) 35.

[30]Everett M. Rogers, Diffusion of Innovations (New York: The Free Press of Glencoe, 1962), p. 81.

In the field of education, curricular plans may be regarded as expressions of planned change. Mackenzie described curricular change as the outcome of the interaction of participants, power and process, as follows: "Participants in curricular change, having control of certain sources of power and methods of influence, proceed through various phases in a process to influence the determiners of the curriculum."[31]

The literature of the field of curriculum does not report instances of attempts to measure the extent of planned change represented in curricular plans. Curricular change is nominally reported as an isolated event with little reference either to past or concomitant change. Change in curriculum however, has been viewed in relation to other factors which provide some perspective for examining the extent of planned change in the curriculum. Benne and Muntyan[32] considered such factors when they observed that curricular change has been approached in three basic ways: change the objectives of the curricular program, change the content, and change the teaching method. Miel[33] wrote that the changes involved when the school curriculum is truly modified are actually changes in attitudes and behaviors of persons.

There appears to be an increasing awareness on the part of curricular theorists and practioners concerning the importance of planned educational change. Only speculative inferences are found in the literature regarding the extent of change contained in curricular plans. And what of the implementation of such plans?

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[31]Gordon N. Mackenzie, "Curricular Change: Participants, Power and Processes," Innovation in Education, Mathew B. Miles, ed. (New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 401.

[32]Kenneth Benne and Bozidar Muntyan, (eds.) Human Relations in Curricular Change, Illinois Secondary School Curriculum Program Bulletin No. 7 (Springfield: Department of Public Instruction, 1949), p. 16.

[33]Alice Miel, Changing the Curriculum (New York: Appleton-Century-Crofts, 1946), p. 14.

Implemented Instructional Change

Educators probably engage much more in the planning than in the implementing of instructional change--at least if the quantity of research and writing with respect to the latter is indicative. Few investigators have been concerned with the implementation of curricular change.

Godbey,[34] evaluating curricular development in Michigan, observed that poor communication was a deterrent to adequate reporting of the results of curricular study and to implementing programs resulting from such study. Heusner[35] investigated the relationship of the use of curricular guides to teacher participation in their development. He concluded that the utilization of these guides by teachers was not necessarily related to their participation in planning the guides. He also concluded that factors such as recognition of need for curricular change, time adequacy, role and organization must be present. Milstein[36] sought to determine the extent and direction of changes in classroom practices of teachers which might be expected from their participation in the production of curricular guides. With the exception of the use of materials in language arts and arithmetic, only negligible change was observed in his study.

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[34]James L. Godbey, "Evaluation of Curriculum Development Practices in Selected School Systems of Wayne County, Michigan," (unpublished Ed.D. dissertation, Wayne State University, 1960).

[35]Henry C. Heusner, "A Study of the Utilization of Curriculum Guides as Related to Selected Factors in their Planning and Construction," (unpublished Ed.D. dissertation, Wayne State University, 1964).

[36]Abe Milstein, "The Effect of Teacher Participation in Curriculum Guide Development upon Selected Classroom Practices," (unpublished Ed.D. dissertation, Stanford University, 1960).

Krug implied the use of curricular plans when he stressed that curricular planning and development entails the five following groups of activities:

(1) Teaching and learning
(2) Identifying and stating purposes of schooling
(3) Developing the all-school program
(4) Providing curriculum guides
(5) Providing instructional aids for teachers and learners.[37]

Representative also of work in curricular improvement is that of Alberty and Alberty who arranged the activities of curricular improvement into the following steps:

(1) Creating a feeling of need for improving the curriculum
(2) Determining a comprehensive organizational structure for curriculum improvement
(3) Formulating or reexamining the basic philosophy and goals of the school
(4) Developing working principles for dealing with adolescent development and learning
(5) Determining the general design of the curriculum
(6) Determining the scope and sequence of the curriculum
(7) Developing principles and procedures for planning and guiding learning
(8) Discovering and organizing resource materials for instruction
(9) Setting up a comprehensive evaluation program.[38]

Again, it appears that the assumption is made that teachers will make use of the improved curricular materials and that these materials will be evaluated.

With respect to curricular evaluation, Taba implied the use of curricular plans when she wrote:

> A special weakness of current evaluation programs is the fact that data about the progress...toward educational objectives are evaluated or interpreted without sufficient knowledge of the nature... of the instructional program.[39]

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[37]Edward Krug, Curriculum Planning (New York: Harper and Brothers, Publishers, 1957), p. 17.

[38]Harold B. Alberty and Elsie J. Alberty, Reorganizing the High School Curriculum (New York: Macmillan Company, 1962), p. 502.

[39]Hilda Taba, Curriculum Development (New York: Harcourt, Brace and World, Inc., 1962), p. 323.

The cyclical nature of the evaluation process, with the accompanying assumption that curricular plans are implemented, is demonstrated in the following comment by Saylor and Alexander:

> Evaluation and planning are really complementary processes. We plan the curriculum to achieve educational values. Our planning is based on evaluation of existing plans in terms of their relevance to these values, and our subsequent evaluation determines the relevance of new plans to whatever values are held, and then we plan further. We plan on the basis of evaluation and we evaluate the basis of planning; evaluation without planning or planning without evaluation is incomplete and hence unwise.[40]

In summary, the conclusion may be reached that, as an area of investigation, the implementation of plans for curricular change represents a potentially fruitful, largely unmapped domain.

General Nature of the Study

Substantial research dealing with decision making and aspects of perceptions of the various roles involved in the administration of schools has been reported. Some of the research on role perception has been definitive in nature but only a limited amount of it has been related substantially to the outcomes of professional efforts on the part of a school staff. The literature abounds with reports of curricular planning and descriptions of curricular plans. Processes by which planning takes place have been described. The literature is characterized by remarkable omissions of curricular planning, and particularly the implementation of planned curricular changes.

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[40] J. Galen Saylor and William Alexander, Curriculum Planning for Better Teaching and Learning (New York: Rinehart and Company, Inc., 1958), p. 579.

Objectives

The general purpose of this study was to relate some of the phenomena that characterize the administration of school systems to the instructional activities of the systems. The specific purpose of the study was to relate staff perceptions of the locations and responsibilities for decision making to planning and to implementing these curricular changes in the classrooms of the schools involved. Basically, the purpose was to determine whether any relationships existed between the commonality or congruence of perceptions of decision points by the professional staffs of school systems to the planning of curricular change and to its implementation in the teaching-learning situation.

The research staff possessed a wholesome suspicion that even carefully developed and attractively published plans for curricular change might not do other than the facetiously and traditionally reported 'gathering-dust-on-the-shelf' function. The investigators suspected that there are many variables appreciably and systematically related to the occurrence or non-occurrence of the implementation of planned curricular change. The dependent variable selected for study was that of the professional staff members' perceptions of decision points.

The present study was conducted in two phases. The major purpose in Phase I was to analyze the school system population with respect to the degree of commonality or congruence of staff members' perceptions of decision points in the administrative structure of each of the school systems. The purpose of Phase I, in a sense, was twofold. The first aspect was to secure information regarding congruence of perceptions of decision points

and to relate that information to the productivity and the implementation of curricular plans in the schools involved. The second aspect was that of establishing a base for the selection of the population for investigation in Phase II. The twofold purpose of Phase II was that of choosing six school systems (three experimental and three control) from the continuum of congruence scores determined from the staff perceptions of decision points and, then, attempting to manipulate these perceptions within the staffs of three of these school systems. It was the intent of the investigators in Phase II to create a situation in which the congruence in perceptions of decision points might be increased. At the end of the period of manipulation, the same instruments were applied both to the three experimental and to the three control school systems. The experimental and control school systems were paired in order to determine whether the manipulation of the perception of decision points might be systematically related to productivity in curriculum planning and to the degree of implementation of planned instructional change.

Hypotheses

In order to give focus to the two phases of this study, two hypotheses were stated to be tested in Phase I, and two hypotheses were scheduled for testing in Phase II. The hypotheses to be tested in Phase I were:

1. School systems in which there is low congruence in perception of decision points will reflect a lower incidence of planned instructional change than will school systems in which there is high congruence.

2. School systems in which there is low congruence in perception of decision points will reflect a lower incidence of implemented instructional change than will school systems in which there is high congruence.

The hypotheses to be tested in Phase II were:

3. An increase in congruence in perception of decision points will result in a corresponding increase in planned instructional change.

4. An increase in congruence in perception of decision points will result in a corresponding increase in implemented instructional change.

Ancillary Variables

The four hypotheses constituted the focal points for the organization of the data. Many items of information were collected which might be extended beyond the testing of the hypotheses. Other items of information were collected as background data. The research staff believed that, while not necessarily needed in testing the hypotheses, these could prove useful data from which to draw inferences concerning possible reasons why the basic data may have been characterized by certain relationships.

Several tangential studies which were related to the basic purposes of this research project also were conducted. A tangential study is defined as one in which some of the data of the project were used but additional data were secured in order to test various aspects of the possible relationships involved. Moreover, the testing of hypotheses usually leads to the identification of numerous questions which are ancillary in nature to the basic issues. Such has been characteristic of this project. The biographical data about the participants as well as the tangential studies produced information appropriate to probing several ancillary issues and questions.

Overview of the Report

In the chapter to follow, the design and conduct of the study is discussed. Tests of the basic hypotheses are presented in Chapter III. In Chapter IV, the results of the several tangential studies are summarized. The final chapter consists of a summary, conclusions, and implications for further study.

CHAPTER II

DESIGN AND PROCEDURES OF THE STUDY

The purpose of this chapter is to provide information basic to the interpretation of findings and, at the same time, provide sufficient detail for those who may wish to replicate the study. The intent of this chapter is (1) to support the quality of the procedures and findings of the research; (2) to provide possibilities for replication; and (3) to describe accurately the population, the antecedent measures, and the subsequent measures.

Selection of the Population

The required population for the study was, of course, directly related to the hypotheses to be tested, the kinds of data required for such testing, and the nature of the research design. To guarantee some consistency in selecting the population of school systems for the study from which samples were to be drawn for various aspects of the total research enterprise, guidelines were developed in the form of selection criteria.

Consistency in the selection of the population was achieved through the use of the following four criteria:

1. Any school system employing from 100 to 700 teachers would be eligible for consideration and selection.
2. No school system would be included if the superintendency in that system had changed during the past year.

3. No school system would be included which recently had undergone or was in the process of undergoing a major program of school district reorganization.

4. Each school system included in the population must be within a radius of 150 miles of the research center. This radius included the central and southern sections of the State of Wisconsin which possess some characteristic differences but, on many points, exhibit similarity and comparability from a standpoint of geographic type, the density of the population, business and industrial characteristics, and transportation facilities.

The four selection criteria were applied to the various school systems in central and southern Wisconsin. Thirty-one systems were selected as the basic population for the study. Early in Phase I of the study, members of the research staff contacted the superintendents of school systems which qualified under these criteria and concluded arrangements for their cooperation and participation. No single system declined the invitation to cooperate, and none during the course of the study withdrew or refused to continue to be available for further and more intensive study. The entire group of thirty-one school systems constituted the basic population for the research. All of the teachers, principals, department heads, vice-principals, superintendents of schools and other central office professional personnel were included in the group to which the basic instrument, identified as the Decision Point Analysis Instrument, was administered.

Following the administration of the Decision Point Analysis Instrument, the thirty-one school systems were arrayed along a continuum according to the

index of congruence of staff perceptions of decision points. This made possible the subsequent identification of the five high and the five low school systems on that continuum. Two exceptions were made at this point. After the original selection of the thirty-one systems, one superintendent in the high five and one in the low five accepted other positions; and, in so doing, they disqualified their school systems under the second criterion indicated above. The sample population subsequently used to test Hypotheses 1 and 2 as programmed in Phase I, represented five of the six high school systems and five of the six low school systems in the congruence array. These ten school systems hereafter will be referred to as the high five and low five on the continuum.

In Phase I, then, the research staff and associates visited each of the high five and low five school systems for the purpose of collecting curricular documents that had been produced for distribution between the dates of June, 1962 and October, 1964. The documents included in the computation of the Productivity Index served as a base for the sampling of curricular plans for which implementation data were to be collected.

Phase II required, again, a selection of a smaller sample of school systems. The school systems used in Phase II were selected from the high five and low five congruence systems of Phase I. Six of the ten systems were selected—three were designated as experimental and three as control school systems. The experimental and control systems were paired on the basis of their places on the congruency continuum and their indices of Productivity, Quality, Implementation, and Participation. Each pair of school systems

possesses quite similar characteristics in terms of the above listed factors. The three systems selected as experimental included one from the high congruence systems, one from the low congruence systems, and one from the near middle of the congruence continuum. The same factors were considered in pairing three control systems with each of the three experimental ones. This small sample of six school systems was utilized for the testing of Hypotheses 3 and 4 in Phase II. Biographical data, descriptive of the total and subpopulations are presented in Chapter III. The code numbers for the Phase I school systems are 01, 04, 10, 14, 16, 17, 20, 29, 30, and 31, and the code numbers for the experimental and control school systems of the Phase II sample are 01, 17, and 31, and 16, 20, and 29 respectively.

Antecedent Measure

The antecedent measure is congruence and it was derived from the computation of responses to the Decision Point Analysis Instrument. Its general purpose was to provide a means for examining the extent of agreement among teachers, administrators, and supervisors with respect to their perception of the location of responsibilities for making instructional decisions in a school system. This determination of congruence of perceptions was essential to the testing of the major hypotheses, to the selection of sample populations to be investigated, and to the examination of pertinent ancillary questions.

Design of the Instrument

The Decision Point Analysis Instrument had its origin in 1957 in the efforts of the researchers to identify many of the functions that are essential in the development and support of the instructional program. The pertinent literature was scrutinized carefully and task items mentioned were recorded on cards so that combinations and refinements might be possible. The original list of tasks in the supervision or the administration of the instructional program numbered approximately four hundred. The initial refinements of this list of tasks were based upon the rational judgments of the researchers. The reactions of selected practitioners who might be expected to record valid judgments with respect to the appropriateness of identified functions were sought and summarized.

The decision items comprising the pilot instrument had been selected from a group of forty-four administrative tasks previously used in a developmental study in the Janesville Public School System. The forty-four items used in the Janesville system came from the original four hundred as indicated above. The Janesville study, provided excellent information for the underlying methodological approach as well as excellent background for the development of needed instruments for this project.

The refinement of the Decision Point Analysis Instrument went through many stages of careful scrutiny, testing, and revision. The refinement process continued until the basic list of tasks contained thirty items. These items were organized into a working draft of the instrument. The

working draft included seventeen positions which might be used as loci of decision points in school systems. This draft was administered in a pilot school system. The pilot system was about average in the 100 to 700 teacher systems. The instrument used in the pilot school system included thirty items and seventeen positions. Data from the pilot system were used only for instrument refinement purposes and were not included in the research data. The pilot system made available all personnel to respond to the preliminary instrument. Later it was involved in an interviewing program in order to verify responses and to develop other instrumentation needed in the project. An analysis of the data from the pilot administration of the instrument resulted in a decrease in the number of listed positions to ten and the number of decision items to twenty-five.

The final instrument, consisted of 25 decision items related to, and divided equally among, the functional administrative areas of pupil personnel, staff personnel, curriculum, business management and school-community relations. It contained, also, the titles of ten positions, namely, business manager, principal, vice-principal, department head, special subject supervisor, superintendent, director of instruction, guidance coordinator, board of education, and teacher. The ten positions were ordered as indicated here by the process of random selection. For each of the decision items, the 6,138 teachers, administrators, and supervisors in the 31 school systems, described above, were asked the following three questions:

A. Who makes this decision?
B. What other persons participate in making this decision?
C. What is the nature of your participation in making this decision?

Only the responses indicative of the locus of primary decision-making responsibilities were analyzed for use in testing the hypotheses. Data obtained from answers to Questions B and C were used in related studies to supplement the basic findings of the research project. In a test application, responses to Questions A and B were combined in determining the index of congruence. The combination resulted in very minor changes in the ordering of the schools along a congruence continuum. This evidence supported the validity of using only the responses to Question A in ordering the schools for the purposes of selecting sample populations and for the purpose of testing the various hypotheses.

The Decision Point Analysis Instrument included an introductory page, a background data page, and a backing sheet. The format and content of the instrument are presented in Appendix A. On the upper portion of the backing sheet were general directions to the respondent. Along the left of the sheet were the titles of ten positions, randomly ordered as indicated above, which were common to the school systems being studied. Where there were different titles for one or more of these positions,--a characteristic of the particular local system,--the proper identification was indicated prior to the administration of the instrument. This made the list of position titles system-specific and avoided confusion on the part of the respondents as to the person about whom the response was directed for each decision item. Questions A and B were designed to elicit the respondent's perceptions of the persons in their school systems who participated primarily, secondarily, and tertiarily, in making the decisions involved in each task item.

Question C, called for each respondent to provide his perceptions of his own participation in making each of the decisions. In response to Question C, the respondent could choose from four possibilities, namely: 1) make the decision, 2) recommend the preferred decision, 3) provide information only, and 4) none.

The decision items were placed approximately equal distance from the sides of the green backing sheet for the instrument. Each of the twenty-five decisions items as well as the the sample decision item, were typed near the top of a separate 2-1/2 by 8-3/8 tab. The twenty-six separate decision item tabs were stapled to each other and to the green backing sheet. Decision item tabs were designed so that each completed tab could be folded over the top of the backing sheet, exposing the following decision item beneath it. Each decision item tab contained two vertical columns. The first column for the responses to Questions A and B contained ten cells. The second column for the response to Question C consisted of one cell. Thus, each decision item tab and the ten positions cells of Column 1, located below the statement of each item were always in juxtaposition with the ten position titles along the left side of the backing sheet. The decision item tabs were arranged in increasing numerical order, with the 25th item on the bottom and the sample item on top. The sample decision item was printed on pink colored paper and decision items 1 through 25 were printed on white paper. Preceding the statement of each decision item were the words, "Decision Item" (Sample, or 1, 2, 3, ... 25).

The number opposite each decision item given below indicated that its order of placement in the instrument was the result of randomized procedure.

Each item was categorized according to an administrative task area.

Non-Categorized Item (Sample): The decision on the practice of using workbooks in the instructional program.

Business Management:

3. The decision on the priority for the use of unscheduled rooms and multipurpose areas.

6. The decision for the educational specifications for a new or remodeled building.

7. The decision on the instructional aids to be included in the budget.

18. The decision on the procedure for obtaining instructional supplies.

23. The decision on who will participate in the formulation of the school budget.

Curriculum:

1. The decision on the selection of curriculum problems for study.

10. The decision on the selection of teachers for participation in experimental instructional programs.

14. The decision on the regulations concerning lesson plans.

17. The decision on the selection of textbooks.

19. The decision on how to evaluate the curriculum.

Pupil Personnel:

2. The decision on the ways to group pupils by classes.

9. The decision on the content of pupils' cumulative records.

12. The decision on the retention of pupils.

16. The decision on the rules governing pupil conduct.

21. The decision on the practices for assigning homework.

School-Community Relations:

8. The decision on the means for increasing community understanding of curriculum developments.

11. The decision on how to report pupil progress to parents.

15. The decision on which community drives and activities merit school participation.

24. The decision on the content of local news items to be released.

25. The decision on the use of citizens' committees.

Staff Personnel:

4. The decision on the orientation activities for new staff members.

5. The decision on the appointment of teachers to curriculum committees.

13. The decision on the adequacy of teacher performance.

20. The decision on the activities for inservice development of staff.

22. The decision on the assignment of teaching and non-teaching loads.

The biographical data sheet which was attached to the instrument, included an identification box in which a code number was to be placed. The code number was inserted prior to the administration of the instrument and a corresponding code number was placed on the back of the decision items tabs. In this way the identification of the respondent with his personal background information would not be lost when the decision item tabs were removed from the backing sheet for the purpose of recording the personal data on data cards. The presence of the code numbers was called to the attention of the respondents at the time the instrument was presented and did not constitute any attempt to deceive the respondents.

Administration of the Instrument

The Decision Point Analysis Instrument was administered to the total professional staff of each of the 31 cooperating school systems. The date of each administration was established well in advance. The superintendent cooperated in providing opportunities for three to six members of the research staff to come to the school system at an hour when the entire professional staff could respond to the instrument. Each staff was divided into groups of approximately 50 persons for the purpose of responding to the instrument. Each member of the research staff had been briefed carefully on the presentation that was to be made of the instrument as well as of the statement of the purpose of asking for the cooperation of the respondent. Each member of the research staff used from three to five minutes to give a standard presentation of introduction and explanation. After each person received a copy of the instrument, its nature was explained to the entire group. Each one read as he listened to the research staff representative read the directions on the cover page. Each member of the group then was asked to respond to the items on the background data page. When they had done so, this page along with the covering direction sheet were torn from the green backing sheet so that the respondent then was confronted only with the decision items tabs and the questions relating to each item. In each instance the person administering the instrument worked through the sample item with the group. They were asked not to omit any decision items. They were asked, further, to respond to each of the three questions presented. The respondents, then, were asked to proceed as rapidly as possible, beginning with decision item 1 and moving through item 25. As soon as they had completed responding to the

instrument they gave the completed instrument to the research staff member in charge and were free to leave. They were given complete assurance of annonymity in the processing and reporting the data collected in the study. There was little apparent reluctance on the part of the participants to respond.

Less than a fraction of one per cent of the respondents deliberately failed to respond or gave obviously facetious answers to the extent that their responses had to be discarded. Unlike many tests and inventories, this instrument had neither right nor wrong responses. Hence, none of the response patterns in Column I were necessarily better or worse than any other response patterns. Similarly no evaluation of the "goodness or badness" of Column II responses could be made.

Consistency of Measurement

Since the Decision Point Analysis Instrument did not provide a value score, conventional procedures for determining its consistency of measurement could not be used. The degree of consistency, however, with which the instrument measured what it purported to measure was determined through a comparison of the response patterns of each of the test and retest pairs. The sample used for the consistency of measurement included three school systems selected from the original population previously arrayed according to congruence of perception scores. One system was selected randomly from each of the highest, lowest, and middle thirds of the congruence continuum of 31 school systems. The personnel of one elementary school (system D), ranking four in the system of congruence, were retested. The

personnel of a junior high school (system O) ranking 15 in the system of congruence were retested. The personnel of a senior high school and an elementary school (system W), ranking 23 in the system of congruence, were retested. The Decision Point Analysis Instrument was re-administered to the personnel of these schools approximately six months after the original administration and by the same members of the project staff who administered it originally to these groups.

The measure of consistency of the Decision Point Analysis Instrument is the Index of Consistency. The Index of Consistency values which reflect the decision point analysis consistency of measurement are not the usual indices of reliability. The Index of Consistency for Column I responses was measured by the degree to which each respondent, on both the original and the retest administration of the instrument assigned the 1, 2, and 3 order to the same three of the ten position cells and in the same order for each of the items. For Column II the Index of Consistency value was likewise a measure of the degree of similarity between the number indicative of each person's original perception of his participation in decision making and the number indicative of his perception of his participation at the time of the retest. In determining the Index of Consistency scores, points were assigned according to the degree of overlap between the original and the retest response patterns. No points were scored for persons unless the positions they originally indicated also were indicated as either the primary, secondary, or tertiary decision making responsibility on the retest. In evaluating the consistency of each person's Column I and Column II response patterns for each of the items the point-scheme shown below was used. The pairs of

numbers separated by a colon correspond to the original and the retest values assigned by respondents to corresponding position cells for each decision item on the original and the retest, as follows:

INDEX OF CONSISTENCY SCORING SCHEME

Column I response patterns:

1:1, 2:2, 3:3 ---------- 3 points each

1:2 or 2:1, 2:3 or 3:2 ---------- 2 points each

1:3 or 3:1 ---------- 1 point

0:1 or 1:0, 0:2 or 2:0, 0:3 or 3:0, 0:4 or 4:0 ----------0 points each

Column II response patterns:

1:1, 2:2, 3:3, 4:4 ---------- 3 points

4:3 or 3:4, 3:2 or 2:3, 2:1 or 1:2 ---------- 2 points

4:2 or 2:4, 3:1 or 1:3 ---------- 1 point

4:1 or 1:4 ---------- 0 points

The maximum possible Column I score for each item was 9; the minimum possible score was zero (0). The maximum possible Column II score for each item was 3; and the minimum score was also zero (0). The Column I and Column II item scores were summed for each person, for each school and for all schools. These total agreement scores were then divided by the maximum possible consistency score, producing the Index of Consistency. The Indices of Consistency for each of the three systems are shown in Table 1.

TABLE 1

SYSTEM INDICES OF CONSISTENCY DERIVED FROM THE RETEST ON THE DECISION POINT ANALYSIS INSTRUMENT IN THREE SCHOOL SYSTEMS

Systems	Number of Respondents	Column I	Column II
D	24	0.536	0.755
O	44	0.518	0.786
W	51	0.628	0.755
Total	119	0.569	0.766

The Column I and Column II Index of Consistency tabulations for all the persons retested in each school system, analyzed by individual decision item number, column number, and system, are presented in Table 2.

The ranges of consistency indices were relatively small for both Column I and Column II values for all schools. Column I consistency indices ranged from a low of 0.406 to 0.711, 0.516 to 0.711, and 0.458 to 0.649 for systems O, W, and D respectively. Column II Index of Consistency scores range, for the schools of systems O, W, and D, from 0.697 to 0.887, 0.627 to 0.846, and 0.639 to 0.903 respectively. It may be inferred from these data that all 25 decision items were about equally high in their consistency of measurement.

Perfect original-retest response consistency for each item and person occurred when, on the retest, the subject assigned the 1, 2, and 3 response values to the same three of the 10 cells and in the same order as he did on the original administration of the Decision Point Analysis Instrument. Thus, a subject's Column I Index of Consistency is dependent on these two related factors each of which has a relatively low probability of occurring by chance assignment. An appropriate interpretation of the Index of Consistency scores may thus be given in terms of probability. On the original test, the subject

TABLE 2

ITEM INDICIES OF CONSISTENCY DERIVED FROM THE RETEST ON THE DECISION POINT ANALYSIS INSTRUMENT IN THREE SCHOOL SYSTEMS

Decision Item	O (n = 44)		W (n = 51)		D (n = 24)	
	I	II	I	II	I	II
1.	.432	.765	.606	.725	.555	.694
2.	.553	.773	.614	.785	.592	.777
3.	.487	.758	.616	.790	.553	.806
4.	.513	.811	.680	.804	.557	.875
5.	.513	.802	.604	.753	.467	.750
6.	.517	.887	.671	.811	.533	.778
7.	.406	.796	.516	.753	.463	.653
8.	.536	.811	.575	.778	.632	.750
9.	.489	.758	.650	.627	.495	.708
10.	.508	.831	.619	.745	.495	.736
11.	.485	.765	.610	.706	.574	.778
12.	.711	.811	.685	.753	.612	.821
13.	.611	.802	.650	.850	.538	.806
14.	.542	.796	.650	.850	.538	.806
15.	.542	.796	.616	.786	.565	.639
16.	.518	.773	.669	.646	.625	.806
17.	.460	.750	.711	.823	.505	.792
18.	.450	.773	.577	.751	.528	.722
19.	.450	.697	.586	.693	.499	.736
20.	.493	.795	.689	.646	.546	.722
21.	.506	.720	.662	.846	.649	.903
22.	.495	.780	.673	.794	.579	.750
23.	.590	.842	.628	.719	.458	.863
24.	.480	.788	.612	.765	.500	.653
25.	.621	.842	.636	.751	.461	.736

may select any three cells; the probability that on a retest the same three cells will be selected from the available 10 (without replacements) is 3/10 x 2/9 x 1/8 = 6/720 or 0.00833. The probability of achieving the same ordering of the three responses in the cells in the same order as on the original instrument is 1/3 x 1/2 x 1/1 = 1/6 or 0.16. The probability of selecting the same three position cells and assigning numbers in the same order is therefore (0.00833) x (0.16) = 0.0013. Thus, by random assignment a perfect agreement index of 9 (for Column I) 13 times in 10,000 (i.e., 1:1, 2:2, and 3:3) would be expected. The probability of getting one matched pair in the cells with the other two reversed, (i.e., 1:1, 3:2 and 2:3, 2:2, 3:1 and 3:3, 1:2, and 2:1) is (0.00833) x (0.16) = 0.0013. Thus, by random assignment, a pair in agreement with the other two values reversed would also be expected to occur 13 times in 10,000. While there are a number of ways in which the 3 responses (2 of the 3, or 1 of the 3) might have been assigned on the retest to the same three position cells that were assigned on the original administration, there was a greater number of possible ways of not duplicating cell combinations on the retest so as to achieve any scorable pattern. The probability of achieving any of the original retest response patterns for which points are scored was similarly low. The mean observable Index of Consistency for Column I responses was 0.569. This corresponded to a point value of 5.121 out of 9 points available for perfect matching. The agreement value obtained by the Decision Point Analysis Instrument was enormously greater than the expected point value based on the chance matching between assignment and reassignment of the 1, 2, 3 responses alone.

The space for the response to the Column II question consisted of one

cell to which could be assigned one of the numbers 1, 2, 3, or 4 on both the original administration and the retest. The mean Index of Consistency for all items and for the 119 subjects was 0.766. The observed Index of Consistency of 0.766 is more than 5 times greater than the value expected on the basis of chance matching between assignment and reassignment of responses.

When both the Column I and Column II Indices of Consistency are evaluated in the light of the small probability of randomly duplicating on a retest the relatively small number of scoreable response patterns, the Indices of Consistency obtained appear to be significantly greater than would be achieved by chance-assignment. Hence, the Decision Point Analysis Instrument was considered to be highly consistent in its measurement.

Congruence Determination and Sampling

For the purpose of this study, congruence was defined as the degree of agreement among the professional personnel of a school system in their perceptions of the loci of various decision points as measured by the Decision Point Analysis Instrument. Perfect congruence or agreement was said to occur when all the persons of a given school system agreed upon the same position incumbent for each decision item. In defining and determining the congruence scores, only the responses to Question A were used. Furthermore, only responses from professional personnel were used in the calculation of congruence. Any professional person who taught one or more classes was defined as a teacher. Personnel in the administrative, supervisory, and other central office positions--either full time or part time--were considered to be members of the administrative group.

Maximum possible congruence for each item was achieved when all of the responses for the members of a group were assigned to the same position cell. Minimum possible congruence occurred when the responses for each item were equally distributed among the ten position cells available. Inasmuch as the nature of the response did not produce a score, the patterns of the distribution of the responses to Question A necessitated that congruence be determined by comparing the observed frequencies for all group members for each item with the cell frequencies for the ten positions that might have been expected by chance. The assumption necessarily made was that any of the ten position cells had an equal probability of being selected by each respondent. Although this was not the case, the assumption remained constant with respect to the entire population of 31 systems. Even though basing the definition and calculation of congruence on the assumption of random assignment causes distortion of the congruence measure with respect to an absolute reference, it is not considered to have had an effect on the interpretation given to the congruence scores of the 31 systems when viewed in relation to each other.

In arriving at a measure of agreement in their interpersonal perceptions, the research staff considered all professional personnel as members of either the teachers' or the administrators' group. To prevent an under-evaluation of the administrators' perceptions in the congruence calculation, due to their small number as compared with the number of teachers, congruence was calculated separately for the teacher and the administrator groups. Within-group congruence scores reflected the degree of agreement among the members of the teacher group and among the members of the administrator group in their perception of the location of each of the administrative decison points. The members of the two groups, moreover, may perceive a different position as

the locus of any given decision point. The degree of between-group agreeement was not an independent measure; between-group agreement was dependent on the amount of within-group agreement on each of the ten position cells for each of the two groups. These factors were appropriately considered and included in the formula which was used to calculate congruence. Since the two groups might have perceived the incumbents of different positions to be responsible for making a decision, a measure of between-group agreement also was incorporated into the formula for the congruence calculation.

In order to prevent distortions of the congruence scores due to inter-system differences in the number of teachers and administrative personnel who responded, the expected and observed cell frequencies for each item were converted to decimal values by dividing them by the total number of responses possible for that particular school system. Thus, all the expected decimal cell frequencies were 0.10; and all cell values representing observed frequencies of respondent choice in the teacher and the administrator groups ranged from 0.00 to 1.00, corresponding to zero and one hundred per cent responses, respectively.

The formula for the calculation was based on a traditional Chi-square formula modified to conform to and represent accurately in numerical scores the definition of congruence used in this study. The congruence calculation formula, for two groups within each system, was as follows:

$$X^* = \sum_{I=1}^{25} \left[\sum_{C=1}^{10} \frac{(O_{TC} + O_{AC})^2}{2} \frac{(E-O_{TC})^2}{E} + \sum_{C=1}^{10} \frac{(O_{TC} + O_{AC})}{2} \frac{(E-O_{AC})^2}{E} \right]$$

The data were punched into cards, the format of which is included in Appendix B. Responses to five decision items were punched into each card. A comparison of the original data instruments and the punched data records on a random

sample of one per cent of the total responses indicated that the data records were above the 99.9 level of accuracy.

All calculations were performed on a CDC 1604 computer. The program by which the calculations were done included only those responses for which at least a primary decision-making response was indicated, but it did not reject from the calculation valid responses which occurred on the same data card with one or more partial item responses. A copy of the program by means of which the calculations were performed is included in Appendix C.

The calculations were performed for each of the total school systems without regard to individual school buildings. The scores were computed and the results printed out separately for the teacher and the administrator groups for each of the decision items. The resulting group and item congruence scores, rather than the frequencies in the initial response patterns, were then summed to provide the system congruence score.

All school systems then were arrayed on this basis on a continuum ranking from 1 to 31. The school system ranked 1 had a Decision Point Analysis Instrument congruence index of 92.850442; the school system ranked 31 had a congruence index of 48.280747. As indicated above, these congruence indices and rankings of the 31 school systems were used to select the sample for Phase I and for the subsequent testing of Hypotheses 1 and 2. The same congruence and ranking information also was used as one criterion for selecting the six school systems for Phase II and the subsequent testing of Hypotheses 3 and 4 of the study.

Subsequent Measures

The statement of hypotheses indicates the commitment of this project to assess the relationships between the congruence or lack of congruence in the

perception of decision points in a school system, the development of curricular plans, and the implementation of those plans in the classroom. In order to test the hypotheses and related problems, four additional instruments were developed. These four instruments included: a productivity index, a quality index, an implementation index, and a participation index. Two measures, namely, productivity and implementation were essential to the testing of the hypotheses. The other two measures, quality and participation, were introduced to expand the interpretation of the data used in testing the hypotheses.

Productivity Index

As indicated above, the ten school systems selected from the 31 for the purpose of testing Hypotheses 1 and 2 were the five high and five low along the congruence continuum. Members of the research staff contacted the superintednents in each of these ten systems and asked for all of the curricular materials that had been developed and distributed within their systems in the period of June, 1962 to November, 1964. The superintendents were asked to provide copies of all reproduced materials which, in their judgment, were intended to influence either the design of the curriculum or the procedures of instruction. These materials were collected and brought to the research laboratory for analysis.

After review of the materials which were inventoried for each school system, it was determined that the data used to test the hypotheses would be limited to the documents which might be admissible as evidence of providing curricular change. A series of criteria were developed and applied to each piece of collected material, thus, giving maximum consistency to the

comparison of school systems in curricular development. The curricular plans for each of the ten school systems were categorized into subject areas. The collection of plans admitted to each subject area subsequently were combined into what was termed a document.

Thirteen subject areas were identified in order to classify the curricular materials. These areas were art, music, business education, English language, foreign language, home economics, industrial arts, mathematics, physical education, science, social science, special education, and miscellaneous.

The subject area plans constituting each curricular document, then, were studied by the research staff. Staff members underwent a period of training which included a discussion of the criteria for admitting plans to each document, the application of the criteria in pilot situations and content analysis of the materials. Each curricular plan which was reproduced and distributed by a local school system was included in the analysis if, in the judgment of a team of the research staff it met the following criteria: 1) It was a statement of the scope and sequence of content for an area; 2) It was locally produced; 3) It dealt with curricular design as opposed to managerial directives; 4) It had been revised in the process of reproduction; 5) It was not repetitive of a previous plan; 6) It was a reorganization of a previous plan. The research staff screened each piece of submitted material and judged it in the light of the criteria. If four of the five team members judged the plan to be admissible, it was included to the computation of the index. If less than four of the five, judged it inappropriate for inclusion, that material was reviewed by another team of the research staff. After discussion

consensus was accomplished. The validity of the admission of these plans was based upon the judgments of from five to nine people who had gained common experience in working with the materials.

A productivity index for each school system then was defined in terms of the number of curricular plans produced. Each school system's persistence in the production of plans was described by the annual average number of produced plans during the two and one-fourth years involved in the admission and collection of the curricular plans. The formula was as follows:

$$PRO_{ss} = \frac{Q_p\ 1962\text{-}63 + Q_p\ 1963\text{-}64 + \frac{x}{12}\ \ Q_p\ 1964\text{-}65}{2 + \frac{x}{12}}$$

Where PRO_{ss} = Productivity of School System,

x = Number of months in 1964-65 year (June 1, 1964 - October 31, 1964), and

Q_p = Quantity of produced plans.

The productivity index with descriptive statements is presented as Appendix D. This formula was applied to determine a productivity index for each of the ten school systems. This index was recorded and utilized subsequently for the testing of Hypothesis 1.

Implementation Index

As indicated earlier, little material of relevance to the implementation of developed plans for curricular change was available in the literature. The index was explored in an advanced seminar in the supervision of

instruction at the University of Wisconsin after the preliminary notions had been developed in a pilot experience in a selected Wisconsin public school system. Eventually, it was determined that in order to get appropriate and reliable information regarding the implementation of curricular plans a structured interviewed technique would be both feasible and appropriate. Suggestions from the seminar were screened carefully by members of the research staff who also worked with the pilot school system in developing an interview structure. Preliminary discussions also were held with the school superintendent and director of curriculum in the pilot school system. They were fully informed regarding the purpose and intended use of the instrument to be developed. They likewise were fully informed regarding the procedures needed in order to refine the instrument. One research staff member then, interviewed several teachers of the pilot system in sessions of approximately four hours each. Through these interviews many ideas were clarified regarding the kinds of things that teachers were willing to report and the way that questions should be phrased in order to elicit the information desired. The interviews after this trial period were reduced from four hours to approapproximately one hour in length. The refinements primarily involved the broadening of questions to be asked in order to strike that golden mean in which usable information could be secured and to which teachers of any school system would be willing to respond. The time of the interview finally was reduced to approximately fifteen or twenty minutes. The pilot school system later was used to secure a sample of teachers in the entire system who were interviewed by all members of the project staff plus two supervisors from the State Department of Public Instruction. The State Department

supervisors were invited to participate in the pilot study in order to advise the research staff regarding the quality of the interview structure.

The Implementation Index Instrument was organized into three areas of concern, namely, program, organization, and facilities. Under each of these areas of function four questions or statements were listed. Each teacher was asked to respond to these questions: 1) How much do you use this plan?, 2) How much of a change is this from what you were doing before?, 3) What kind of a change is this: addition, subtraction, or rearrangement? A copy of the instrument in its final form is presented as Appendix E.

Within each of the ten school systems, an 18 per cent sample of all teachers who were using the curriculum plans was selected randomly for the interviews. Each teacher was interviewed concerning only one curricular plan and always a plan related to the teacher's subject matter area and/or instructional grade level. Responses to Questions A and B for each decision-making activity were recorded by each interviewer on a three-point scale; none, some, or much. Teachers whose responses to Question B indicated that the plan contained some or much change were asked the third question, What kind of a change is this? In order to facilitate scoring, the three possible responses to Questions A and B were assigned values of 1, 2, and 3 respectively. These responses then were summed for the twelve decision-making activities and for all of the curricular plans for each school system.

Identical instruments were used for both teachers and administrators, except that the nature of the lead question in each instance was adapted to one or the other. The administrators were asked, "How much do your teachers use this plan?, whereas the teacher was asked, "How much do you use this plan? Thus, there was an opportunity to acquire the basic

data for comparing the perceptions possessed by teachers and administrators about implementation.

In order to assess the extent of reliability in the measurement of the implementation of planned curricular change, each of the project staff members conducted a second interview with some of the teachers he had interviewed previously, again using the Curriculum Implementation Index guide and score sheet. Teachers in each of three school systems were selected randomly from the sample and were asked to respond to the items of the Curriculum Implementation Index a second time. Each teacher's indications of the extent of planning for curricular change and the implementation of plans derived from the original and subsequent interviews were correlated to determine the consistency of measurement. The correlations between the original and subsequent composite scores for each teacher's responses in Columns A and B of the Curriculum Implementation Index were 0.9131 and 0.8493, respectively. The correlation between the scores indicative of the extent to which teachers' duplicated their original response patterns on the second interview was 0.8466. The significance of these correlations indicates that the Curriculum Implementation Index possesses reliability at about the 1 per cent level of confidence. The composite score of the responses to Question A was used as each school system's index of its incidence of implementation of instructional plans. Each school system's composite score derived from the responses to Question B of the Curriculum Implementation Index served as its measure of the incidence of planning for curricular change.

Quality Index

It became apparent in the pilot study that the quality of a curricular

plan was related both to the enthusiasm by which it was received by the teachers and to the energy by which the teachers set about implementing the plan. A further discovery by the research staff when studying the plans for admission to the Productivity Index was that quality might be a factor since the quality of the plans was markedly lacking in uniformity. The Quality Index involves the analysis and appraisal of a curriculum document as a plan. This index, in part, includes an evaluation of the format of a curricular plan. It is believed, however, that it extends beyond mere format since it involves questions about the content of the plan itself.

The Quality Index was applied to the documents, namely, the collection of individual plans by subject areas for each of the ten school systems. The research staff worked in teams of two in judging the quality of each curricular document. If the differences in the team members' scores exceeded an arbitrary established amount, a third judge became involved in establishing the Quality Index. This index involved judgments related to: A) Organization or the scope and sequence among levels but not within a level of curricular plans; B) Statements of objectives; C) Facilitation through procedures and/or aids; and D) Evaluation. Evaluation in this instance (D) was not the evaluation of the plan as a plan but rather the suggested evaluations proposed in the content of the curricular plan for an evaluation of the worth of the plan after it had been implemented.

In the Quality Index presented as Appendix F, each judge made a choice from five levels of quality. No claim is made that these levels have equal intervals but descriptive terms were supplied in order to standardize the criteria of judgment as well as to give direction that would result in a consistency of judgment. Each document was evaluated on each

criterion along a five point scale ranging from "Incomplete coverage of levels with included levels unrelated", to "Complete coverage of levels with interrelatedness among all levels." The separate evaluations within each of the various levels of each document were averaged in order to obtain a mean score for the document. These mean scores obtained from the independent evaluations of teams of two raters were averaged in order to obtain the composite Quality Index for each curricular document. When two raters were not in close agreement, a third rater was utilized. The average score for all documents provided the total curricular quality score for each school system.

The reliability of the evaluation of curricular document quality was determined through the use of a test-retest procedure. A re-evaluation of the quality of five curricular documents from a school system randomly selected from the sample was performed by the same teams of evaluators using the Analysis and Appraisal of Curriculum Document Instrument scoring sheet. Correlations between the original and re-evaluation qualities subscores for all five documents as well as the total quality scores yielded positive relationships of 0.8969 and 0.7664, respectively. The significance of these correlations indicates that this procedure for evaluating the quality of curricular plans possessed reliability above the 1 per cent level of confidence.

Participation Index

The study of the curricular productivity characteristics of each school system made it apparent that an index of participation would be useful in interpreting the data as the hypotheses were tested and the ancillary questions explored. Consequently, an index of participation was developed.

This index represented, in its simplest terms, the days devoted to the production of curricular plans and documents divided by the total days of professional employment for the entire school system. Stated as a formula the index is:

$$\frac{\text{Days devoted to production}}{\text{Total days of employment}} = \text{Index of Participation}$$

In the application of this formula eight hours was considered the equivalent of one working day.

The purpose of the Participation Index was to develop a plan which would make it possible to array the school systems in terms of the proportion of total time of employed professional personnel devoted to the development of curricular plans. The success of this index depended upon the accuracy of the estimate of days devoted by individuals to curricular planning activities. The total days in the school year and the identification of instructional personnel with the appropriate equivalences for parttime employment were secured from the official records in the superintendent's office of each system. The estimates of time devoted by individuals were secured from a sampling of members and chairmen of curricular committees.

The general plan for the index was developed and one school system was used in a pilot application of the format and formula. The major problem was to develop questions about participation which would elicit quantitative information directly from the records of the school systems and the estimates of a sampling of those who had participated in the various curricular development enterprises. After the pilot application of the procedure, some revisions were made in the phrasing of questions as

well as in the manner by which twelve-month employees and special summer employees might be included in the index so that consistency would prevail throughout the utilization of this index for the ten school systems used in Phase I of the study. The following determinations appeared necessary in the pilot effort:

1. The number of curricular documents produced in the system.
2. The number of groups working on plans for each document.
3. The number of persons included in each work group.
4. The period of time each work group was active.
5. The number of hours spent by each member of each work group.

The Index of participation with the attendant forms for summarizing data is presented as Appendix G. Form II provided an opportunity to sample the staff who actually served on curricular committees as well as the chairman of each curricular development committee. The sample of committee members was used to establish an average amount of time of participation for all committee members officially listed. This average was multiplied by the total number of committee members, thus giving a reasonably accurate estimate of total time required for developing each curricular document.

Congruence Improvement Program

The purpose of Phase II or the experimental phase of the study, was to determine whether by concentrated efforts the congruence of perceptions of decision points in individual school systems could be manipulated and, thereby, increased. The selection of the schools for Phase II was described earlier in this chapter.

The procedures used by the research staff in conducting Phase II was to contact each of the superintendents of the three school systems selected as experimental systems seeking their cooperation for a return and continued work with the administrative and teaching staffs. Agreements were reached and the general purpose of Phase II, that of increasing the congruence of perceptions, was explained to the superintendents. A member of the research staff met with each superintendent in May, 1965 and with his administrative or advisory council composed primarily of the superintendent, the principals, and the central office supervisors or directors in October, 1965. During the session with the research staff representatives, effort was made to analyze the summarized results from the prior administration of the Decision Point Analysis Instrument. These were examined by totals for the system as well as by individual schools. The members of the administrative council of each of the three systems were urged to study those decision items in which there was lack of agreement and to reach an agreement within the council. This was done over a period of several weeks during the spring of 1965. Each of the three school systems supplied to the research staff a final list of agreements which had been achieved at the level of the school system's administrative council.

Each of the three experimental school systems received the four members of the research staff in October, 1965, for meetings with small groups of teachers. The teachers were divided by elementary school, junior high school, and senior high school levels since it appeared that some of the

decision points agreed upon differed by levels within the school system. The representative of the research staff meeting the small group explained the progress of the research project to date and indicated the nature of the agreements that had been made at the central office level. In each instance the local school professional staff members were urged during the current school year to accept and operate in terms of the agreed-upon decision points for those areas included in the Decision Point Analysis Instrument. The faculties of the three school systems seemed to welcome the idea and gave wholesome assurance that concerted efforts would be made to increase the congruence.

Arrangements were made for a representative of the research staff to return to each of these three school systems in January, 1966, to administer again the Decision Point Analysis Instrument in precisely the same manner that it had been presented or administered originally. The three control systems were asked to cooperate in the same manner with respect to the January, 1966, administration of the Decision Point Analysis Instrument. The control schools were not contacted and were not informed as to the reason for the re-test on the Decision Point Analysis instrument other than that it was a desire of the research staff to determine the consistency of the instrument itself. Thus, the basic data for the experimental and control schools were received.

When the Decision Point Analysis Instrument was administered the second time, each of the six school systems —three experimental and three control—was asked to supply the curricular documents which had been distributed between November 1, 1965 and March 1, 1966. This would provide

an opportunity to compare the annual production with the original measures of productivity which were recorded as average annual production. All of the subsequent measures then, namely, Productivity, Implementation, Quality and Participation were applied in the six systems so that associated changes might be identified with the presence of or lack of a concerted attempt to increase the congruence of the perception of decision points. This re-assessment, based upon the use of all instruments, provided the basic data for testing Hypotheses 3 and 4 as well as for the exploration of the ancillary questions and issues.

The instrumentation and the procedures detailed in this chapter constitute, then, the origin of the data to be analyzed in Chapter III.

CHAPTER III

MAJOR FINDINGS OF THE INVESTIGATION

This chapter consists of three major parts. In Part One, the population, the raw data, and the statistical procedures used to analyze the data are described. Hypotheses 1 and 2 are tested empirically and the ancillary findings of Phase I are presented in Part Two. In Part Three, Hypotheses 3 and 4 are tested empirically and the ancillary findings of Phase II are presented and described.

Part I - Description of the Population

The nature of the project population and the sample for Phase I are summarized prior to presenting the techniques used to analyze the data and the resultant findings. In the tables immediately following, the characteristics of the population and the Phase I sample are presented. In Table 3 is shown the distribution of the number of persons in administrative and teaching positions for each of the 31 school systems of the population. The population contained 6,347 professional personnel, of whom 2,398 were men and 3,949 were women. Of the 2,398 men, 510 were administrators and 1,888 were teachers. This is contrasted with the distribution of 3,949 women, of which 323 were administrators and 3,626 were teachers. Regardless of sex, 833 of the 6,347 professional personnel of the population were administrators and 5,514 were teachers—a ratio of one administrator or supervisor to each 6.6 teachers. Also shown are the numbers of professional personnel

TABLE 3

ADMINISTRATORS AND TEACHERS INCLUDED IN THE POPULATION

System	Males			Females			Total Population	
	Administrators	Teachers	Total	Administrators	Teachers	Total	Number	%
1	8	37	45	3	57	60	105	1.65
2	8	29	37	7	69	76	113	1.78
3	15	34	49	5	54	59	108	1.70
4	37	114	151	23	252	275	426	6.71
5	14	42	56	2	64	66	122	1.92
6	12	33	45	1	51	52	97	1.53
7	10	27	37	6	49	55	92	1.45
8	14	29	43	10	101	111	154	2.43
9	9	51	60	5	78	83	143	2.25
10	17	59	76	9	128	137	213	3.36
11	15	40	55	7	67	74	129	2.03
12	9	54	63	3	84	87	150	2.36
13	16	62	78	6	136	142	220	3.47
14	9	47	56	2	71	73	129	2.03
15	9	29	38	7	73	80	118	1.86
16	9	22	31	9	83	92	123	1.94
17	10	53	63	16	87	103	166	2.62
18	9	51	60	7	102	109	169	2.66
19	8	25	33	8	62	70	103	1.62
20	9	35	44	3	53	56	100	1.58
21	11	39	50	8	68	76	126	1.99
22	37	100	137	22	204	226	363	5.72
23	23	94	117	7	206	213	330	5.20
24	17	91	108	20	144	164	272	4.29
25	30	126	156	35	221	256	412	6.49
26	32	95	127	12	150	162	289	4.55
27	33	128	161	25	257	282	443	6.98
28	22	84	106	19	229	248	354	5.58
29	30	155	185	27	243	270	455	7.17
30	19	59	78	6	88	94	172	2.71
31	9	44	53	3	95	98	151	2.38
Total	510	1888	2398	323	3626	3949	6347	100.00

in each school system, expressed in terms of percentages of the population.

Similar data are presented in Table 4 for each of the five high and the five low congruence school systems of the sample for Phase I. This sample contained a total of 2,040 professional personnel of which 940 and 1100, respectively, comprised the population of the high and the low congruence school systems. Of the 940 professional personnel comprising the five high congruence school systems, 383 were men and 557 were women. Sixty-five of the men were administrators and 318 were teachers. Thirty-eight of the women were administrators and 519 were teachers. School systems 1, 14, 20, and 31 each contained approximately equal proportions of the professional personnel; however, school system 29 contained 455 professional personnel, almost as many as the sum of the other four school systems combined. School system 29, which provided 48.4 per cent of the total personnel of the high congruence school systems, might have exerted a preponderance of influence in the findings.

Similarly, of the 1100 professional personnel comprising the low congruence school systems, 399 were men and 701 were women. Ninety-two of the men were administrators and 307 were teachers. On the other hand, 63 of the women were administrators and 638 were teachers. Low congruence school systems 10, 16, 17, and 30 each contained approximately equal proportions of professional personnel. The exception was school system 4 which contained 426 of the combined personnel in the five low congruence school systems. Primarily because of the differences among the high and low congruence school systems, of which the previously described preponderantly large contributions of school systems 29 and 4 are exemplary, the data were analyzed for

TABLE 4

DISTRIBUTION OF ADMINISTRATORS AND TEACHERS BY SEX FOR EACH OF THE HIGH AND THE LOW CONGRUENCE SCHOOL SYSTEMS COMPRISING THE PHASE I SAMPLE

School System	Males			Females			Totals	
	Administrators	Teachers	Total	Administrators	Teachers	Total	Number	%
H 1	8	37	45	3	57	60	105	11.2
I 14	9	47	56	2	71	73	129	13.7
G 20	9	35	44	3	53	56	100	10.6
H 29	30	155	185	27	243	270	455	48.4
31	9	44	53	3	95	98	151	16.1
Total	65	318	383	38	519	557	940	100.0

School System	Males			Females			Number	%
	Administrators	Teachers	Total	Administrators	Teachers	Total		
L 4	37	114	151	23	252	275	426	38.7
10	17	59	76	9	128	137	213	19.4
O 16	9	22	31	9	83	92	123	11.2
17	10	53	63	16	87	103	166	15.1
W 30	19	59	78	6	88	94	172	15.6
Total	92	307	399	63	638	701	1100	100.0

relationships among the 10 school systems, among the individual respondents across school systems, and between the high and low congruence school systems and the individual respondents within them. Analysis of the teacher data by school system will provide an approximately equal weighting for each of the school systems of the sample regardless of the size of their teacher populations.

The distributions of male and female teachers in each of the high and the low congruence school systems presented in Table 4, were further analyzed by grade level. The distributions of these teachers presented by sex and grade level (elementary, junior high, and senior high school) for each of the high and the low congruence school systems are presented in Table 5. Twenty-one teachers in the sample worked at various levels of their districts; although they were included in the analyses and system totals, they were not listed in a specific grade level column of Table 3. The total numbers of teachers in the Phase I sample from high congruence school systems 1, 14, 20, 29, and 31 were 94, 118, 88, 398, and 139, respectively.[1] The high congruence school systems contained 837 teachers of the Phase I sample, of which 318 were males and 519 were females. Of the 318 male teachers, 60, 8[illegible], and 166 worked at the elementary, junior high, and senior high levels, respectively. Of the 519 female teachers, 358, 67, and 92 taught at the elementary, junior high, and senior high levels, respectively. The differences between the relative numbers of males and females teaching at the elementary level and those teaching at the senior high level were

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[1]School systems showing less than one hundred teachers do not violate the criteria of selection because the number here represents completed and accepted responses.

TABLE 5

DISTRIBUTION OF TEACHERS BY SEX AND GRADE LEVEL IN HIGH AND LOW CONGRUENCE SCHOOL SYSTEMS COMPRISING THE PHASE I SAMPLE

School System		Males			Females			Total	% of G.T.
		Elem.	Jr. H.S.	Sr. H.S.	Elem.	Jr. H.S.	Sr. H.S.		
	1a	7	10	19	36	11	9	94	11.22
H	14b	3	18	24	51	10	10	118	14.09
I	20c	3	10	21	38	6	7	88	10.51
G	29	30	47	78	160	38	45	398	47.56
H	31d	17	1	24	73	0	21	139	16.62
Total		60	86	166	358	67	92	837	100.00

School System		Males			Females			Total	% of G.T.
		Elem.	Jr. H.S.	Sr. H.S.	Elem.	Jr. H.S.	Sr. H.S.		
	4c	11	46	56	172	42	32	366	38.73
L	10f	13	13	32	89	18	21	187	19.79
O	16g	2	1	19	63	1	18	105	11.1
W	17h	5	24	24	60	8	17	140	14.81
	30	25	0	34	69	0	19	147	15.56
Total		56	84	165	435	69	107	945	100.00

[a]One male teacher and one female teacher who worked at various levels of the district were included in the 94 total teachers of school system 1, but they are not represented in the numbers by categories.

[b]Two male teachers who worked at various levels of the district were included in the 47 male teachers and 118 total teachers of school system 14, but they are not represented in the numbers by categories.

[c]One male teacher and two female teachers who worked at various levels of the district were included in the 35 male teachers, the 53 female teachers, and the 88 total teachers of school system 20, but they are not represented in the numbers by categories.

[d]Two male teachers and one female teacher who worked at various levels of the district were included in the 44 male teachers, 95 female teachers, and 139 total teachers of school system 31, but they are not represented in the numbers by categories.

[e]One male teacher and six female teachers who worked at various levels of the district were included in the 114 male teachers, 252 female teachers, and 366 total teachers of school system 4, but they are not represented in the numbers by categories.

TABLE 5 (Continued)

[f]One male teacher who worked at various levels of the district was included in the 59 male teachers and 187 total teachers of school system 10, but is not represented in the numbers by categories.

[g]One female teacher who worked at various levels of the district was included in the 83 female teachers and the 105 total teachers of school system 16, but is not represented in the numbers by categories.

[h]Two female teachers who worked at various levels of the district were included in the 87 female teachers and the 166 total teachers of school system 17, but they are not represented in the numbers by categories.

substantial in both cases. The sample of 945 teachers drawn from the low congruence school systems was quite similar in magnitude to the 837 teachers from the high congruence school systems. Of the 945 teachers, 307 were males and 638 were females. Of the 307 male teachers, 56, 84, and 165 taught at the elementary, junior high, and senior high levels, respectively. Of the 638 female teachers, 453, 69, and 107 worked at the elementary, junior high, and senior high levels, respectively. As for the high congruence school systems, the differences between the relative numbers of males and females at both the elementary levels and senior high level were substantial. The elementary schools were characterized by more female than male teachers; the converse was true for the senior high schools.

Shown also in Table 5, are the relative numbers of teachers contributed by each of the school systems. These percentages are almost identical to those of Table 4 which reflect the relative numbers of teachers and administrators contributed by each of the school systems.

As previously discussed in Chapter II, a sub-sample consisting of administrators and teachers was selected from the 258 administrators and 1,782 teachers of the Phase I sample. The sub-sample initially consisted of a random 18 per cent of the teachers and their associated administrators who had responded to the Decision Point Analysis Instrument. Those teachers who did not meet the aforementioned specific criterion for further participation, were eliminated. The sub-sample ultimately used consisted of 12.5 per cent of the teachers and their associated administrators in the five high and five low congruence school systems who originally responded to the D.P.A. Instrument. The smaller sample resulted from losses due to imperfect instrument responses and to the uneven distribution of curricular plans in these schools.

The distributions of these teachers by sex and grade level for each of the high and low congruence school systems are shown in Table 6. The 224 teachers in the sub-sample of Phase I were equally divided between the high and the low congruence school systems. Of the 112 teachers in the high congruence school systems, 50 were males and 62 were females. The male teachers were distributed between elementary, junior high, and senior high levels in the ratio of 10:16:22, respectively. Two of these male teachers taught at all three grade levels of their districts. Of the 62 female teachers, 40, 7, and 15 taught at elementary, junior high, and senior high levels, respectively. The distribution of the 112 teachers from the low congruence school systems by sex and grade level was much the same as that for the high congruence school systems. Of the 40 male teachers, 6, 11, and 23 worked at the elementary, junior high, and senior high levels, respectively. Of the 71 female teachers, exclusive of one who worked at several levels 44, 13, and 14 worked at the elementary, junior high, and senior high levels, respectively.

A more detailed examination of the characteristics of the high and low congruence school systems and the teachers and administrators of the sub-sample comprising these school systems is made in subsequent sections of this chapter.

Description of the Raw Data

Data analyzed in tests of the hypotheses and supplementary examinations consisted of the following measures: congruence, curriculum plan productivity, curriculum plan implementation, participation, leader behavior, biographical data of teachers, and background data of the school systems. The first four

TABLE 6

DISTRIBUTIONS OF TEACHERS BY SEX AND GRADE LEVEL COMPRISING THE SUB-SAMPLE DRAWN FROM THE HIGH AND LOW CONGRUENCE SCHOOL SYSTEMS OF THE PHASE I SAMPLE

School System		Males			Females			Total	
		Elementary	Junior High School	Senior High School	Elementary	Junior High School	Senior High School	Number	%
H	1	1	1	4	5	1	5	17	15.18
I	14[a]	0	2	2	5	1	1	12	10.71
G	20	0	6	2	3	2	0	13	11.61
H	29	7	7	6	24	3	4	50	44.64
	31[b]	3	0	8	3	0	5	20	17.86
Total		10	16	22	40	7	15	112	100.00

School System		Males			Females			Total	
		Elementary	Junior High School	Senior High School	Elementary	Junior High School	Senior High School	Number	%
L	4[c]	1	4	0	10	6	1	23	20.54
O	10	4	2	5	12	4	0	27	24.11
W	16	0	0	1	7	0	3	11	9.82
	17	1	5	6	10	3	0	25	22.32
	30	0	0	11	5	0	10	26	23.21
Total		6	11	23	44	13	14	112	100.00

[a]One male teacher who worked at various levels of the district was included in the 5 male teachers and 12 total teachers of school system 14, but is not represented in the numbers by categories.

[b]One male teacher who worked at various levels of the districts was included in the 12 male teachers and 20 total teachers of school system 31, but is not represented in the numbers by categories.

[c]One female teacher who worked at various levels of the district was included in the 6 male teachers and 23 total teachers of school system 4, but is not represented in the numbers by categories.

of these measures were described in Chapter II. Descriptions of the leader behavior, biographical data, and background data measures are presented in subsequent paragraphs.

Leader Behavior Data

The Leader Behavior Description Questionnaire was administered to each of the teachers and administrators at the time of the interview.[2] This was done to assess the teachers' perceptions of their superintendents' "consideration" and "initiating structure" behavior. The superintendents' responses provided their perceptions of their own "consideration" and "initiating structure" behavior. The scores representing teachers' "consideration" and "initiating structure" descriptions of their superintendents' behavior as well as the "consideration" and "initiating structure" scores for the superintendents' self-descriptions of their behavior were included in the analyses in order to identify any influence of the superintendents' leader behavior on the congruence among perceptions, the instructional program or both.

Biographical Data of Teachers

Eight items of biographical data were elicited from each teacher and administrator in the project population through the use of a Background Data Questionnaire which was administered in conjunction with the Decision Point Analysis Instrument. The following items of biographical data were collected from each

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[2]Findings derived from analyses of these data and conclusions and implications drawn therefrom are presented later in this chapter. Additional findings, conclusions, and implications related to leader behavior are summarized in Chapter IV.

respondent: sex, number of years in present school system, number of years in present school, number of years in present position, total years of teaching experience, total years of administrative or supervisory experience, highest level of professional preparation, and most recent year of enrollment in formal college course work.

Background Data of School Systems

For each of the school systems, two additional variables believed to be relevant to the study were included in the analyses. These variables were "school year 1963-64 enrollment" and "1963-64 per pupil expenditure."

Description of the Analysis Techniques

In this section the procedures used to analyze the data are described. The data were analyzed by means of factor analyses, including both principal component and Guttman image methods; correlation and regression; and tabulation.

Factor Analyses: Principal Component and Guttman Image

The principal component and Guttman image factor analyses were accomplished by means of the Image[3] computer program. Regardless of the solution specified, the general numeric method of solution was by the principal component procedure. The specific analysis option of the program determines the particular matrix to be factored by the principal component procedure. The following output is always produced: the means and standard deviations of

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[3]Image Program for the CDC 1604 Computer, Mass Communications Research Center; The University of Wisconsin; May, 1963.

the raw data variables; correlation coefficients; eigenvalues, including proportion of total variances; eigenvectors; factor matrix; rotated factor matrix; original and successive variances; check on communalities; and the total variance of the rotated factor matrix, the common variances, and the per cent of common variance accounted for by each factor. The program includes a normal varimax rotation. Data may be entered as raw observations or in the form of a correlation matrix as they were for these analyses. The relative merits of these two factor analytic methods have been described in detail by Harris.[4]

Correlation and Regression

Intercorrelations among the various variables were of the Pearsonian product-moment and point-biserial types. The intercorrelations, multiple correlations, and regressions were performed with the Multiple Regression Program RGR.[5]

Tabulations

Supplementary tabulations were performed with the Wistab and Scfreq programs. Wistab (Wisconsin Tabulator) is a generalized cross-tabulation program developed for the IBM 1410 data processing system. It produces frequency distributions as well as two or three dimensional cross tabulation tables. It was used to prepare tables of the biographical variables. Scfreq (Single Column Frequencies) is a machine language program developed for the CDC 1604 computer. It was used to prepare the initial tabulations of single

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[4]Chester W. Harris, "Some Recent Developments in Factor Analysis," Educational and Psychological Measurement XXIV, No. 2, 1964; 193-205.

[5]The Multiple Regression Program, RGR: by Arthur H. Stroud; Social Systems Research Institute, The University of Wisconsin; Rev. March 12, 1964.

column biographical variables and decision-making responses.

Part II--Tests of Hypotheses 1 and 2 and Ancillary Findings of Phase I

During Phase I of the investigation, the following two hypotheses were tested empirically:

1. School systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of planned instructional change than will school systems in which there is high congruence.
2. School systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of implemented instructional change than will school systems in which there is high congruence.

Part II - Tests of the Hypotheses

To test the hypotheses, each school system's scores indicative of congruence in perceptions of decision-making responsibilities were correlated with the corresponding scores for (1) the extent of curriculum plan productivity as quantified by the Productivity Index, and (2) the extent of implementation of plans for instructional change, as assessed in the interview and quantified by the score from Column A of the Curriculum Implementation Index. The measures of curriculum plan productivity and curriculum plan implementation were correlated with the antecedent measure (congruence in perceptions) to test Hypotheses 1 and 2, respectively. These data are presented in Table 7.

A positive relationship of magnitude 0.1005, not significant at the five per cent level of confidence, was found to exist between congruence and the incidence of planning for instructional change. Therefore, Hypothesis 1 which stated that "school systems in which there is low congruence in the perceptions

TABLE 7

CONGRUENCE, CURRICULUM PLAN PRODUCTIVITY, AND CURRICULUM PLAN IMPLEMENTATION SCORES FOR EACH OF THE SCHOOL SYSTEMS IN THE PHASE I SAMPLE

School System	Congruence	Curriculum Plan Productivity	Curriculum Plan Implementation
1	87.513	45.49	21.21
4	55.286	47.21	22.90
10	56.360	15.88	20.02
14	83.405	29.18	18.19
16	53.251	9.01	14.71
17	49.690	8.58	22.81
20	92.850	15.02	20.06
29	89.375	27.90	20.89
30	49.135	42.06	20.89
31	87.087	23.18	19.84

of decision points will reflect a lower incidence of planned instructional change than will school systems in which there is high congruence," was rejected in favor of the null hypothesis.

A negative relationship of the magnitude 0.0449, not significant at the five per cent level of confidence, was found to exist between congruence in perceptions of decision-making responsibilities and the incidence of implementation of plans for instructional change. On the basis of this finding, Hypothesis 2 which stated that "school systems in which there is low congruence

in the perceptions of decision points will reflect a lower incidence of implemented instructional change than will school systems in which there is high congruence," also was rejected in favor of the null hypothesis.

Ancillary Phase I Findings

One objective of the study was to obtain relevant supplementary data in order to explain systematic variations in the relationships found. Supplementary data concerning certain ancillary variables were collected in order to provide the basis for a more comprehensive understanding of the factors related to congruence in perceptions of decision-making responsibilities and planning and implementing plans for instructional change. These supplementary relationships were examined through (1) factor analyses of item responses to the Decision Point Analysis Instrument, (2) tabular analyses and presentations of teachers' and administrators' biographical data, (3) correlational and regression analyses of data pertinent to 35 variables among the sample school systems, (4) correlational and regression analyses of data pertinent to 50 variables for the teachers of the sample school systems, and (5) correlational analyses of data regarding 50 variables for the teachers of the high and low congruence school systems.

Factor Analyses of Decision Point Analysis Items

The scores indicative of the extent of congruence in perceptions of decision-making responsibility of all teachers in each of the ten sample

school systems for each of the twenty-five decision items were intercorrelated for subsequent factor analysis. The twenty-five by twenty-five variable intercorrelation matrix was factor analyzed by both the principal component and Guttman image methods. The intercorrelation matrix is included in Appendix H.

Through factor analysis it was hoped that a relatively parsimonious representation of the complex variables could be accomplished. This hope was achieved since the principal component and image factor analytic methods produced 7 and 11 factors, respectively, in both cases corresponding to eigenvalues greater than 1.000. With each method the number of real factors extracted was less than half the number of variables on which the analysis was based.

To assist in the interpretation of the two factor analyses, three factor categories were arbitrarily established. The criterion for including an item was a minimum correlation of 0.64 with a given factor. Factors with which two or more decision items correlated at or above this level were defined as general factors.[6] Factors with which only one decision item correlated at or above this level were defined as specific factors.[7] Factors with which no decision item correlated at this level were considered to have been eliminated by rotation.

Principal Component Analyses

Seven principal component factors had eigenvalues greater than 1.000;

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[6]Principal component general factors were identified with the letters "PG" and consecutive Roman numerals, i.e., PG I, PG II, ..., PG V.

[7]Principal component specific factors were identified with the letters "PS" and consecutive Roman numerals, i.e., PS I, PS II.

five of these were general factors and two were specific factors.

The five general factors PG I, PG II, PG III, PG IV, and PG V, accounted for 80.96 per cent of the total variance and 83.73 per cent of the common variance.

Factor PG I: The following decision items correlated significantly with principal component general factor PG I.

Variable	Decision Item	Correlation
5	...appointment of teachers to curriculum committees	-0.9369
13	...the adequacy of teacher performance	-0.8039
17	...selection of textbooks	-0.7891
16	...rules governing pupil conduct	-0.7018
22	...assignment of teaching and nonteaching loads	-0.6982
14	...regulations concerning lesson plans	-0.6336

This factor was highly correlated with decision items which might be described as "administrative" or "regulatory actions." It was negatively related, for example, to the five decision items which were correlated significantly with Factor PG II. It accounted for 18.53 per cent of the total variance and 19.35 per cent of the common variance.

Factor PG II: The following decision items correlated significantly with principal components general factor II.

Variable	Decision Item	Correlation
24	...content of local news items to be released	0.9152
10	...selection of teachers for participation in experimental instructional programs	0.8916
15	...which community drives and activities merit school participation	0.739
20	...activities for in-service development of the staff	0.7051
4	...orientation activities for new staff members	0.6441

This factor was highly loaded with decision items related to school community relations, publicity, and instructional change. It was negatively correlated

with factor PG I. If factor PG I is thought of as "school management," factor PG II might be thought of as "educational leadership." This factor accounted for 18.35 per cent of the total variance and 19.16 per cent of the common variance.

Factor PG III: The following decision items correlated significantly with principal components general factor III.

Variable	Decision Item	Correlation
9	...content of pupils' cumulative records	-0.9579
19	...how to evaluate the curriculum	-0.9545
11	...how to report pupil progress to parents	-0.8846
2	...ways to group pupils by classes	-0.7205

Decision items related to "pupil and curricular evaluation" correlated highly with this factor. It was negatively related to factor PG II and positively related to factor PG I. It accounted for 17.72 per cent of the total variance and 18.51 per cent of the common variance.

Factor PG IV: The following decision items were found to correlate significantly with principal components general factor IV.

Variable	Decision Item	Correlation
12	...retention of pupils	0.8991
21	...practices for assigning homework	1.8830

This factor was significantly correlated with two decision items which appear to reflect "pupil personnel practices related to instruction." It was positively related to factor PG II and negatively related to factors PG I and PG III. It accounted for 12.27 per cent of the total variance and 12.81 per cent of the common variance.

Factor PG V: The following decision items are correlated significantly with principal components general factor V.

Variable	Decision Item	Correlation
23	...who will participate in the formulation of the school budget	0.8565
18	...procedures for obtaining instructional supplies	0.8184
7	...instructional aids to be included in the budget	0.7634

This factor was highly correlated with decision items related to "procurement of instructional materials." It was positively related to factors PG II and PG IV, and negatively related to factors PG I and PG III. It accounted for 13.33 per cent of the total variance and 13.92 per cent of the common variance.

Two of the seven principal component factors were classified as principal component specific factors (PS I and PS II).

Factor PS I: The following decision item is correlated significantly with principal component specific factor I (PS I).

Variable	Decision Item	Correlation
1	...selection of curriculum problems for study	0.8739

This factor is best described by its specific decision item--the "selection of curriculum problems for study." This factor accounted for 8.97 per cent of the total variance and 9.36 per cent of the common variance.

Factor PS II: The following decision items correlated significantly with principal components specific factor II (PS II).

Variable	Decision Item	Correlation
3	...pricrity for the use of unscheduled rooms and multipurpose areas	0.7908

This factor is best described by its specific decision item--the "use of instructional spaces." This factor accounted for 6.60 per cent of the total variance and 6.89 per cent of the common variance.

From the foregoing findings, it is evident that the principal component method was successful in achieving simple structure by parsimoniously grouping the 25 decision items into seven factors. Based upon the foregoing factors, three conclusions were reached:

1. Twenty-two decision items correlated significantly with the seven factors; the significant correlations with all principal component factors except PG I and PG III were positive.
2. Factors PG II, IV, and V, and PS I and II, all of which were positively related to their decision items, appeared to be clearly oriented toward "instruction", and more specifically "instructional progressivism", "instructional change", and "instructional leadership" aspects of the educational program. The two factors which were negatively related to their decision items and the other factors appeared to reflect the diametrically opposite expression. They might be described by "management, regulatory, administrative procedures" with a non-instructional orientation.
3. Three of the decision items failed to correlate significantly with any of the seven factors. These three decision items were:

Variable	Decision Item
6	educational specifications for a new or remodeled building.
8	means for increasing community understanding of curriculum developments.
25	use of citizens' committees.

The factorial structure of the Decision Point Analysis items also was examined through use of the Guttman Image analysis.

Guttman Image Analysis

Of the 11 image factors corresponding to eigenvalues greater than 1.000, factors beyond the first nine were destroyed in rotation. Of the nine image factors, the first five (IG I, IG II, IG III, IG IV, IG V) were general factors and the last four (IS I, IS II, IS III, IS IV) were specific factors. These nine image factors accounted for more than 99.9 per cent of both the total and the common variance. The five general factors accounted for 72.26 per cent of the total variance and 72.23 per cent of the common variance; the four specific factors accounted for 27.73 per cent of the total variance associated with the 25 decision items and 27.70 per cent of the common variance associated with the nine factors.

Factor IG I: The following decision items were found to correlate significantly with image general factor I.

Variable	Decision Item	Correlation
5	...appointment of teachers to curriculum committees	0.8802
17	...selection of textbooks	0.8495
13	...adequacy of teacher performance	0.8249
16	...rules governing pupil conduct	0.7462

Decision items described by "regulatory actions" were all highly related to this factor. All significant correlations with this general factor were positive; decision item correlations with factor PG I, which evidenced the same structure, were negative. This factor accounted for 17.69 per cent of the total variance of the 25 variables and 17.68 per cent of the common variance among the nine factors.

Factor IG II: The following decision items were found to correlate significantly with image general factor II.

Variable	Decision Item	Correlation
9	...content of pupils cumulative records	0.9533
19	...how to evaluate the curriculum	0.9145
11	...how to report pupil progress to parents	0.8968
2	...ways to group pupils by classes	0.7046

This factor was composed of decision items related to "pupil and instructional evaluation", and was identical in its structure to factor PG III. This factor accounted for 17.29 per cent of the total variance and 17.28 per cent of the common variance, slightly less than that accounted for by factor PG III. This factor was positively correlated with its decision items and positively related to factor IG I; conversely, the two corresponding principal component general factors (PG I and PG III) were both negatively correlated with their decision items but positively related to each other.

Factor IG III: The following decision items were found to correlate significantly with image general factor III.

Variable	Decision Item	Correlation
23	...who will participate in the formulation of the school budget	0.9126
18	...procedure for obtaining instructional supplies	0.7046

This factor correlated with two of the three decision items which related most highly with factor PG V. The two factors appeared to be quite similar in structure. This factor might be called "procurement of instructional materials". It was positively related to its corresponding principal component general factor (PG V), and positively related to image factors IG I and IG II. This factor accounted for 10.48 per cent of the total variance and

10.48 per cent of the common variance.

Factor IG IV: The following decision items were found to correlate significantly with image general factor IV.

Variable	Decision Item	Correlation
10	...selection of teachers for participation in experimental instructional programs	-0.9534
24	...content of local news items to be released	-0.7584
22	...assignment of teaching and non-teaching loads	-0.7475
20	...activities for inservice development of the staff	-0.6742
25	...use of citizen's committees	-0.6384

This factor structure was not among any which emerged from the principal component analysis. Decision items related to "instructional change" appeared highly related to it. It was negatively related to factors IG I, IG II, and IG III.

Factor IG V: The following decision items were found to correlate significantly with image general factor V.

Variable	Decision Item	Correlation
21	...practice for assigning homework	-0.9544
12	...the retention of pupils	-0.8902

This factor correlated significantly with two decision items which appeared to reflect "pupil personnel practices related to instruction." It was identical in structure and highly similar in the extent of its decision item correlations to principal components general factor PC IV. It accounted for 11.50 per cent of the total variance and 11.49 per cent of the common variance.

Factor IS I: The following decision item was found to correlate significantly with image specific factor I.

Variable	Decision Item	Correlation
1	...the selection of curriculum problems for study	0.9296

This decision item also correlated significantly and positively, and to almost the same extent, with principal components specific factor I. It accounted for 8.17 per cent of the total variance and 8.16 per cent of the common variance.

Factor IS II: The following decision item was found to correlate significantly with image specific factor II.

Variable	Decision Item	Correlation
15	...which community drive and activities merit school participation	0.7125

This decision item accounted for 5.08 per cent of the total variance and 5.08 per cent of the common variance. Using the image analysis, this item emerged as a specific factor; in the principal components analysis, this decision item was found to be significantly and positively correlated with decision items 24, 10, and 4 which comprised general factor II.

Factor IS III: The following decision item was found to correlate significantly with image specific factor III.

Variable	Decision Item	Correlation
7	...instructional aids to be included in the budget	-0.8306

This specific factor accounted for 5.45 per cent of the total variance and 5.45 per cent of the common variance. Whereas, using the image analysis, decision item 7 emerged as a specific factor, in the principal components analysis it was found to correlate positively and significantly with decision items 23 and 18

which comprised general factor V.

Image specific factor III was found to correlate negatively with image general factors IG I, IG II, and IG III, and positively with image general factor IG IV and IG V. It correlated negatively with image specific factors IS I and IS II. Decision item 7 correlated negatively with image specific factor IS III and negatively with decision items 23 and 18, both of which were found to correlate positively with image general factor IG III. It was found to correlate positively with these two decision items (23 and 18) when it was also correlated with principal components general factor PG V.

Factor IS IV: The following decision item was found to correlate significantly with image specific factor IV.

Variable	Decision Item	Correlation
4	...orientation activities for new staff members	-0.9071

This factor accounted for 9.01 per cent of the total variance and 9.01 per cent of the common variance. It was correlated negatively with image general factors IG I, IG II, and IG III, and positively with image general factors IG IV and IG V. It also was correlated negatively with image specific factors IS I and IS II, and positively with image specific factor IS III. This decision item was positively correlated with decision items 10 and 24 (Factor IG IV) with which it was found to correlate positively in factor PG II. It was found to correlate negatively with decision item 15 in factor IS II; whereas in factor PG II, it was found to correlate positively with decision item 15.

From the immediately preceding findings, it is evident that the image analysis technique, although somewhat successful in achieving simple structure, was not as useful in producing meaningful groupings as the principal components method.

Two (6 and 8) of the four (3, 6, 8, 14) decision items which failed to correlate significantly with any of the general or specific image factors also did not correlate significantly with any of the principal components factors.

From a comparison of the principal components and image factor patterns shown in Table 8, a similarity in the groupings produced by the two methods was evident. They were as follows:

1. One of the major factors, consisting of decision items 5, 17, 13, and 16, might well be named "regulatory actions" or "administrative actions."
2. The factor described as "regulatory or administrative actions" was positively and significantly related to another major factor consisting of decision items 9, 19, 11, and 2, and named "instructional evaluation."
3. These two aforementioned factors were negatively related to a factor of appreciable magnitude, composed of decision items 21 and 12, and named "pupil personnel practices related to instruction."
4. Another factor of major importance composed of decision items 10, 20, 24, and 4, and termed "educational leadership," was found to correlate positively with "pupil personnel practices related to instruction" and negatively with "regulatory or administrative actions" and "instructional evaluation."
5. From an examination of the inter- and intra-correlations of decision items 23, 18, and 7, a potentially meaningful contrast between the two techniques was apparent. The principal components methods produced one general factor, named "procurement of instructional materials," positively correlated with "educational leadership" and "pupil

TABLE 8

A COMPARISON OF PATTERNS PRODUCED BY THE PRINCIPAL COMPONENT AND IMAGE FACTOR ANALYSES OF DECISION POINT ANALYSIS ITEM CONGRUENCE SCORES

Principal Component Analysis				Comparison	Image Analysis			
Factor	Variable	Correlation			Factor	Variable	Correlation	
PG I	5	-0.9369	(-)	(-)	IG I	5	0.8802	(+)
	13	-0.8039				17	0.8495	
	17	-0.7891				13	0.8249	
	16	-0.7018				16	0.7462	
	22	-0.6982						
	14	-0.6336						
PG II	24	0.9152	(+)	(-)	IG IV	10	-0.9534	(-)
	10	0.8916				24	-0.7584	
	15	0.7392				22	-0.7475	
	20	0.7051				20	-0.6742	
	4	0.6441				25	-0.6384	
				(+)	IS II	15	0.7125	(+)
				(-)	IS IV	4	-0.9071	(-)
PG III	9	-0.9579	(-)	(-)	IG II	9	0.9533	(+)
	19	-0.9545				19	0.9445	
	11	-0.8846				11	0.8968	
	2	-0.7205				2	0.7046	
PG IV	12	0.8991	(+)	(-)	IG V	21	-0.9544	(-)
	21	0.8830				12	-0.8902	
PG V	23	0.8565	(+)	(+)	IG III	23	0.9126	(+)
	18	0.8184				18	0.7046	
	7	0.7634		(-)	IS III	7	-0.8306	(-)
SP I	1	0.8739	(+)	(+)	IS I	1	0.9296	(+)
SP II	3	0.7908	(+)					

personnel practices related to instruction," and negatively related to "regulatory or administrative actions" and "instructional evaluation." The image analysis produced one general factor composed of decision items 23 and 18 and a specific factor composed of decision item 7. These were named "procurement of instructional materials—administration" and "procurement of instructional materials—leadership," respectively. The former was positively related to "regulatory" or "administrative actions" and "pupil and instructional evaluation," and negatively to "procurement of instructional materials—leadership" as well as "educational leadership." The image method presented a more complex pattern, and appeared to bring out slightly more hidden meaning than the principal components method.

Analyses of Biographical Data

The biographical data of teachers, elicited by the background data sheet of the Decision Point Analysis Instrument are presented and examined in this section. The specific biographical variables of both teachers and administrators, considered in this section are: ratios of males to females; extent of professional preparation; recency of formal study; years of tenure in the school system, in the school, and in the present position; years of teaching experience; and years of administrative or supervisory experience.

The frequency and percentage distributions of male and female administrators and teachers for the 31 school systems of the population are shown in Table 9. The same data for administrators and teachers of the high and of the low congruence school systems are shown in Table 10. While it is apparent that sizeable differences between the male and female distributions for administrators and teachers existed for school systems of the population and the

TABLE 9

FREQUENCIES AND PERCENTAGES OF ADMINISTRATORS AND TEACHERS CLASSIFIED BY SEX FOR EACH SCHOOL SYSTEM IN THE POPULATION

School System	Administrators				Teachers			
	Male		Female		Male		Female	
1	8	(72.73)	3	(27.27)	37	(39.36)	57	(60.64)
2	8	(53.33)	7	(46.67)	29	(29.59)	69	(70.41)
3	15	(75.00)	5	(25.00	34	(38.64)	54	(61.36)
4	37	(61.67)	23	(38.33)	114	(31.15)	252	(68.85)
5	14	(87.50)	2	(12.50)	42	(39.62)	64	(60.38)
6	12	(92.31)	1	(7.69)	33	(39.29)	51	(60.71)
7	10	(62.50)	6	(37.50)	27	(35.53)	49	(64.47)
8	14	(58.33)	10	(41.67)	29	(22.31)	101	(77.69)
9	9	(64.29)	5	(35.71)	51	(39.53)	78	(60.47)
10	17	(65.38)	9	(34.62)	59	(31.55)	128	(68.45)
11	15	(68.18)	7	(31.82)	40	(37.38)	67	(62.62)
12	9	(64.29)	3	(25.00)	54	(39.13)	84	(60.87)
13	16	(72.73)	6	(27.27)	62	(31.31)	136	(68.69)
14	9	(81.82)	2	(18.18)	47	(39.83)	71	(60.17)
15	9	(56.25)	7	(43.75)	29	(28.43)	73	(71.57)
16	9	(50.00)	9	(50.00)	22	(20.95)	83	(79.05)
17	10	(38.46)	16	(61.54)	53	(37.86)	87	(62.14)
18	9	(56.25)	7	(43.75)	51	(33.33)	102	(66.67)
19	8	(50.00)	8	(50.00)	25	(28.74)	62	(71.26
20	9	(75.00)	3	(25.00)	35	(39.77)	53	(60.23)
21	11	(57.89)	8	(42.11)	39	(36.45)	68	(63.55)
22	37	(62.71)	22	(37.29)	100	(32.89)	204	(67.11)
23	23	(76.67)	7	(23.33)	94	(31.33)	206	(68.67)
24	17	(45.95)	20	(54.05)	91	(38.72)	144	(61.28)
25	30	(46.15)	35	(53.85)	126	(36.31)	221	(63.69)
26	32	(72.73)	12	(27.27)	95	(38.78)	150	(61.22)
27	33	(56.90)	25	(43.10)	128	(33.25)	257	(66.75)
28	22	(53.66)	19	(46.34)	84	(26.84)	229	(73.16)
29	30	(52.63)	27	(47.37)	155	(38.94)	243	(61.06)
30	19	(76.00)	6	(24.00)	59	(40.14)	88	(59.86)
31	9	(75.00)	3	(25.00)	44	(31.65)	95	(68.35)
TOTALS	16.4	(61.19)	10.4	(38.81)	60.9	(34.23)	117.0	(65.77)

TABLE 10

FREQUENCIES AND PERCENTAGES OF ADMINISTRATORS AND TEACHERS CLASSIFIED BY SEX, FOR EACH OF THE HIGH AND THE LOW CONGRUENCE SCHOOL SYSTEMS

School System		Administrators				Teachers			
		Male		Female		Male		Female	
H	1	8	(72.73)	3	(27.27)	37	(39.36)	57	(60.64)
I	14	9	(81.82)	2	(18.18)	47	(39.83)	71	(60.17)
G	20	9	(75.00)	3	(25.00)	35	(39.77)	53	(60.23)
H	29	30	(52.63)	27	(47.37)	155	(38.94)	243	(61.06)
	31	9	(75.00)	3	(25.00)	44	(31.65)	95	(68.35)
	$\bar{X}_h$	65	(65.10)	38	(36.90)	318	(38.00)	519	(62.00)
L	4	37	(61.67)	23	(38.33)	114	(31.15)	252	(68.85)
	10	17	(65.38)	9	(34.62)	59	(31.55)	128	(68.45)
O	16	9	(50.00)	9	(50.00)	22	(20.95)	83	(79.05)
	17	10	(38.46)	16	(61.54)	53	(37.86)	87	(62.14)
W	30	19	(76.00)	6	(24.00)	59	(40.14)	88	(59.86)
	$\bar{X}_L$	92	(59.36)	63	(40.64)	307	(32.49)	638	(67.51)

sample alike, the percentages of males and females in the sample school systems were different from comparable percentages for corresponding personnel of school systems of the population. On this variable there was no significant difference between school systems comprising the sample and the school systems comprising the total population.

The relative numbers of male administrators and male teachers in the high congruence school systems and in the low congruence school systems also were examined. Differences in the male/female ratio for administrative and teaching positions in the high congruence school systems and in the low congruence school systems were significant. In both high and low congruence school systems, there was a significantly higher percentage of male administrators than female administrators. If all administrators originally were teachers, that is, they were selected from a population of teachers, there may be considerable merit in exploring, in future research, the imbalance between the sexual composition of the administrators' and the teachers' groups.

The ratio of male to female administrators in the high congruence school systems also was compared with the ratio of male to female administrators in the low congruence school systems. The differences were not significant. Similarly, the ratio of male to female teachers in the high congruence school systems was compared with that for male to female teachers in the low congruence school systems. Again, the differences were not significant.

The ratios of male teachers to male administrators, female teachers to female administrators, and teachers in general to administrators in general for each of the high congruence and low congruence school systems are shown in Table 11. Differences in the ratios of teachers to administrators between

TABLE 11

RATIOS OF TEACHERS TO ADMINISTRATORS IN HIGH AND IN LOW CONGRUENCE SCHOOL SYSTEMS, CLASSIFIED BY SEX

School Systems		Male Teachers/ Male Administrators	Female Teachers/ Female Administrators	Total Teachers/ Total Administrators
H	1	4.62	19.00	8.54
I	14	5.22	35.50	10.72
G	20	3.88	17.66	7.33
H	29	5.16	9.00	7.00
	31	4.86	31.66	11.58
	$\bar{X}_H$	4.75	22.56	9.03
L	4	3.08	10.90	6.10
	10	3.47	14.22	11.03
O	16	2.44	9.22	5.83
	17	5.30	5.43	5.38
W	30	3.10	14.66	5.88
	$\bar{X}_L$	3.48	10.89	6.84

the high and the low congruence school systems were not statistically significant. Examination of the ratios of male teachers to male administrators between the high congruence and low congruence school systems again revealed a statistically significant difference ($< .05$). Examination of the ratios of female teachers to female administrators between the high and low congruence school systems revealed a significant difference ($< .01$). This finding lent increased importance to a previous finding concerning the extent of imbalance between the sexes in administrative as contrasted with teaching positions.

For each of the school systems of the population, the frequencies and total percentages of both teachers and administrators, classified according to their professional preparation, are shown in Table 12. The frequencies and percentages indicative of the extent of professional preparation of teachers and administrators in the high and the low congruence school systems are shown in Table 13. An examination of both tables, will reveal that the distributions characteristic of the levels of professional preparation of teachers and administrators in the sample school systems closely approximated the corresponding distributions for the school systems comprising the total district population. Moreover, for both the total population and the sample school systems, the usual expectation that administrators had attained more years of professional preparation than teachers was readily evident.

Examinations f the data shown in Table 13 were made to determine the extent of difference between the professional preparation of administrators in high congruence school systems and that of administrators in low congruence school systems.

TABLE 12

FREQUENCIES AND PERCENTAGES OF ADMINISTRATORS AND TEACHERS CHARACTERIZED BY VARIOUS DEGREES OF PROFESSIONAL PREPARATION, BY SCHOOL SYSTEMS

School System	ADMINISTRATORS							TEACHERS						
	<BS	BS	BS+ 16	MS	MS+ 16	MS+ 32	Ph.D. or Ed.D.	<BS	BS	BS+ 16	MS	MS+ 16	MS+ 32	Ph.D. or Ed.D.
1	0	2	2	5	1	1	0	3	51	24	11	4	1	0
2	2	3	3	5	2	0	0	20	46	24	8	0	0	0
3	0	2	4	9	3	1	1	7	41	24	11	4	0	0
4	0	20	3	24	11	1	1	24	222	56	50	11	2	0
5	1	3	2	8	2	0	0	9	59	22	11	3	1	0
6	0	1	3	2	6	1	0	8	43	22	7	2	2	0
7	1	0	2	6	4	2	1	3	40	18	10	4	1	0
8	1	6	5	9	2	0	0	16	78	23	7	3	3	0
9	1	1	3	3	6	0	0	8	56	37	22	5	1	0
10	1	2	4	12	5	1	1	5	94	52	25	9	2	0
11	3	6	4	5	4	0	0	18	67	9	10	1	2	0
12	0	1	3	4	2	2	0	24	56	37	12	6	3	0
13	0	7	2	11	1	1	0	18	132	30	12	3	2	0
14	0	1	3	5	2	0	0	14	66	20	9	8	1	0
15	0	2	4	7	2	1	0	15	58	14	9	5	1	0
16	6	5	1	5	0	1	0	30	43	23	4	2	0	0
17	1	13	3	7	1	1	0	33	69	20	15	1	1	0
18	0	2	1	8	3	2	0	10	81	28	21	12	0	0
19	3	6	2	3	0	1	1	6	48	21	7	4	1	0
20	2	3	1	5	1	0	0	12	46	18	9	0	1	0
21	0	5	2	5	6	1	0	20	51	22	10	3	1	0
22	0	7	10	18	17	7	0	11	164	70	35	16	8	0
23	0	0	4	19	7	3	0	11	153	79	40	10	5	1
24	1	5	7	17	6	0	1	17	120	67	17	11	3	0
25	5	17	7	22	11	2	1	17	213	52	54	8	0	1
26	1	8	9	17	6	3	0	8	135	40	35	25	1	0
27	0	8	7	11	17	13	2	4	175	95	55	41	12	1
28	6	7	6	13	8	1	0	21	162	71	34	17	6	0
29	0	10	11	20	11	3	1	10	195	89	64	29	7	2
30	0	3	8	8	6	0	0	17	78	35	12	5	1	0
31	1	1	3	2	3	2	0	5	63	29	27	8	7	0
Percents	3.75	19.00	15.25	35.71	18.88	06.17	1.21	7.72	53.19	20.89	11.94	4.75	1.39	0.12
Totals	31	157	126	295	156	51	10	423	2907	1141	653	260	76	5

TABLE 13

FREQUENCIES AND PERCENTAGES OF ADMINISTRATORS AND TEACHERS CHARACTERIZED BY VARIOUS LEVELS OF PROFESSIONAL PREPARATION, BY HIGH SCHOOL SYSTEM, AND BY HIGH AND BY LOW CONGRUENCE SCHOOL SYSTEMS

School Systems		<BS	BS	BS+ 16	MS	MS+ 16	MS+ 32	Ph.D. or Ed.D.	<BS	BS	BS+ 16	MS	MS+ 16	MS+ 32	Ph.D. or Ed.D.
H	1	0 0	2 18.18	2 18.18	5 45.45	1 9.09	1 9.09	0	3 3.19	51 54.25	24 25.53	11 11.70	4 4.25	1 1.06	0
I	14	0	1 9.09	3 27.27	5 45.45	2 18.18	0	0	14 11.86	66 55.92	20 16.93	9 7.62	8 6.61	1 .84	0
G	20	2 16.66	3 25.00	1 8.33	5 41.66	1 8.33	0	0	12 13.63	48 54.52	18 20.45	9 10.23	0	1 1.13	0
H	29	0	10 17.86	11 19.64	20 35.72	11 19.64	3 5.36	1 1.78	10 2.52	195 49.24	89 22.47	64 16.16	29 7.32	7 1.76	2 .50
	31	1 8.33	1 8.33	3 25.00	2 16.66	3 25.00	2 16.66	0	5 3.29	63 45.33	29 20.86	27 19.42	8 5.75	7 5.03	0
TOTAL		3 2.94	17 16.66	20 19.60	37 36.27	18 17.64	6 5.88	1 .98	44 5.26	423 50.65	180 21.55	120 14.37	49 5.86	17 2.03	2 .23
L	4	0	20 33.33	3 5.00	24 40.00	11 18.33	1 1.66	1 1.66	24 6.57	222 60.82	56 15.34	50 13.69	11 3.01	2 .54	0
O	10	1 3.84	2 7.68	4 15.38	12 46.15	5 3.84	1 3.84	1 3.84	5 2.66	94 50.26	52 27.80	25 13.36	9 4.81	2 1.07	0
	16	6 33.33	5 27.77	1 5.55	5 27.77	0	1 5.55	0	30 29.41	43 42.15	23 22.54	4 3.92	2 1.97	0	0
W	17	1 3.84	13 50.00	3 11.53	7 26.92	1 3.84	1 3.84	0	33 23.73	69 49.63	20 14.39	15 10.79	1 .71	1 .71	0
	30	[illegible]	3 12.00	8 32.00	8 32.00	6 24.00	0	0	16 10.89	78 53.06	35 23.81	12 8.16	5 3.40	1 .68	0
TOTALS PERCENTS		8 5.16	43 27.73	19 12.25	56 36.12	23 14.83	4 2.58	2 1.29	108 11.48	506 53.83	186 19.77	106 11.26	28 2.97	6 .63	0

Differences between the extent of professional preparation of administrators in the high congruence school systems and that of administrators in the low congruence school systems were not significant ($>.05$).

Distributions of frequency and percentage data indicative of the recency of formal study of the administrators and teachers of the high and the low congruence school systems are presented in Table 14. A summary of these data is shown in Table 15. The composite "percentage-recency" data for the teachers and administrators of the sample school systems, as shown in Table 15, are summations of the products of the percentages of persons in each group and the number of years since their enrollment in formal study. The magnitude of the "percentage-recency" scores was inversely proportional to the composite of the recency of formal study for each group and each school system. The year the data were collected, 1963, served as the base date for the calculations and was assigned a recency designation of zero. The percentage of persons in each group having had formal study during the base year did not contribute to the composite score for that group. The magnitude of these scores was indicative of the lack of recency of formal study. The "percentage-recency" scores of teachers in the high congruence school systems were compared with those of teachers in the low congruence school systems. Observation of the mean scores of administrators and of teachers of the high congruence school systems in comparison with the corresponding scores for the low congruence school systems revealed that the high congruence school systems were characterized by administrators and teachers with more recent study than their counterparts in low congruence school systems. A comparison of the scores for teachers and for administrators revealed that teachers in both the high

TABLE 14

FREQUENCIES AND PERCENTAGES OF ADMINISTRATORS' AND TEACHERS' RECFNCY OF FORMAL STUDY FOR HIGH AND FOR LOW CONGRUENCE SCHOOL SYSTEMS

Years Since Last Enrolled*	High Congruence				Low Congruence			
	Administrators		Teachers		Administrators		Teachers	
0 (1963)	35	(36.7%)	335	(41.5%)	70	(46.5%)	412	(44.5%)
1 (1962)	23	(24.2%)	153	(18.9%)	20	(13.0%)	166	(17.9%)
2 (1961)	13	(13.6%)	112	(13.8%)	25	(16.2%)	111	(12.0%)
3 (1960)	8	(8.4%)	69	(8.5%)	13	(8.4%)	99	(10.7%)
4 (1959)	4	(4.2%)	47	(5.8%)	3	(1.9%)	51	(5.5%)
5 (1958)	3	(3.1%)	29	(3.6%)	9	(5.8%)	29	(3.1%)
6 (1957)	2	(2.1%)	17	(2.1%)	2	(1.3%)	13	(1.4%)
7 (1956)			11	(1.3%)	1	(0.65%)	8	(0.85%)
8 (1955)	2	(2.1%)	17	(2.1%)	2	(1.3%)	3	(0.32%)
9 (1954)			1	(.12%)	1	(0.65%)	7	(0.75%)
10 (1953)	3	(3.1%)	5	(.62%)	1	(0.65%)	3	(0.32%)
11 (1952)			2	(.24%)			2	(0.21%)
12 (1951)			3	(.37%)			4	(0.42%)
13 (1950)			1	(.12%)			3	(0.32%)
14 (1949)	1	(1.0%)	1	(.12%)			1	(0.10%)
15 (1948)					1	(0.65%)	1	(0.10%)
16 (1947)	1	(1.0%)			2	(1.3%)		
17 (1946)							1	(0.10%)
18 (1945)							2	(0.21%)
19 (1944)							2	(0.21%)
20 (1943)			1	(.12%)			1	(0.10%)
21 (1942)								
22 (1941)			1	(.12%)			2	(0.21%)
23 (1940)			1	(.12%)	1	(0.65%)	3	(0.32%)
24 (1939)								
Unknown	7		29		3		18	
Totals**	95		806		154		924	

*1963 is used as the Base Date
**Totals excludes "unknown" Data

TABLE 15

SUMMARY SCORES OF ADMINISTRATORS' AND TEACHERS' RECENCY OF FORMAL STUDY FOR EACH OF THE HIGH AND THE LOW CONGRUENCE SCHOOL SYSTEMS

School Systems		Administrators Mean-Percentage-Years Since last Formal Study	Teachers Mean-Percentage-Years Since Last Formal Study
H I G H	1	45.45	110.94
	14	145.44	92.98
	20	258.63	186.56
	29	212.66	221.25
	31	166.66	132.41
	$\bar{X}_H$	165.77	148.82
L O W	4	175.07	167.23
	10	234.71	173.37
	16	270.49	155.98
	17	111.53	200.77
	30	208.00	191.98
	$\bar{X}_L$	199.96	177.87

and the low congruence school systems were characterized by moderately greater recency of formal study than were the administrators. However, these differences were not significant ($>.05$).

The mean years of experience in the school system, the school, the position, in teaching, and in administration or supervision for the administrators and the teachers of each of the school systems comprising the population are reported in Table 16. Corresponding data for the administrators and the teachers of the high and the low congruence school systems are shown in Table 17. A comparison of Tables 16 and 17 indicates that the mean values for the high and the low congruence school systems of the sample did not differ substantially from the means of corresponding variables in the population as a whole. In the population as a whole and among the high and the low congruence school systems comprising the sample, with one exception, administrators had greater tenure and experience on each of the five aforementioned variables than did teachers.

Correlational Analyses of Data From School Systems

Data regarding the variables analyzed and reported in this section were derived from single values for each of the ten school systems. The findings presented here were derived through correlational analyses but were based on data for individual teachers. Each of the correlations was based upon ten observations and was associated with eight degrees of freedom. The scores of the thirty-five variables which were intercorrelated in this analysis were computed for each of the ten school systems in the sample for Phase I. They included:

Variable 1 -- Total congruence score
Variable 2 -- Congruence score for staff personnel items

TABLE 16

MEANS OF ADMINISTRATORS' AND TEACHERS' YEARS OF EXPERIENCE IN THE SCHOOL SYSTEM, THE SCHOOL, THE POSITION, TEACHING, AND ADMINISTRATION OR SUPERVISION, BY SCHOOL SYSTEMS AND TOTALS

School System	ADMINISTRATORS					TEACHERS				
	School System	School	Position	Teaching	Admin. or Superv.	School System	School	Position	Teaching	Admin. or Superv.
1	16.9	12.8	9.3	20.4	5.7	6.4	4.9	5.5	10.7	0.56
2	7.8	5.6	6.6	15.2	7.3	6.6	5.8	6.4	12.4	0.88
3	5.5	3.4	3.6	10.2	5.3	6.3	4.7	6.3	11.6	0.36
4	10.7	7.1	5.8	12.5	4.8	8.3	6.9	8.0	13.1	0.46
5	10.0	8.0	6.8	19.0	8.0	6.5	5.8	6.2	11.3	0.51
6	9.0	7.0	4.6	11.2	7.0	5.7	5.4	5.5	9.6	0.24
7	10.0	7.3	4.8	16.2	3.7	6.3	5.8	5.9	9.5	0.84
8	11.1	10.0	8.6	17.5	7.9	8.1	6.6	6.6	13.6	0.78
9	8.8	5.7	5.5	15.4	10.1	5.6	4.7	5.3	10.5	0.85
10	10.7	6.7	6.5	17.5	5.9	5.9	5.0	5.3	11.9	0.54
11	7.9	6.5	5.8	13.1	5.2	5.4	5.1	4.9	10.5	0.19
12	3.2	4.7	3.0	17.5	8.0	2.6	3.5	3.5	8.0	0.71
13	9.7	8.4	6.5	15.0	8.5	7.4	6.4	6.6	12.7	0.26
14	12.3	9.0	7.3	17.5	6.1	7.7	6.3	6.5	13.6	0.28
15	8.1	5.4	3.9	15.8	4.4	4.1	3.3	3.9	9.7	0.17
16	7.0	7.3	5.7	17.1	9.1	6.2	5.9	6.1	13.3	0.70
17	9.1	7.8	6.2	16.6	6.5	8.0	6.3	13.9	7.2	1.25
18	17.0	11.7	12.4	22.1	6.7	8.3	7.2	7.6	12.8	0.79
19	9.4	10.5	6.7	19.5	8.7	7.2	6.8	6.9	15.7	1.17
20	5.4	5.4	4.3	13.4	5.9	5.5	4.9	5.1	12.9	0.34
21	11.0	8.1	6.5	16.0	11.7	4.8	4.7	4.3	11.8	0.52
22	14.4	8.8	8.5	20.0	10.5	7.4	5.1	6.4	11.1	0.59
23	15.5	10.1	7.2	21.0	9.4	10.4	8.2	8.3	15.7	0.50
24	15.4	11.6	9.6	17.4	12.3	8.4	6.2	7.9	12.9	0.91
25	11.5	8.5	8.0	14.7	5.6	7.8	6.5	7.2	12.0	0.33
26	13.0	10.0	6.0	16.6	7.6	8.1	7.0	7.1	11.2	0.99
27	14.8	9.6	7.3	19.5	6.2	9.9	8.3	8.6	15.1	0.70
28	13.2	11.7	8.6	16.6	10.9	7.5	6.3	6.5	12.1	0.75
29	12.8	9.1	8.2	19.0	5.6	9.9	8.6	9.1	14.4	0.52
30	2.5	3.4	3.0	13.9	5.0	2.5	3.2	2.9	9.2	0.57
31	8.0	6.6	4.2	16.8	5.9	4.3	4.0	4.7	9.1	0.38
Total	10.4	8.0	6.5	16.6	7.2	6.7	5.8	6.4	11.8	0.53

TABLE 17

MEANS OF ADMINISTRATORS' AND TEACHERS' YEARS OF EXPERIENCE IN THE SCHOOL SYSTEM, THE SCHOOL THE POSITION, TEACHING, AND ADMINISTRATOR OR SUPERVISOR, FOR EACH OF THE HIGH AND THE LOW CONGRUENCE SCHOOL SYSTEMS AND GROUPS

School System		ADMINISTRATORS					TEACHERS				
		School System	School	Position	Teaching	Admin. or Superv.	School System	School	Position	Teaching	Admin. or Superv.
	1	16.9	12.8	9.3	20.4	5.7	6.4	4.9	5.5	10.7	0.56
H	14	12.6	9.0	7.3	17.5	6.1	7.7	6.3	6.5	13.6	0.28
I	20	5.4	5.4	4.3	13.4	5.9	5.5	4.9	5.1	12.9	0.34
G	29	12.8	9.1	8.2	19.0	5.6	9.9	8.6	9.1	14.4	0.52
H	31	8.0	6.6	4.2	16.8	5.9	4.3	4.0	4.7	9.1	0.38
$\bar{X}_H$		11.1	8.6	6.7	17.4	5.8	6.8	5.7	6.2	12.1	0.42
	4	10.7	7.1	5.8	12.5	4.8	8.3	6.9	8.0	13.1	0.46
L	10	10.7	6.7	6.5	17.5	5.9	5.9	5.0	5.3	11.9	0.54
O	16	7.0	7.3	5.7	17.1	9.1	6.2	5.9	6.1	13.3	0.70
W	17	9.1	7.8	6.2	16.6	6.5	8.0	6.3	13.9	7.2	1.25
	30	2.5	3.4	3.0	13.9	5.0	2.5	3.2	2.9	9.2	0.57
$\bar{X}_L$		8.0	6.5	5.4	15.5	6.3	6.2	5.5	7.2	10.9	0.70

Variable 3 -- Congruence score for pupil personnel items
Variable 4 -- Congruence score for curriculum items
Variable 5 -- Congruence score for business-management items
Variable 6 -- Congruence score for school-community relations items

Variable 7 -- Congruence score derived from principal component general factor I items
Variable 8 -- Congruence score derived from principal component general factor II items
Variable 9 -- Congruence score derived from principal component general factor III items
Variable 10 -- Congruence score derived from principal component general factor IV items

Variable 11 -- Congruence score derived from principal component general factor V items
Variable 12 -- Congruence score derived from principal component specific factor I items
Variable 13 -- Congruence score derived from principal component specific factor II items

Variable 14 -- Congruence score derived from image general factor I items
Variable 15 -- Congruence score derived from image general factor II items
Variable 16 -- Congruence score derived from image general factor III items
Variable 17 -- Congruence score derived from image general factor IV items
Variable 18 -- Congruence score derived from image general factor V items
Variable 19 -- Congruence score derived from image specific factor I items
Variable 20 -- Congruence score derived from image specific factor II items
Variable 21 -- Congruence score derived from image specific factor III items
Variable 22 -- Congruence score derived from image specific factor IV items

Variable 23 -- Curriculum plan productivity score
Variable 24 -- Product of curriculum plan productivity and quality scores
Variable 25 -- Curriculum plan quality score
Variable 26 -- School system 1963-64 enrollment
Variable 27 -- School system 1963-64 per pupil expenditure

Variable 28 -- Curriculum plan implementation score
Variable 29 -- Extent of change in curriculum plans
Variable 30 -- Extent of change by addition in curriculum plans
Variable 31 -- Extent of change by subtraction in curriculum plans
Variable 32 -- Extent of change by rearrangement in curriculum plans

Variable 33 -- Superintendent's perception of the extent of his own "consideration"
Variable 34 -- Superintendent's perception of the extent of his own "initiating structure"
Variable 35 -- Index of teacher participation in curriculum planning

The intercorrelation matrix of the composite scores for each of the ten school systems on these variables is shown in Appendix I. A number of significant relationships between congruence, factor analytic, curriculum planning, and leader behavior variables were found. The four significant relationships shown in Table 18 were found to exist among the various measures of congruence. These relationships may be stated in the following manner:

1. Congruence scores for staff personnel decision items were found to be related to total congruence scores ($< .01$).
2. Congruence scores for curriculum decision items were found to be related to total congruence scores ($< .01$).
3. Congruence scores for school-community relations decision items were found to be related to congruence scores for all decision items ($< .05$).
4. Congruence scores for staff-personnel decision items were found to be related to congruence scores for curriculum decision items ($< .05$).

Congruence on staff personnel decision items and curriculum decision items were found to be the best measures of overall congruence on all decision

TABLE 18

SIGNIFICANT INTERCORRELATIONS AMONG TOTAL AND FUNCTIONAL AREA CONGRUENCE SCORES FOR THE SCHOOL SYSTEMS OF THE SAMPLE

Categories of Congruence	1. Total Congruence	2. Staff Personnel Congruence	3. Pupil Personnel Congruence	4. Curriculum Congruence	5. Business Mgt. Congruence	6. School-Comm. Relations Congruence
1. Total Congruence						
2. Staff Personnel Congruence	.9103[b]					
3. Pupil Personnel Congruence						
4. Curriculum Congruence	.7680[b]	.6499[a]				
5. Business Mgt. Congruence						
6. School-Comm. Relations Congruence	.6676[a]					

[a]Correlation is significant at the 5 percent level.

[b]Correlation is significant at the 1 per cent level.

items. Moreover, congruence on staff personnel and curriculum decision items were significantly related.

A number of significant and meaningful relationships also were found to exist between measures of curriculum development, background variables of the school systems, and measures of the superintendent's leader behavior. They are shown in Table 19, and are summarized below:

1. Measures of productivity in curriculum planning were found to be positively related to measures of quality in curriculum planning ($< .05$).
2. The extent of change in curriculum plans was found to be positively related to the amount of staff participation in curriculum planning ($< .01$).
3. The extent of change in curriculum plans was found to be positively related to the extent to which curriculum plans were implemented in the instructional program ($< .01$).
4. The amounts of change by addition and change by rearrangement in curriculum plans were positively related to the extent of staff participation in the production of the plans ($< .05$).
5. The amount of total change in curriculum plans and the extent of implementation of curriculum plans were both positively related to the amount of change--by addition, subtraction, or rearrangement of content, characteristic of the curriculum plans ($< .01$, $< .01$, $< .01$, $< .05$, $< .05$, $< .05$, respectively).
6. The superintendent's "initiating structure" scores were negatively related to the "quality" indices of curriculum planning ($< .05$).

SIGNIFICANT INTERCORRELATIONS AMONG SCHOOL SYSTEM BACKGROUND VARIABLES, MEASURES OF CURRICULUM PLANNING AND IMPLEMENTATION, AND MEASURES OF THE SUPERINTENDENTS' LEADER BEHAVIOR

VARIABLE	23	25	24	35	28	29	30	31	32	26	27	33	34
23. Productivity													
25. Quality	.6788[a]												
24. Productivity x Quality	.9706[b]	.8205[b]											
35. Staff Participation													
28. Extent of Implementation													
29. Extent of change in plans				.7880[b]	.7811[b]								
30. Extent of Change by addition in plans				.7372[a]	.6816[a]	.8756[b]							
31. Extent of Change by subtraction					.7364[a]	.8378[b]	.9373[b]						
32. Extent of Change by rearrangement in plans				.6478[a]	.7497[a]	.8795[b]	.7058[a]	.6932[a]					
26. 1963-64 Enrollment													
27. 1963-64 Expenditure per pupil													
33. Superintendent's "consideration" as perceived by teachers													
34. Superintendent's "initiating structure" as perceived by teachers				.6610[a]								-.7318[a]	

[a]Correlation is significant at the 5 per cent level.
[b]Correlation is significant at the 1 per cent level.

7. The superintendents' "initiating structure" scores were negatively related to the 1963-64 per-pupil expenditures of the school systems ($<.05$).

In examining relationships among these variables, it was believed that there would be value in exploring the relationships between the congruence scores for the principal component and image factorial groupings of decision items and other variables. The composite congruence scores for each of the factors were composed of the congruence scores for each of their constituent decision items. The significant intercorrelations between primary functional area congruence scores, measures of curriculum planning, school system background data, measures of the superintendents' leader behavior, and the congruence scores of decision items composing each of the factors are shown in Table 20.

As the data in Table 20 show, a number of significant relationships existed between factorially-grouped decision item congruence scores and decision item congruence scores grouped by functional areas of administration, measures of curriculum development, background data of the school systems, and indices of the superintendents' leader behavior. These relationships are summarized below:

1. A positive relationship was found to exist between the quality of curriculum documents and the extent of congruence on decision items comprising principal component general factor I ("regulatory actions") ($<.05$).
2. A positive relationship was found to exist between quality of curriculum documents and the extent of congruence on decision items comprising image general factor I ("regulatory actions") ($<.05$).

TABLE 20

SIGNIFICANT CORRELATIONS BETWEEN FACTOR-DERIVED CONGRUENCE SCORES AND FUNCTIONAL AREA CONGRUENCE SCORES, MEASURES OF CURRICULUM PLANNING AND IMPLEMENTATION, AND INDICES OF THE SUPERINTENDENTS' LEADER BEHAVIOR

Variable	Pr. Comp. Gen. Factor I	Pr. Comp. Gen. Factor II	Pr. Comp. Gen. Factor III	Pr. Comp. Gen. Factor IV	Pr. Comp. Gen. Factor V	Pr. Comp. Specific Factor I	Pr. Comp. Specific Factor II	Image General Factor I	Image General Factor II	Image General Factor III	Image General Factor IV	Image General Factor V	Image Specific Factor I	Image Specific Factor II	Image Specific Factor III	Image Specific Factor IV
1. Total Congruence	.7424[a]							.6752[a]								
2. Staff Personnel congru.				.8856[b]							.8856[b]					
3. Pupil Personnel congru.			.7591[a]							.7840[b]						
4. Curriculum Congruence						.6544[a]	.8313[b]					.7905[b]				
5. Business Mgt. Congruence																
6. Schl.-Comm. Rels. Congr.		.9498[b]									.8898[b]		.8008[b]		.7038[a]	
23. Productivity	.7271[a]							.6985[a]								
25. Quality																
24. Productivity x Quality																
35. Staff Participation						.6474[a]										
28. Extent of Implementation																
29. Extent of Change in Planning																
26. 1963-64 Enrollment		.7927[b]							.7927[b]							
27. 1963-64 Per Pupil Expend.																

TABLE 20 (Continued)

Variable	Pr. Comp. Gen. Factor I	Pr. Comp. Gen. Factor II	Pr. Comp. Gen. Factor III	Pr. Comp. Gen. Factor IV	Pr. Comp. Gen. Factor V	Pr. Comp. Specific Factor I	Pr. Comp. Specific Factor II	Image General Factor I	Image General Factor II	Image General Factor III	Image General Factor IV	Image General Factor V	Image Specific Factor I	Image Specific Factor II	Image Specific Factor III	Image Specific Factor IV
33. Superintendent's "consideration" as perceived by teachers					.7130[a]		.6375[a]					.7130[a]				
34. Superintendent's "initiating structure" as perceived by teachers	-.6300[a]															

[a]Correlation is significant at the 5 per cent level

[b]Correlation is significant at the 1 per cent level

3. A positive relationship was found to exist between the extent of staff participation in the production of curriculum plans and the extent of congruence on decision items comprising principal component specific factor II ("use of instructional spaces") ($<.05$).
4. A positive relationship was found to exist between the magnitude of the 1963-64 enrollments and the extent of congruence on decision items comprising principal component specific factor I and image specific factor I ("the selection of curriculum problems for study") ($<.01$).
5. A positive relationship was found to exist between the superintendents' "initiating structure" scores and the extent of congruence among teachers on decision items comprising principal component general factor I ("regulatory actions") ($<.01$).
6. Three positive relationships were found to exist between the superintendents' "consideration" scores and the extent of congruence among teachers on decision items comprising principal component general factor V ("pupil personnel practices related to instruction"), principal component specific factor II ("use of instructional spaces"), and image general factor V ("pupil personnel practices related to instruction"), (all $<.01$).
7. Congruence in the functional area of staff personnel was positively related to the composite congruence scores for principal component general factor I ("regulatory actions") and image general factor I (regulatory actions"), (all $<.05$).
8. Congruence in the functional area of pupil personnel was positively related to the composite congruence scores for principal component general factor V ("instructional materials") and image general

factor V ("pupil personnel practices related to instruction"), (all $<.01$).

9. Congruence in the functional area of curriculum was positively related to the composite congruence scores for principal component general factor III ("pupil and instructional evaluation") and image general factor II ("pupil and instructional evaluation"), ($<.05$, $<.01$, respectively).

10. Congruence in the functional area of business management was positively related to the composite congruence scores for principal component specific factors I ("selection of curriculum problems for study") and II ("the use of instructional spaces") and image general factor III ("procurement of instructional materials"), ($<.05, <.01, <.01$, respectively).

11. Congruence in the functional area of school-community relations was positively related to the composite congruence scores for principal component general factor II ("educational leadership"), image general factor IV ("instructional change"), and image specific factor II ("community drives and activities which merit school participation") and IV ("orientation activities for new staff members"), ($<.01$, $<.01, <.01, <.05$, respectively).

Another noteworthy finding was the positive relationship between the magnitude of school system enrollments and the extent of consensus among teachers on the location of responsibilities for making the decision primarily comprising principal component specific factor I and image specific factor I ("selection of curriculum problems for study").

Correlational Analyses of Data For Teachers

In this section, the findings from an analysis of data for the 224 teachers in the sample on 50 separate variables, are presented and analyzed. In these analyses, the data were recorded and analyzed for each of the individual teachers, without reference to school system. The large number of variables which were analyzed necessitated an examination of the findings in smaller, logical groups.

Each of the correlations presented was based on 224 teachers or "observations". The scores of the 50 variables which were intercorrelated (See Appendix J) in this analysis were computed for each of the 224 teachers in the selected sample previously presented, and are described below:

Variable 1 -- Teachers' "consideration score" for their superintendent's behavior
Variable 2 -- Teachers' "initiating structure" score for their superintendent's behavior
Variable 3 -- Absolute difference between teachers' "consideration" score for their superintendent's behavior and their superintendent's own evaluation of his "consideration"
Variable 4 -- Absolute difference between teachers' "initiating structure" score for their superintendent's behavior and their superintendent's own evaluation of his "initiating structure"
Variable 5 -- Curriculum plan implementation scores of teachers
Variable 6 -- Extent of change in curriculum plans as perceived by teachers
Variable 7 -- Superintendent's own evaluation of his "consideration"
Variable 8 -- Superintendent's own evaluation of his "initiating" structure"
Variable 9 -- Teacher sex
Variable 10 -- Years of tenure in the school system
Variable 11 -- Years of tenure in the school
Variable 12 -- Years of tenure in present position
Variable 13 -- Years of teaching experience
Variable 14 -- Years of administrative and/or supervisory experience
Variable 15 -- Teacher's level of professional preparation
Variable 16 -- Recency of formal study
Variable 17 -- Frequency with which each teacher chose the business manager as the locus of primary decision-making responsibility

Variable 18 -- Frequency with which each teacher chose the business manager as the locus of secondary decision-making responsibility

Variable 19 -- Frequency with which each teacher chose the business manager as the locus of tertiary decision-making responsibility

Variable 20 -- Frequency with which each teacher chose the principal as the locus of primary decision-making responsibility

Variable 21 -- Frequency with which each teacher chose the principal as the locus of secondary decision-making responsibility

Variable 22 -- Frequency with which each teacher chose the principal as the locus of tertiary decision-making responsibility

Variable 23 -- Frequency with which each teacher chose the vice-principal as the locus of primary decision-making responsibility

Variable 24 -- Frequency with which each teacher chose the vice-principal as the locus of secondary decision-making responsibility

Variable 25 -- Frequency with which each teacher chose the vice-principal as the locus of tertiary decision-making responsibility

Variable 26 -- Frequency with which each teacher chose the department chairman as the locus of primary decision-making responsibility

Variable 27 -- Frequency with which each teacher chose the department chairman as the locus of secondary decision-making responsibility

Variable 28 -- Frequency with which each teacher chose the department chairman as the locus of tertiary decision making responsibility

Variable 29 -- Frequency with which each teacher chose the special subject supervisor as the locus of primary decision-making responsibility

Variable 30 -- Frequency with which each teacher chose the special subject supervisor as the locus of secondary decision-making responsibility

Variable 31 -- Frequency with which each teacher chose the special subject supervisor as the locus of tertiary decision-making responsibility

Variable 32 -- Frequency with which each teacher chose the superintendent as the locus of primary decision-making responsibility

Variable 33 -- Frequency with which each teacher chose the superintendent as the locus of secondary decision-making responsibility

Variable 34 -- Frequency with which each teacher chose the superintendent as the locus of tertiary decision-making responsibility

Variable 35 - Frequency with which each teacher chose the director of instruction as the locus of primary decision-making responsibility

Variable 36 - Frequency with which each teacher chose the director of instruction as the locus of secondary decision-making responsibility

Variable 37 - Frequency with which each teacher chose the director of instruction as the locus of tertiary decision-making responsibility

Variable 38 - Frequency with which each teacher chose the guidance coordinator as the locus of primary decision-making responsibility

Variable 39 - Frequency with which each teacher chose the guidance coordinator as the locus of secondary decision-making responsibility

Variable 40 - Frequency with which each teacher chose the guidance coordinator as the locus of tertiary decision-making responsibility

Variable 41 - Frequency with which each teacher chose the board of education as the locus of primary decision-making responsibility

Variable 42 - Frequency with which each teacher chose the board of education as the locus of secondary decision-making responsibility

Variable 43 - Frequency with which each teacher chose the board of education as the locus of tertiary decision-making responsibility

Variable 44 - Frequency with which each teacher chose the teacher as the locus of primary decision-making responsibility

Variable 45 - Frequency with which each teacher chose the teacher as the locus of secondary decision-making responsibility

Variable 46 - Frequency with which each teacher chose the teacher as the locus of tertiary decision-making responsibility

Variable 47 - Frequency with which each teacher indicated that he had responsibility for making the decision

Variable 48 - Frequency with which each teacher indicated he had responsibility for sharing in the decision-making activity

Variable 49 - Frequency with which each teacher indicated that his role in the decision-making was one of providing information only

Variable 50 - Frequency with which each teacher indicated that he had no role in making the indicated decisions

Measures of leader behavior and biographical data also were intercorrelated for each of the 224 teachers in the sample. The matrix of intercorrelations is shown in Table 21. The findings are summarized as follows:

TABLE 21

INTERCORRELATIONS BETWEEN TEACHERS BIOGRAPHICAL DATA, MEASURES OF LEADER BEHAVIOR, AND CURRICULUM PLANNING AND IMPLEMENTATION

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Teacher's "consideration" score for superintendent's behavior														
2. Teacher's "initiating structure" score for superintendent's behavior	.3126[b]													
3. Teacher's "consideration" score of superintendent--superintendent's own "consideration" score	-.5663[b]													
4. Teacher's "initiating structure" score of superintendent--superintendent's own "initiating structure" score	.1598[a]	-.4063[b]												
5. Curriculum plan implementation					.6345[b]									
6. Curriculum plan productivity														
7. Superintendent's own "consideration" score	.3686[b]													
8. Superintendent's own "initiating structure" score		.2185[b]		.2938[b]										
9. Sex				.1534[a]										
10. Years of tenure in position	.1729[a]	.1946[b]		.2700[b]										
11. Years of tenure in school system		.1576[a]		.2431[b]				.9045[b]						
12. Years of tenure in school	.1905[b]	.1449[a]		.2703[b]				.8602[b]	.8309[b]					
13. Years of teaching experience	.2872[b]	.2587[b]		.2590[b]		.1873[b]	.7774[b]	.7225[b]	.7156[b]					
14. Years of administrative or supervisory experience						.1386[a]	.1621[a]				.2130[b]			
15. Level of professional preparation				-.2704[b]	-.3600[b]	.1617[b]	.2296[b]			.1369[a]	.1629[a]			
16. Recency of formal study					-.1481[a]	-.1349[b]	-.1888[b]	-.1735[b]	-.2020[b]					

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

1. Teachers who rated their superintendents higher on "initiating structure" than did other teachers, also perceived them as being significantly more considerate ($< .01$).

2. The absolute difference between each teacher's rating of his superintendent's "consideration" and the superintendent's own evaluation of his "consideration" was correlated with the teacher's evaluation of the superintendent's "consideration". The observed negative relationship, indicated that there was appreciably closer congruence between the teachers' and superintendents' ratings of the superintendents' "consideration" among the teachers who rate their superintendents as being more considerate than others ($< .01$).

3. There was closer congruence between the teachers and superintendents' ratings of the superintendents' "initiating structure" among the teachers who rated their superintendents as being higher in "initiating structure" than others ($< .01$).

4. Teachers' curriculum implementation scores were positively related to the extent of superintendents' "consideration" as perceived by the teacher ($< .05$).

5. A positive relationship was found between teachers perceptions of the amount of change inherent in their curriculum plans and the extent to which these plans were implemented ($< .01$).

6. A positive relationship was found between the superintendents' evaluations of their own "consideration" and their teachers' perceptions of the superintendent's "consideration" ($< .01$).

7. A positive relationship was found between the superintendents' evaluations of the extent of their "initiating structure" and their teachers' perceptions of the extent of the superintendent's "initiating structure" ($< .01$).

8. A positive relationship was found between superintendents' perceptions of their "consideration" and their perceptions of their "initiating structure" ($< .01$).

9. A positive relationship was found between teacher sex and their superintendent's "initiating structure" score ($< .05$).

10. Three positive relationships were found to exist between teachers' years of tenure in their present position and (1) their perception of the extent of their superintendent's "consideration", (2) their perception of the extent of their superintendent's "initiating structure", and (3) their superintendent's own perception of the extent of his "consideration" ($< .05$, $< .01$, $< .01$, respectively).

11. Three positive relationships were found between teachers' years of tenure in the school system, and (1) their perception of the extent of their superintendent's "initiating structure," (2) their superintendent's own perception of the extent of his "consideration," and (3) their years of tenure in their present position ($<.05$, $<.01$, $<.01$, respectively).

12. Five positive relationships were found between teachers' years of tenure in their present school and (1) their perception of the extent of their superintendent's "consideration," (2) their perception of the extent of their superintendent's "initiating structure," (3) their superintendent's own evaluation of his "consideration," (4) their years of tenure in the position, and (5) their years of tenure in the school ($<.01$, $<.05$, $<.01$, $<.01$, $<.01$, respectively).

13. Seven positive relationships were found between teachers' years of teaching experience and (1) their perceptions of the extent of their superintendents' "consideration," (2) their perceptions of the extent of their superintendents "initiating structure," (3) their superintendent's own ratings of his "consideration," (4) teacher sex, (5) their years of tenure in their present position, (6) their years of tenure in their school system, and (7) their years of tenure in their school (all $<.01$)

14. A positive relationship was found between teachers' years of administrative or supervisory experience and their years of teaching experience ($<.01$).

15. Two negative relationships and four positive relationships were found between the level of professional preparation of teachers and (1) the superintendent's own perception of the extent of their "initiating structure," (2) teachers sex, (3) teachers' years of tenure in their position, (4) teachers' years of tenure in their school system, (5) teachers' years of teaching experience, and (6) teachers' years of administrative or supervisory experience ($<.01$, $<.01$, $<.01$, $<.01$, $<.05$, $<.05$, respectively).

16. Five negative relationships were found between the recency of teachers' formal study and (1) teacher sex, (2) their years of tenure in their present position, (3) their years of tenure in the school system, (4) their years of tenure in their school, and (5) their years of teaching experience ($<.05$, $<.01$, $<.01$, $<.01$, $<.01$, respectively).

The relationships between the measures of leader behavior and curricular planning and implementation previously discussed and measures of the teachers' perceptions of their own responsibilities in making each of the decisions also were examined. In addition to other questions, the respondents were asked to indicate their role in making the various decisions. The four options available were:

(1) Respondent makes the indicated decision.
(2) Respondent shares in making the indicated decision.
(3) Respondent provides information only.
(4) Respondent is not involved in making the decision(s).

The statistically significant intercorrelations between these four measures of respondent participation and leader behavior are shown in Table 22. The four significant relationships are described below:

1. A positive relationship was found between teachers' scores indicative of the extent of implementation of curricular plans and the extent to which teachers indicated they shared in making the various decisions ($<.05$).

2. A positive relationship was found between teachers' scores indicative of the extent of implementation of curricular plans and the extent to which teachers participated in the decision-making process by providing information ($<.05$).

3. A negative relationship was found between teachers' scores indicative of the extent of implementation of curricular plans and the extent to which teachers indicated they were not involved at all in the process of making these decisions ($<.01$).

4. A positive relationship was found between superintendents' self-ratings of the extent of their "consideration" and the extent to which the teachers in their school systems indicated that they were not involved in making decisions ($<.01$).

TABLE 22

CORRELATIONS BETWEEN MEASURES OF TEACHERS' DECISION-MAKING ACTIVITY, MEASURES OF LEADER BEHAVIOR, AND CURRICULAR PLANNING AND IMPLEMENTATION

Variable Name	47. Respondent makes the decision(s)	48. Respondent shares in making the decision(s)	49. Respondent provides information only	50. Respondent is not involved in making the decision(s)
1. Teacher's "consideration" score for the superintendent's behavior				
2. Teacher's "initiating structure" score for the superintendent's behavior				
3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score				
4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score				
5. Curriculum implementation score		.1401[a]	.1714[a]	-.2147[b]
6. Extent of change in curriculum plans				
7. Superintendent's own "consideration" score				.1929[b]
8. Superintendent's own "initiating structure" score				

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

In order to explore further the nature of respondent participation in decision-making, the four indices of teachers' decision-making activity were correlated with the frequencies with which each of the ten position incumbents was indicated as exercising primary, secondary, or tertiary responsibilities. Intercorrelations which were found to be statistically significant at or above the five per cent level of confidence are shown in Table 23. These significant relationships are as follows:

1. The extent to which teachers made the various decisions was inversely related to the frequency with which department chairmen and superintendents were indicated as those primarily responsible for decision making ($<.05$, $<.01$, respectively). The extent to which teachers indicated they made the various decisions was directly related to the frequency with which principals were indicated as those secondarily responsible for decision making ($<.05$).
2. The extent to which teachers indicated they shared in making the various decisions was positively related to the frequency with which principals were indicated as primarily responsible for decision making ($<.05$). Conversely, the extent to which teachers indicated they shared in making the various decisions was negatively related to the frequency with which superintendents were chosen as the primary decision makers and boards of education were chosen as the secondary and tertiary decision makers (all $<.05$).
3. The extent to which teachers indicated they participated in decision making by providing information only was positively related to the frequency with which the board of education was

TABLE 23

CORRELATIONS BETWEEN MEASURES OF TEACHERS' DECISION-MAKING ACTIVITY, AND TEACHERS' RELATIVE FREQUENCIES OF ASSIGNING PRIMARY, SECONDARY, AND TERTIARY DECISION-MAKING RESPONSIBILITIES TO EACH OF THE TEN POSITION INCUMBENTS

Variable Number and Name	47. Respondent makes the decision(s)	48. Respondent shares in making the decision(s)	49. Respondent provides information only	50. Respondent is not involved in making the decision(s)
17. Business Manager (Primary D.M.)				
18. Business Manager (Secondary D.M.)				
19. Business Manager (Tertiary D.M.)				
20. Principal (Primary D.M.)		.1568[a]		
21. Principal (Secondary D.M.)	.1495[a]			
22. Principal (Tertiary D.M.)				
23. V. Principal (Primary D.M.)				
24. V. Principal (Secondary D.M.)				
25. V. Principal (Tertiary D.M.)				
26. Dept. Chairman (Primary D.M.)			-.1745[a]	
27. Dept. Chairman (Secondary D.M.)				
28. Dept. Chairman (Tertiary D.M.)				
29. Spec. Subj. Supv. (Primary D.M.)				
30. Spec. Subj. Supv. (Secondary D.M.)				
31. Spec. Subj. Supv. (Tertiary D.M.)				

TABLE 23 (Continued)

Variable Number and Name	47. Respondent makes the decision(s)	48. Respondent shares in making the decision(s)	49. Respondent provides information only	50. Respondent is not involved in making the decision(s)
32. Superintendent (Primary D.M.)	-.3325[b]	-.1400[a]		.3634[b]
33. Superintendent (Secondary D.M.)			.1536[a]	
34. Superintendent (Tertiary D.M.)				
35. Director of Instr. (Primary D.M.)				
36. Director of Instr. (Secondary D.M.)				.1474[a]
37. Director of Instr. (Tertiary D.M.)				
38. Guidance Coord. (Primary D.M.)				
39. Guidance Coord. (Secondary D.M.)				
40. Guidance Coord. (Tertiary D.M.)				
41. Bd. of Education (Primary D.M.)			.1486[a]	
42. Bd. of Education (Secondary D.M.)		-.1579[a]		.2305[b]
43. Bd. of Education (Tertiary D.M.)		-.1464[a]		.1388[a]
44. Teacher (Primary D.M.)	.7039[b]	.1417[a]		-.3295[b]
45. Teacher (Secondary D.M.)		.3458[b]		-.3310[b]
46. Teacher (Tertiary D.M.)		.1594[a]		

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

indicated as the primary decision-making authority and the frequency with which the superintendent was indicated as exercising the secondary responsibility ($<.05, <.05$).

4. The extent to which teachers indicated they were not at all involved in the decision-making process was positively related to the frequency with which the superintendent was indicated as having primary decision-making responsibility ($<.01$). Moreover, the extent to which teachers indicated they were not at all involved in the decision-making process was positively related the frequency with which the director of instruction was chosen as having secondary decision-making responsibility, as well as the frequency with which the board of education was indicated as having secondary and tertiary responsibility ($<.05, <.01, <.05$, respectively).

An analysis of the frequencies with which the various position incumbents were indicated as the primary, secondary, and tertiary decision makers and certain measures of leader behavior also was performed. For each of the eight measures of leader behavior, the paragraph numbering corresponds to the number of the variable as listed along the abscissa of Table 24. The significant correlations among those variables are reported in Table 24 and summarized as follows:

1. The extent to which teachers indicated that their superintendents' leader behavior was considerate was found to be:
   (a). negatively related to the frequency with which they indicated that the business manager was primarily responsible for decision making ($<.05$).
   (b). negatively related to the frequency with which they indicated that the director of instruction exercised primary decision-making responsibility ($<.05$).

TABLE 24

CORRELATIONS BETWEEN MEASURES OF LEADER BEHAVIOR, CURRICULUM PLANNING AND IMPLEMENTATION, AND TEACHERS' RELATIVE FREQUENCIES OF ASSIGNING PRIMARY, SECONDARY, AND TERTIARY DECISION-MAKING RESPONSIBILITIES TO EACH OF THE TEN POSITION INCUMBENTS

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
17. Business Manager (Primary D.M.)	-.1373[a]				-.1549[a]	-.2298[b]	-.1802[b]	
18. Business Manager (Secondary D.M.)	-.3098[b]						-.4982[b]	-.2484[b]
19. Business Manager (Tertiary D.M.)	-.2939[b]					-.1806[b]	-.4179[b]	-.2124[b]
20. Principal (Primary D.M.)					.1341[a]		-.1853[b]	-.2480[b]
21. Principal (Secondary D.M.)							-.2822[b]	
22. Principal (Tertiary D.M.)								-.1505[a]
23. V.Principal (Primary D.M.)			.1694[a]	-.1555[a]			-.1557[a]	.4060[b]
24. V.Principal (Secondary D.M.)			.1672[a]					
25. V.Principal (Tertiary D.M.)							-.2015[b]	
26. Dept. Chairman (Primary D.M.)							.2835[b]	
27. Dept. Chairman (Secondary D.M.)	.1569[a]						.3284[b]	-.2702[b]
28. Dept. Chairman (Tertiary D.M.)							.1537[a]	-.2340[b]
29. Spec.Subj.Supv. (Primary D.M.)			-.1487[a]					
30. Spec.Subj.Supv. (Secondary D.M.)								
31. Spec.Subj.Supv. (Tertiary D.M.)								

TABLE 24 (Continued)

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
32. Superintendent (Primary D.M.)								
33. Superintendent (Secondary D.M.)		-.1626[a]	-.1382[a]					
34. Superintendent (Tertiary D.M.)	-.1667[a]							
35. Dir. of Instr. (Primary D.M.)	.1618[a]					.3467[b]	.3043[b]	
36. Dir. of Instr. (Secondary D.M.)	.1981[b]	.1489[a]				.3058[b]	.4269[b]	
37. Dir. of Instr. (Tertiary D.M.)						.3640[b]	.3319[b]	
38. Guidance Coord. (Primary D.M.)								
39. Guidance Coord. (Secondary D.M.)								
40. Guidance Coord. (Tertiary D.M.)						-.1570[a]		
41. Bd. of Education (Primary D.M.)								
42. Bd. of Education (Secondary D.M.)						.2057[b]		
43. Bd. of Education (Tertiary D.M.)								
44. Teacher (Primary D.M.)						-.1398		
45. Teacher (Secondary D.M.)								
46. Teacher (Tertiary D.M.)		.1437[a]						

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

2. The magnitude of the absolute difference between the extent to which teachers indicated that their superintendents' leader behavior was characterized by "initiating structure" and the extent to which their superintendent indicated that their own leader behavior was characterized by "initiating structure" was found to be:
   (a). positively related to the frequency with which they indicated that the vice-principal exercised primary responsibility ($<.05$).
   (b). negatively related to the frequency with which they indicated that the special subject supervisor exercised primary responsibility ($<.05$).
3. The extent to which teachers indicated that they actually used or implemented the curriculum plans for instructional change in the classroom was found to be:
   (a). negatively related to the frequency with which they indicated that the business manager exercised primary responsibility ($<.05$).
   (b). positively related to the frequency with which they indicated that the principal exercised primary responsibility ($<.05$).
   (c). negatively related to the frequency with which they indicated that the vice-principal exercised primary responsibility ($<.05$).
4. The extent to which teachers indicated that their school systems' curricular plans represented instructional change was found to be:
   (a). negatively related to the frequency with which they indicated that the business manager exercised primary responsibility ($<.01$).
5. The extent to which each of the superintendents indicated that their leader behavior was characterized by "consideration" was found to be:
   (a). negatively related to the frequency with which their teachers indicated that the business manager exercised primary responsibility ($<.01$).

(b). negatively related to the frequencies with which their teachers indicated that their principals were primarily responsible ($< .01$).

(c). negatively related to the frequencies with which their teachers indicated that their vice-principals exercised primary responsibility ($< .05$).

(d). positively related to the frequency with which their teachers indicated that their department chairmen exercised primary responsibility ($< .05$).

(e). positively related to the frequency with which their teachers indicated that their directors of instruction exercised primary responsibility ($< .01$).

(f). negatively related to the frequency with which their teachers indicated that they themselves were primarily responsible for making decisions ($< .05$).

6. The extent to which the superintendents indicated that their leader behavior was characterized by "initiating structure" was found to be:

(a). negatively related to the frequency with which their teachers indicated that their principals exercised primary responsibility ($< .01$).

(b). positively related to the frequency with which their teachers indicated that their vice-principals exercised primary responsibility ($< .01$).

(c). positively related to the frequency with which their teachers indicated that their directors of instruction exercised primary responsibility ($< .01$).

Analyses of Data for Teachers Grouped by High Congruence School Systems and Low Congruence School Systems

In the preceding sections, relationships and differences based on school system scores and indices of various types among and between the ten school systems of the sample were examined. Relationships among several variables for all teachers in the sample, regardless of their school system, also were explored. In this section relationships among variables of teachers in the high congruence school systems and the corresponding variables of teachers in the low congruence school systems are presented. Although the number of teachers within the various school systems varied considerably, the five high and the five low congruence school systems as groups each contained 112 teachers. The same fifty variables which were analyzed in the preceding section for all 224 teachers regardless of school system were intercorrelated for the 112 teachers of the five high congruence school systems and separately for the 112 teachers of the five low congruence school systems. Numbers corresponding to the variables used in the analyses presented in the tables of this section are the same as those used in the analysis of the 50 variables for all 224 teachers as a group.

In Table 25 are shown relationships among certain biographical variables of teachers, measures of leader behavior, and indices of curricular planning and implementation. In this table the significant intercorrelations among variables for teachers of the high congruence school systems have been placed in the upper half of the respective cells; those for teachers of the low congruence school systems have been placed in the lower half of the respective cells. The findings are summarized as follows:

TABLE 25

INTERCORRELATIONS BETWEEN BIOGRAPHICAL DATA OF TEACHERS' MEASURES OF LEADER BEHAVIOR, AND CURRICULAR PLANNING AND IMPLEMENTATION

Variable Number and Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Teacher's "consideration" score for superintendent's behavior														
2. Teacher's "initiating structure" score for superintendent's behavior	.2326[a] .4006[b]													
3. Teacher's "consideration" score of superintendent--superintendent's own "consideration" score	-.5948[b] -.5315[b]													
4. Teacher's "initiating structure" score of superintendent--superintendent's own "initiating structure" score	-.2566[b]	-.6014[b]												
5. Curriculum plan implementation score	.2341[a]													
6. Curriculum plan change score					.7218[b] .5434[b]									
7. Superintendent's own "consideration" score	.4637[b]					.2504[b]								
8. Superintendent's own "initiating structure" score		.3206[b]	.2062[a]		-.2142[a]		.4537[b]							

TABLE 25 (Continued)

Variable Number and Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14
9. Sex								.1966[a]						
10. Years of tenure in position	.3171[b]	.2416[a]					.3212[b]							
						.2078[a]	.2377[b]	.2039[a]						
11. Years of tenure in school system	.2543[b]	.1916[a]					.2833[b]			.9135[b]				
							.2808[b]			.8930[b]				
12. Years of tenure in school	.3350[b]						.3153[b]			.8074[b]	.8212[b]			
							.3125[b]			.9089[b]	.8375[b]			
13. Years of teaching experience	.4440[b]	.2633[b]					.3242[b]		.2326[a]	.7798[b]	.7420[b]	.7019[b]		
		.2697[b]					.2237[a]	.2560[b]		.7703[b]	.6956[b]	.7235[b]		
14. Years of administrative or supervisory experience		-.1928[a]									.2460[b]		.1909[a]	
			.2202[a]										.2441[a]	
15. Level of professional preparation								-.2413[a]	-.2125[a]	.1930[a]	.2481[b]			.2587[b]
								-.2570[b]	-.5179[b]					
16. Recency of formal study										-.2974[b]	-.3369[b]	-.2936[b]	-.2754[b]	
		-.1960[c]												

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

1. Teachers of the high congruence school systems who indicated that their superintendents were characterized more than others by "consideration" behavior also indicated that the later were correspondingly higher in "initiating structure," and conversely ($<.05$). Similarly, teachers of the low congruence school systems who indicated that their superintendents were characterized more than others by "consideration" behavior also indicated that they were correspondingly higher than others in "initiating structure," and conversely ($<.01$).
2. Teachers of the high congruence school systems who indicated that their superintendents were characterized more so than others by "consideration" were also characterized by appreciably greater congruence between their ratings of their superintendents "consideration" and their superintendents' ratings of their "consideration," and conversely ($<.01, <.01$).
3. Teachers of the low congruence school systems whose "initiating structure" ratings of their superintendents were more congruent with their superintendents' ratings of their "initiating structure" rated their superintendents as more considerate than teachers not so characterized ($<.01$). No significant relationship between these variables was found for teachers of the high congruence school systems.
4. Teachers of the low congruence school systems whose "initiating structure" ratings of their superintendents were more congruent with their superintendents' ratings of their "initiating structure" rated their superintendents as appreciably higher in

"initiating structure" than did teachers not so characterized ($<.01$). No significant relationship between these variables was found to exist for teachers of the high congruence school systems.

5. Teachers of the low congruence school systems who rated their superintendents as more considerate also indicated themselves as implementing curricular plans to a correspondingly greater extent than did others ($<.01$). However, no significant relationship between these variables for teachers of the high congruence school systems was found to exist.

6. Teachers of the high congruence school systems indicated that curricular plans which were characterized by appreciably greater provision for instructional change than others also were implemented in the classroom to a correspondingly greater extent ($<.01$). Teachers of the low congruence school systems similarly indicated that curricular plans which were characterized by greater provision for instructional change than others were implemented to a correspondingly greater extent ($<.01$).

7. Teachers of the high congruence school systems who indicated that their superintendents were more considerate than others were characterized by superintendents who rated themselves correspondingly higher in "consideration" than others, and conversely ($<.01$). No significant relationship between these variables was found to exist for teachers of the low congruence school systems.

8. Teachers of low congruence school systems whose superintendents rated themselves higher than others in "consideration" rated their

curricular plans higher in extent of provision for instructional change ($< .01$). No significant relationship was found to exist among these variables for teachers of the high congruence school systems.

9. Three relationships involving the superintendents' ratings of their "initiating structure" were found to exist for teachers of the high congruence school systems that were not found to exist for teachers of the low. The teacher ratings of the "initiating structure" behavior of their superintendents were positively related to their superintendents' self-ratings of their "initiating structure" behavior ($< .01$). The extent of congruence between teachers' ratings of their superintendents' "consideration" and their superintendents' self-ratings of their "consideration" were positively related to the superintendents' ratings of their "initiating structure" behavior ($< .05$). Superintendents' ratings of their "consideration" were found to be positively related to their self-ratings on "initiating structure" ($< .01$).

One relationship involving the superintendents' self-ratings of their "initiating structure" was found to exist for teachers of the low congruence school systems. A negative relationship between the superintendents' self-ratings of the extent of their "initiating structure" behavior and the extent to which their teachers indicated they implemented curricular plans in classroom use was found ($< .05$). That is, teachers of the low congruence school systems (but not teachers of the high congruence school systems) whose superintendents

considered themselves higher than others in "initiating structure" behavior indicated that they implemented their curricular documents to a lesser extent than others not so characterized.

10. Four relationships between teachers' ratings of their superintendents' "consideration" and the extent of their tenure in their position, their school system, and their school and the extent of their total teaching experience were identified. All four relationships were found to exist for teachers of the high congruence school systems (all $<$ .01); no corresponding significant relationships were found to exist in the low congruence school systems. In the high congruence school systems, teachers with more tenure in their position, teachers with more tenure in their school system, teachers with more tenure in their school, and teachers with more teaching experience rated their superintendents as appreciably more considerate than others, and conversely.

11. Several relationships between teachers' ratings of the extent of their superintendents' "initiating structure" behavior and teachers' biographical variables were found to exist in both the high and low congruence school systems, were found between teachers' ratings of their superintendents' "initiating structure" behavior and their tenure in position and school system ($<.05, <.05$). Significant relationships for teachers of the low congruence school systems were not found. Thus, only teachers of the high congruence school systems with more tenure in system and position than others rated their

superintendents as correspondingly higher in "initiating structure" behavior.

For the high congruence school systems only, a negative relationship was found to exist between the extent of administrative or supervisory experience of the teachers and their ratings of their superintendents' "initiating structure" behavior ($< .05$).

For the low congruence school systems only, one negative relationship was found to exist between the extent of recency of teachers' formal study and their ratings of their superintendents' "initiating structure" behavior ($<.05$).

Two additional positive relationships were found: (1) between the extent of teaching experience of teachers in the high congruence school systems and their ratings of their superintendents' "initiating structure" behavior ($<.01$), and (2) between the extent of teaching experience of teachers in the low congruence school systems and their ratings of their superintendents' "initiating structure" behavior ($<.01$).

12. One positive relationship was found between the extent of administrative or supervisory experience of teachers in low congruence school systems and the consensus between their ratings of their superintendents' "consideration" and their superintendents' self-ratings of their "consideration" ($<.05$).

13. A positive correlation was found between the tenure in position of teachers in the low congruence school systems and their perception of the amount of change contained in curricular plans ($<.05$).

14. Four pairs of positive relationships were found between superintendents' self-ratings of "consideration" and the teachers (1) years of tenure in position ($< .01$), (2) tenure in the school system ($< .01$), (3) tenure in the school ($< .01$), and teaching experience ($< .01$), in both the high and low congruence school systems. These findings displayed remarkable consistency between the teachers of the high and low congruence school systems.

15. A positive relationship was found to exist between sex of teachers in the low congruence school systems and their superintendents' self-evaluations of "initiating structure" behavior ($< .05$).

A positive relationship was found to exist between the amount of tenure in position of teachers in the low congruence school systems and their superintendents' self-perceptions of their "initiating structure" behavior ($< .05$).

Supportive of the immediately preceding finding is the positive relationship between the total teaching experience of teachers of the low congruence school systems and their superintendents' self-perceptions of "initiating structure" behavior ($< .01$).

A negative relationship was found between the "initiating structure" behavior of the superintendents of the high congruence school systems and the level of professional preparation of their teachers ($< .05$). The "initiating structure" behavior of the superintendents of the low congruence school systems and the level of professional preparation of their teachers also were related ($< .05$).

16. A positive relationship was found between the sex of teachers in the high congruence school systems and their years of teaching experience ($<.05$).

    A negative relationship was found between sex of the teachers in the high congruence school systems and their level of professional preparation ($<.05$), and between sex of the teachers in the low congruence school systems and their level of professional preparation ($<.01$).

17. With a considerable degree of consistency, the variables of years of tenure in position, years of tenure in school system, years of tenure in school, and total years of teaching experience were significantly related. These relationships are not discussed individually.

18. Positive relationships were found between the level of professional preparation of teachers in the high congruence school systems and their years of tenure in position ($<.05$), their years of tenure in the school system ($<.01$), and their years of administrative or supervisory experience ($<.01$).

19. There were four negative relationships between the extent of recency in the formal study of teachers of the high congruence school systems and their tenure in the position ($<.01$), their tenure in the school system ($<.01$), their tenure in the school ($<.01$), and their total years of teaching experience ($<.01$).

Table 26 reveals twelve significant relationships between measures indicative of the extent to which teachers engaged in decision-making activity,

TABLE 26

CORRELATIONS BETWEEN MEASURES OF TEACHERS' DECISION-MAKING ACTIVITY, MEASURES OF LEADER BEHAVIOR, AND CURRICULAR PLANNING AND IMPLEMENTATION

Variable Numbers and Names	47. Respondent makes the decision(s)	48. Respondent shares in making the decision(s)	49. Respondent provides information only	50. Respondent is not involved in making the decisions
1. Teacher's "consideration" score for superintendent's behavior	.2126[a]	.1892[a]		
2. Teacher's "initiating structure" score for superintendent's behavior				
3. Teacher's "consideration" score of superintendent--superintendent's own "consideration" score	-.2362[a]			.2055[a]
4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	-.2070[a]			
5. Curriculum plan implementation score				-.2149[a] -.2097[a]
6. Curriculum plan change score				
7. Superintendent's own "consideration" score	-.2009[a]			.2453[a]
8. Superintendent's own "initiating structure" score	.2034[a]		-.2440[a]	.2972[b]

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

measures of leader behavior, and measures of the planning and implementation of curricular change. Correlations between variables for teachers of high congruence school systems are shown in the upper half of the respective cells and those for teachers of low congruence school systems in the lower half of the respective cells. The relationships are described in the following paragraphs:

1. Two positive relationships were found between the ratings which teachers of the low congruence school systems gave their superintendents' "consideration" behavior and the extent to which they indicated they made the various decisions ($<.05$) and shared in making the decisions ($<.05$). For the low congruence school systems only, teachers who indicated that they had appreciably greater participation in decision-making activity than others also rated their superintendents as correspondingly more "considerateion", and conversely.
2. For teachers of the low congruence school systems the magnitude of the absolute differences between teachers' ratings of their superintendents' "consideration" and their superintendents' self-ratings of "consideration" were negatively related to the frequency with which teachers indicated they exercised the primary responsibility for making decisions ($<.05$).
3. For teachers of the high congruence school systems a relationship was found to exist between the magnitude of the absolute differences between teachers' ratings of their superintendents' "initiating structure" behavior and their superintendents' self-ratings of "initiating structure" and the frequency with which teachers indicated that they made the various decisions ($<.05$).

4. Regarding curricular implementation, two significant relationships were found. In the high congruence school systems the extent to which teachers indicated lack of involvement in decision making was inversely related to their implementation of curricular plans in the classroom ($<.05$). In the low congruence school systems the extent to which teachers indicated lack of involvement in decision making was inversely related to their implementation of curricular plans in the classroom ($<.05$).
5. Two other relationships were found to exist--one involving variables 7 and 47 among teachers of the low congruence school systems and the other involving variables 7 and 50 among teachers of the high congruence school systems. The extent to which teachers of the low congruence school systems indicated they were responsible for making the various instructional decisions was inversely related to the magnitude of their superintendents' "consideration" scores ($<.05$). Similarly, the extent to which teachers of the high congruence school systems indicated their lack of participation in making the various instructional decisions was positively related to the magnitude of their superintendents' "consideration" scores ($<.05$).
6. A positive relationship was found between the frequency with which teachers of the low congruence school systems indicated they participated in making the instructional decisions and their superintendents' self-perception of "initiating structure" behavior ($<.05$). In the relationship between variables 8 and 50, the frequency with which teachers indicated they were not involved in making the decisions was positively related to the magnitude of their superintendents'

"initiating structure" behavior (<.01). This seeming incongruence may be explained by the congruence level of the school systems--that is, the positive relationship between variables 8 and 47 occurred among teachers in low congruence school systems whereas the seemingly inconsistent positive relationship between variables 8 and 50 occurred among teachers of the high congruence school systems. Lastly a negative relationship was found between variables 8 and 49 for teachers of the high congruence school systems (<.05).

To supplement the foregoing analyses, measures of leader behavior and curricular planning and implementation were correlated with the relative frequencies with which teachers assigned primary, secondary, and tertiary decision-making responsibilities to each of the ten position incumbents. These data were analyzed for the 112 teachers of high congruence school systems and the 112 teachers of low congruence school systems. The findings are reported in Table 27. Certain of these relationships merit comment:

1. Teachers in high congruence school systems who perceived their superintendents' leader behavior as characterized more so than other teachers in that system by "consideration" indicated the director of instruction as the position incumbent exercising primary, secondary, and tertiary decision-making responsibility significantly more frequently than any other position incumbent, and conversely. Teachers in the high congruence school systems who indicated their superintendent as more considerate than did other teachers indicated a correspondingly high participation of the department chairmen in

TABLE 27

CURRICULAR PLANNING AND IMPLEMENTATION, AND THE RELATIVE FREQUENCIES WITH WHICH TEACHERS ASSIGNED PRIMARY, SECONDARY, AND TERTIARY DECISION-MAKING RESPONSIBILITY TO EACH OF THE TEN POSITION INCUMBENTS

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
17. Business Manager (Primary respon.)					-.2508[a]	-.3281[b]	-.2391[a] -.1988[a]	
18. Business Manager (Secondary respon.)	-.3877[b]						-.5389[b] -.2186[a]	-.3022[b]
19. Business Manager (Tertiary respon.)	-.3655[b]					-.2492[a]	-.4722[b]	
20. Principal (Primary respon.)			.1961[a]		.2313[a]		-.2154[a] -.2002[a]	-.3524[b]
21. Principal (Secondary respon.)	-.2226[a]						-.2836[b] -.3412[b]	.2871[b]
22. Principal (Tertiary respon.)	-.1901[a]							-.3508[b]

TABLE 27 (Continued)

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
23. V. Principal (Primary respon.)	-.2296[a]		-.3077[b]		-.4513[b]	.5514[b]		
24. V. Principal (Secondary respon.)					-.2165[a]	-.3994		
25. V. Principal (Tertiary respon.)					-.3402[b]	-.4459[b]		
26. Dept. Chairman (Primary respon.)			-.1896[a]		.3282[b] .2617[b]	-.2245[a]		
27. Dept. Chairman (Secondary respon.)	.3061[b]				.4712[b] .3221[b]	-.3109[b]		
28. Dept. Chairman (Tertiary respon.)		-.2313[a]			.5072[b] .4917[b]	-.3329[b]		
29. Spec. Subj. Supv. (Primary respon.)								
30. Spec. Subj. Supv. (Secondary respon.)			-.1903[a]					
31. Spec. Subj. Supv. (Tertiary respon.)			-.2138[a]					

TABLE 27 (Continued)

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
32. Superintendent (Primary respon.)					.2163[a]			
33. Superintendent (Secondary respon.)	-.2384[a]							
34. Superintendent (Tertiary respon.)	-.2353[a]	.2231[a]						
35. Dir. of Instruct. (Primary respon.)	.2661[b]				.5519[b]			.3010[b]
36. Dir. of Instruct. (Secondary respon.)	.2842[b]				.4744[b]	.2108[a]	.3898[b]	
37. Dir. of Instruct. (Tertiary respon.)	.2141[a]		.2197[a]		.4939[b]	.2534[b]	.2807[b]	
38. Guidance Coord. (Primary respon.)						-.2415[a]	-.2698[b]	
39. Guidance Coord. (Secondary respon.)							-.2546[b]	
40. Guidance Coord. (Tertiary respon.)		.2291[a]						

TABLE 27 (Continued)

Variable Number and Name	1. Teacher's "consideration" score for the superintendent's behavior	2. Teacher's "initiating structure" score for the superintendent's behavior	3. Teacher's "consideration" score of superintendent--superintendent's "consideration" score	4. Teacher's "initiating structure" score of superintendent--superintendent's "initiating structure" score	5. Curriculum implementation score	6. Curriculum planning score	7. Superintendent's own "consideration" score	8. Superintendent's own "initiating structure" score
41. Bd. of Education (Primary respon.)					.1963[a]			
42. Bd. of Education (Secondary respon.)						.3406[b]	.2436[a]	
43. Bd. of Education (Tertiary respon.)						-.2710[b]	-.3197[b]	.3715[b]
44. Teacher (Primary respon.)								
45. Teacher (Secondary respon.)				.1987[a]				
46. Teacher (Tertiary respon.)		.3782[b]						

[a]Correlation is significant at the 5 per cent level.

[b]Correlation is significant at the 1 per cent level.

sharing secondary responsibility for making decisions and a correspondingly low indication of the business manager and principal in participating to secondary and tertiary degrees in making the decisions.

No meaningful relationships were found to exist between these variables for teachers in the low congruence school systems.

2. Teachers in high congruence school systems who perceived their superintendents' behavior as characterized more than did other teachers by "initiating structure", indicated the guidance coordinator and themselves as the position incumbents who exercised tertiary decision making responsibility significantly more frequently than other position incumbents, and conversely.

No significant relationship between the perceptions which teachers of the high congruence school systems held for their superintendents' "initiating structure" behavior and the frequency with which they indicated position incumbents as exercising primary and secondary decision making responsibility were found to exist. Nor were any such significant relationships found between these variables for teachers in the low congruence school systems.

3. Only one meaningful correlation was found among teachers of the high congruence school systems. The magnitude of the absolute difference between teachers' perceptions of their superintendents' "consideration" in high congruence school systems and their superintendents' own ratings of "consideration" was positively related to the frequency with which these teachers indicated the principal as the position

incumbent primarily responsible for decision making ($<.05$).

4. Teachers in low congruence school systems who indicated that they implemented curricular plans appreciably more than other teachers also named, correspondingly more than others, the principal as the person primarily responsible for decision making, and named the business manager, the vice-principal, and the department chairman as the persons primarily responsible for the making of instructional decisions significantly less frequently than did others ($<.05$, $<.05$, $<.01$, $<.05$, respectively). Teachers of the low congruence school systems who indicated that they implemented curricular plans more than other teachers also indicated, correspondingly more than others, that teachers were the persons participating to the secondary degree in making instructional decisions ($<.05$).

   No significant relationships between these variables for teachers of the high congruence school systems were found.

5. Teachers of low congruence school systems who indicated more so than did others that their curricular plans contained more provision for instructional change also indicated that their superintendents' exercised primary decision-making responsibility correspondingly more often and their business managers as primary and tertiary makers of instructional decisions correspondingly less often ($<.05$, $<.01$, $<.05$, respectively).

   Teachers of the high congruence school systems who indicated that their curricular plans contained more provision for instructional change than others, also indicated that their boards of education exercised primary decision-making responsibility correspondingly more often ($<.05$).

6. Teachers in high congruence school systems whose superintendents were more considerate than others indicated that the department chairmen and directors of instruction were primarily responsible for decision making correspondingly more often ($<.05, <.01$). They also indicated that the department chairmen and the directors of instruction were secondarily responsible for decision making correspondingly more often, and the director of instruction as responsible for decision making to a tertiary degree correspondingly more often (all $<.01$). These teachers further indicated that the business manager, the principal, and the vice-principal, with exceptions, exercised correspondingly little primary, secondary, and tertiary decision-making responsibility. The pattern of relationships was remarkably similar for the teachers in the low congruence school systems.
7. Teachers of the high congruence school systems whose superintendents tended toward "initiating structure" behavior more than other teachers indicated that the principal and the board of education were secondarily responsible for making instructional decisions, and conversely($<.01, <.05$).

Teachers in the low congruence school systems whose superintendents were characterized by "initiating structure" behavior more so than other teachers indicated to a corresponding extent the vice-principal and director of instruction as primarily responsible for making instructional decisions ($<.01, <.01$).

Part III - Tests of Hypotheses 3 and 4 and Ancillary Findings of Phase II

Changes in Congruence Among Perceptions of Decision Points

During Phase I, the Decision Point Analysis Instrument was administered to 6,138 teachers and administrators in the 31 school systems comprising the project population. Subsequently, based on congruence of perception scores, five high and five low congruence school systems were selected for further study in Phase I. The congruence score for each school system was a composite of congruence scores among teachers, among administrators, and between teachers and administrators. Thus, each school system's congruence score represented both the extent of within-group and between-group agreement. In the tables that follow, the analyses usually are presented by composite score, i.e., the total score for each school system, and also separately for the teachers' and administrators' groups of each school system.

Proceeding from the five high and five low congruence school systems utilized in the later activities of Phase I, three matched pairs of school systems were selected for participation in Phase II of the study. Three school systems, numbers 16, 20, and 29, from the Phase I sub-sample, were the control school systems for Phase II; and three others, numbers 1, 17, and 31, were the experimental school systems. The improvement of congruence of perceptions activ activities of Phase II were conducted in the three experimental school systems. No similar activities were conducted in the control school systems by the project staff during Phase II. After activities were conducted to increase congruence, the Decision Point Analysis Instrument again was administered to the teachers and administrators of the three control and the three experimental school systems.

Through a comparison and analysis of the original and subsequent congruence scores for the teachers and administrators of the three control and the three experimental school systems, a measure of the relative effectiveness of the Phase II project activities may be obtained.

A comparison and contrast between the original and subsequent congruence scores, by individual decision item and composite for teachers and administrators, and separately for teachers and for administrators of the three control and the three experimental school systems of the Phase I population subsequently involved in the activities of Phase II are presented in Tables 28, 29, and 30, respectively.

Revealed in Table 28, total congruence among teachers and administrators of two control school systems decreased, while that for the third control school system increased very slightly. On the other hand, substantial increases in composite congruence for teachers and administrators of the three experimental school systems were apparent. Two of the congruence increases were quite appreciable in magnitude and even the lesser congruence of the third experimental school system was almost three times greater than the magnitude of the increase in congruence for the matched control school system.

The congruence scores for teachers of the control and experimental school systems are presented in Table 29. The congruence score composite for teachers of two control school systems decreased. However, composite congruence for teachers of the third control school system increased slightly. Congruence for teachers of the three experimental school systems, on the other hand, displayed a small but consistent increase between the initial and final determination of congruence.

TABLE 28

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE INSTRUCTIONAL IMPROVEMENT ACTIVITIES OF PHASE II

Decision Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	29	16	20	29	16	20	17	31	1	17	31	1
1	3.276	1.257	1.056	0.784	1.655	0.668	0.549	1.008	0.474	7.013	6.027	0.577
2	3.358	1.189	0.673	3.375	0.631	1.110	1.155	1.404	1.189	1.293	1.059	2.714
3	8.656	1.532	3.840	8.257	1.431	2.163	3.893	2.616	11.231	6.686	9.831	7.908
4	6.497	3.424	8.102	4.936	2.227	3.773	3.038	6.528	2.950	3.049	6.522	4.803
5	6.064	3.498	0.668	3.904	0.870	1.552	1.500	2.953	2.815	5.720	3.757	5.689
6	7.209	3.277	4.453	6.609	4.345	1.982	2.771	1.560	2.945	1.480	1.790	3.459
7	1.632	1.142	0.958	1.194	1.490	0.228	1.245	1.072	0.710	1.541	0.492	0.410
8	4.238	1.629	7.925	4.701	2.363	5.131	2.501	6.201	1.482	1.978	5.914	1.903
9	0.406	0.641	0.269	0.230	0.758	0.367	0.400	0.759	0.879	1.061	0.995	2.611
10	1.123	2.965	6.642	1.218	1.358	4.760	0.963	2.003	4.477	4.035	4.096	3.100
11	1.368	0.598	1.192	0.830	0.317	2.751	0.470	0.817	1.690	1.231	2.503	2.565
12	1.424	1.181	3.835	2.300	1.226	2.277	3.169	4.456	2.907	4.466	2.591	4.768
13	8.129	1.541	1.970	11.132	0.798	1.052	1.325	10.138	9.988	7.710	6.486	8.374
14	1.179	1.803	1.067	2.520	0.441	1.099	1.158	6.407	6.043	7.446	7.601	7.085
15	4.859	2.117	9.056	2.932	5.995	4.517	4.569	2.038	2.691	4.085	2.846	2.179
16	3.480	0.418	0.931	2.603	0.848	3.292	2.483	3.707	5.709	3.449	5.003	3.671
17	1.000	0.911	1.589	0.631	0.829	2.849	0.504	2.610	3.021	6.627	0.456	0.870
18	0.497	1.262	1.535	0.634	0.896	0.851	1.231	3.093	1.134	1.677	2.329	2.263
19	2.932	2.168	2.576	1.916	0.636	1.571	0.753	1.494	0.560	4.546	6.920	1.422
20	4.160	5.477	10.278	3.110	5.794	6.518	2.345	6.368	3.415	2.237	11.712	7.322
21	0.724	2.472	3.535	1.112	5.247	5.026	5.044	7.593	2.851	2.754	2.916	5.232
22	2.645	2.613	4.454	3.552	0.866	1.889	1.561	2.978	5.767	1.591	4.276	5.455
23	4.526	2.286	2.504	4.159	4.714	1.681	3.242	3.431	3.154	2.725	3.230	3.392
24	4.664	3.411	9.051	3.954	1.959	4.381	0.940	1.585	4.249	1.289	2.800	1.647
25	5.316	4.487	4.680	4.136	8.417	3.860	2.869	4.260	5.169	3.202	2.803	5.208
Total	89.362	53.289	92.839	80.729	55.111	65.348	49.678	87.079	87.400	88.891	104.955	94.627

TABLE 29

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, FOR TEACHERS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION INVOLVED IN THE ACTIVITIES OF PHASE II

Decision Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
1	0.811	0.498	1.677	0.896	0.274	0.425	0.144	0.202	0.407	0.234	2.596	1.314
2	0.539	0.290	1.317	0.334	0.209	1.375	0.512	0.360	0.864	0.343	0.334	0.353
3	0.295	1.765	4.001	0.438	1.033	4.433	4.034	1.807	1.457	3.769	2.341	2.964
4	2.122	3.755	2.927	1.511	2.422	2.366	2.195	1.720	3.494	2.810	1.394	3.491
5	1.105	0.367	2.142	0.614	0.667	0.715	1.787	0.656	1.189	1.964	2.532	1.233
6	1.221	1.627	2.835	2.022	0.893	2.508	1.039	1.385	1.218	1.264	0.724	0.713
7	0.418	0.483	0.591	0.607	0.140	0.284	0.272	0.640	0.257	0.249	0.778	0.178
8	0.889	3.605	1.720	1.355	2.849	1.664	0.691	0.867	2.370	1.174	0.813	2.135
9	0.140	0.109	0.153	0.313	0.145	0.097	0.391	0.148	0.169	0.877	0.402	0.471
10	1.394	3.419	0.441	0.648	2.526	0.359	1.232	0.480	1.133	1.305	2.235	1.477
11	0.172	0.419	0.435	0.175	0.276	0.309	0.775	0.293	0.401	0.913	0.445	0.874
12	0.612	1.143	0.582	0.613	0.832	0.785	1.866	1.488	1.078	2.015	1.919	0.987
13	0.720	0.882	3.862	0.361	0.497	4.686	4.475	0.718	3.198	5.170	3.699	2.593
14	0.480	0.541	0.551	0.254	0.538	0.841	3.384	0.717	1.596	4.027	3.027	2.459
15	0.958	3.496	2.528	2.645	3.084	1.734	1.172	2.012	1.344	1.087	1.610	1.283
16	0.228	0.463	1.663	0.389	0.440	1.191	2.172	0.919	1.223	1.829	1.752	2.242
17	0.374	0.558	0.320	0.439	0.792	0.285	0.868	0.205	0.956	0.391	1.783	0.186
18	0.499	0.243	0.134	0.277	0.377	0.135	0.632	0.477	0.269	0.695	0.657	0.696
19	1.058	1.266	1.524	0.370	1.029	0.777	0.386	0.307	0.862	0.424	2.332	1.949
20	3.175	5.794	2.067	3.322	3.797	1.457	1.769	1.218	2.494	2.261	0.830	4.412
21	1.762	2.025	0.423	2.570	1.834	0.586	2.064	3.051	3.501	2.458	1.670	1.984
22	1.053	1.588	1.233	0.545	0.733	1.596	3.059	0.618	1.247	2.626	0.531	1.200
23	0.919	1.165	1.702	1.271	0.653	1.371	1.910	1.474	1.580	2.227	1.203	0.872
24	1.015	2.393	2.056	1.175	2.112	1.679	1.854	0.476	0.646	0.650	0.750	0.563
25	1.871	2.967	2.212	3.146	1.877	1.640	2.544	1.478	2.189	2.373	1.182	1.228
Total	23.830	40.861	39.096	26.291	30.029	33.299	41.227	23.716	35.142	43.135	37.539	37.857

Congruence scores for administrators of the control and the experimental school systems are shown in Table 30. The composite congruence scores for administrators of two control school systems displayed relatively li tle change between the initial and final determinations of congruence; but the composite congruence score for administrators of the third control school system displayed a marked decrease in magnitude. The composite congruence scores for administrators of two experimental school systems increased appreciably. The composite congruence score for the third experimental school system almost doubled between the initial and the final determinations.

Thus, the composite congruence scores for teachers and administrators, for teachers, and for administrators, displayed relatively regular and consistent patterns between the control and experimental school systems. For the most part, teachers' and administrators', teachers', and administrators' composite congruence scores for the 25 decision items, between the initial and final determinations in the control school systems showed a tendency for congruence to decrease appreciably. For the teachers and administrators, teachers, and administrators of the three experimental school systems, composite congruence scores tended to increase appreciably. The increase may have been due to the effect of activities to increase congruence of perceptions which were conducted during Phase II. However, on examination of the congruence scores shown in Tables 28, 29, and 30 by individual item, a considerable amount of variability in the general pattern was found to exist. Therefore, an examination of the congruence scores for the decision items, grouped according to various meaningful categories, also was conducted. These scores, for the decision items grouped according to functional area of administration are presented in

TABLE 30

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISON ITEM AND COMPOSITE, FOR ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE INSTRUCTIONAL IMPROVEMENT ACTIVITIES OF PHASE II

Decision Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
1	0.445	0.558	1.559	0.758	0.393	0.369	0.329	0.347	0.600	0.343	4.416	4.713
2	0.649	0.382	2.040	0.296	0.900	2.000	0.676	0.795	0.536	1.216	0.958	0.705
3	1.237	2.075	4.654	0.992	1.130	3.823	7.196	2.085	1.159	4.138	4.345	6.866
4	1.301	4.347	3.579	0.715	1.351	2.569	0.754	1.317	3.034	1.993	1.655	3.030
5	2.382	0.301	3.921	0.255	0.885	3.189	1.028	0.844	1.764	3.724	3.187	2.523
6	2.006	2.825	4.373	2.322	1.088	4.101	1.905	1.386	0.341	2.194	0.756	1.076
7	0.724	0.475	1.041	0.882	0.087	0.909	0.437	0.604	0.815	0.161	0.762	0.313
8	0.740	4.319	2.518	1.008	2.281	3.037	0.791	1.634	3.830	0.729	1.165	3.779
9	0.500	0.160	0.253	0.444	0.221	0.132	0.487	0.251	0.590	1.734	0.659	0.523
10	1.570	3.223	0.681	0.710	2.233	0.859	3.245	0.483	0.870	1.795	1.799	2.619
11	0.426	0.772	0.932	0.141	2.474	0.521	0.915	0.176	0.416	1.652	0.785	1.628
12	0.569	2.692	0.842	0.613	1.444	1.515	1.041	1.681	3.378	2.753	2.546	1.604
13	0.821	1.087	4.267	0.416	0.554	6.445	5.512	0.607	6.940	3.204	4.011	3.892
14	1.323	0.525	0.628	0.187	0.561	1.679	2.658	0.441	4.810	3.058	4.419	5.141
15	1.159	5.559	2.330	3.349	1.433	1.197	1.518	2.556	0.694	1.091	2.474	1.562
16	0.189	0.467	1.816	0.459	2.852	1.412	3.537	1.563	2.483	1.841	1.696	2.760
17	0.536	1.031	0.679	0.409	2.056	0.346	2.153	0.298	1.653	0.479	4.844	0.270
18	0.762	1.291	0.363	0.619	0.474	0.499	0.502	0.754	2.824	1.568	1.020	1.632
19	1.110	1.309	1.408	0.265	0.542	1.138	0.173	0.445	0.632	0.997	2.214	4.970
20	2.302	4.484	2.092	2.471	2.720	1.652	1.646	1.127	3.874	5.060	1.406	7.300
21	0.710	1.510	0.300	2.677	3.191	0.526	0.786	1.992	4.092	2.774	1.083	0.932
22	1.559	2.865	1.411	0.321	1.156	1.955	2.707	0.943	1.730	2.828	1.060	3.076
23	1.367	1.339	2.823	3.443	1.028	2.787	1.244	1.767	1.851	1.164	1.522	2.357
24	2.396	6.658	2.608	0.783	2.268	2.275	2.395	0.464	0.938	0.996	0.538	2.236
25	2.615	1.713	3.104	5.270	1.983	2.495	2.625	1.391	2.070	2.834	2.020	1.575
Total	29.398	51.967	50.253	29.805	35.305	47.430	46.260	25.951	51.924	50.326	51.340	67.082

Tables 31, 32, 33, 34, and 35.

Table 31 indicates the initial and subsequent congruence scores, for the teachers and administrators of the control and the experimental school systems, for the five decision items comprising the functional area of "curriculum." For each of the three control school systems the composite congruence scores for the five curriculum decision items decreased substantially between the original and subsequent congruence determinations. For the decision items taken individually, however, some variation from this pattern was apparent. Although the composite congruence score for one experimental school system decreased slightly, the composite congruence scores for the other two experimental school systems increased notably during the course of the study. For the three experimental school systems, an increase in the extent of congruence was evident. However, there were instances of individual decision item congruence scores departing slightly from this pattern.

The initial and subsequent congruence scores for teachers and administrators of the three control and the three experimental school system for the five decision items related to the functional area of "business management" are reported in Table 32. For two control school systems the composite congruence scores of the business management decision items decreased during the project; the composite congruence score for the third control school system increased. The composite congruence scores of these business management items for two of the three experimental school systems increased while the score for one experimental school system decreased slightly.

original and subsequent congruence scores for teachers and administrators of the control and the experimental school systems on the five decision

TABLE 31

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONG JENCE SCORES, BY DECISION ITEM AND COMPOSITE, COMPRISING THE FUNCTIONAL AREA OF CURRICULUM, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE ACTIVITIES OF PHASE II

Decision* Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
1	1.257	1.056	3.276	1.655	0.668	0.784	0.474	0.549	1.008	0.577	7.013	6.027
10	2.965	6.642	1.123	1.358	4.760	1.218	4.477	0.963	2.003	3.100	4.035	4.096
14	1.803	1.067	1.179	0.441	1.099	2.520	6.043	1.158	6.407	7.085	7.446	7.601
17	0.911	1.589	1.000	0.829	2.849	0.631	3.021	0.504	2.610	0.870	6.627	0.456
19	2.168	2.576	2.932	0.636	1.571	1.916	0.560	0.753	1.494	1.422	4.546	6.920
Totals	9.104	12.930	9.510	4.919	10.947	7.069	14.575	3.927	13.522	13.054	29.667	25.100

*Decision items comprising the functional area "curriculum": 1-the decision on the selection of curriculum problems for study; 10-the decision on the selection of teachers for participation in experimental instructional programs; 14-the decision on the regulations concerning lesson plans; 17-the decision on the selection of textbooks; 19-the decision on how to evaluate the curriculum.

TABLE 32

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, COMPRISING THE FUNCTIONAL AREA OF BUSINESS MANAGEMENT, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE ACTIVITIES OF PHASE II

Decision* Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
3	1.532	3.840	8.656	1.431	2.163	8.257	11.231	3.893	2.616	7.908	6.686	9.831
6	3.277	4.453	7.209	4.345	1.982	6.609	2.945	2.771	1.560	3.459	1.480	1.790
7	1.142	0.958	1.632	1.490	0.228	1.194	0.710	1.245	1.072	0.410	1.541	0.492
18	1.262	1.535	0.497	0.896	0.851	0.634	1.134	1.231	3.093	2.263	1.677	2.329
23	2.286	2.504	4.526	4.714	1.681	4.159	3.154	3.242	3.431	3.392	2.725	3.230
Totals	9.499	13.290	22.520	12.876	6.905	20.853	19.174	12.382	11.772	17.432	14.109	17.672

*Decision items comprising the functional area "business management": 3-the decision on the priority for the use of unscheduled rooms and multipurpose areas; 6-the decision on the educational specifications for a new or remodeled buildings; 7-the decision on the instructional aids to be included in the budget; 18-the decision on the procedure for obtaining instructional supplies; 23-the decision on who will participate in the formulation of the school budget.

items comprising the functional area of "staff personnel," are indicated in Table 33. All composite congruence scores for the control school systems decreased between the original and subsequent congruence determinations. Conversely, and likewise in accordance with the expected pattern of findings, all of the composite congruence scores for the three experimental school systems increased appreciably.

The patterns of both the composite and the individual decision item congruence scores for items comprising the functional area of "pupil personnel", shown in Table 34, was much less clear than that for items comprising other functional areas, especially the areas of curriculum and staff personnel. Composite congruence scores on the pupil personnel items for all three control school systems increased moderately during the course of the project. For two experimental school systems these composite congruence scores increased moderately and for the third experimental school system they decreased appreciably. The scores contained in Table 34 indicate the presence of a considerable departure from the congruence patterns among decision items prevalent in previously discussed functional areas. There was less variability among the individual item congruence scores for the respective school systems for the pupil personnel decision items, as well as a relative absence of any significantly large changes in either the composite or individual congruence scores for teachers and administrators of any of the control or of the experimental school systems.

A similar mixed pattern appears in the congruence scores for teachers and administrators on decision items comprising the functional area "school-community relations", shown in Table 35. The composite congruence scores for

TABLE 33

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, COMPRISING THE FUNCTIONAL AREA OF STAFF PERSONNEL, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE ACTIVITIES OF PHASE II

Decision* Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
4	3.424	8.102	6.497	2.227	3.773	4.936	2.950	3.038	6.528	4.803	3.049	6.522
5	3.488	0.668	6.064	0.870	1.552	3.904	2.815	1.500	2.953	5.689	5.720	3.757
13	1.541	1.970	8.129	0.798	1.052	11.132	9.988	1.325	10.138	8.374	7.710	6.486
20	5.477	10.278	4.160	5.794	6.518	3.110	3.415	2.345	6.368	7.322	2.237	11.712
22	2.613	4.454	2.645	0.866	1.889	3.552	5.767	1.561	2.978	5.455	1.591	4.276
Totals	16.543	25.472	27.495	10.555	14.784	26.634	24.935	9.769	28.965	31.643	20.307	32.753

*Decision items comprising the functional area "staff personnel": 4-the decision on the orientation activities for new staff members; 5-the decision on the appointment of teachers to curriculum committee; 13-the decision on the adequacy of teacher performance; 20-the decision on the activities for the in-service development of the staff; 22-the decision on the assignment of teaching and non-teaching loads.

TABLE 34

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, COMPRISING THE FUNCTIONAL AREA OF PUPIL PERSONNEL, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE ACTIVITIES OF PHASE II

Decision* Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
2	1.189	0.673	3.358	0.631	1.110	3.375	1.189	1.155	1.404	2.714	1.293	1.059
9	0.641	0.269	0.406	0.758	0.367	0.230	0.879	0.400	0.759	2.611	1.061	0.995
12	1.181	3.835	1.424	1.226	2.277	2.300	2.907	3.169	4.456	4.768	4.466	2.591
16	0.418	0.931	3.480	0.848	3.292	2.603	5.709	2.483	3.707	3.671	3.449	5.003
21	2.472	3.535	0.724	5.247	5.026	1.112	2.851	5.044	7.593	5.232	2.754	2.916
Totals	5.901	9.243	9.392	8.710	12.072	9.620	13.535	12.251	17.919	18.996	13.023	12.564

*Decision items comprising the functional area "pupil personnel": 2-the decision on the ways to group pupils by classes; 9-the decision on the content of pupils cumulative records; 12-the decision on the retention of pupils; 16-the decision on the rules governing pupil conduct; 21-the decision on the practices for assigning homework.

TABLE 35

CONTRAST BETWEEN ORIGINAL AND SUBSEQUENT CONGRUENCE SCORES, BY DECISION ITEM AND COMPOSITE, COMPRISING THE FUNCTIONAL AREA OF SCHOOL-COMMUNITY RELATIONS, FOR TEACHERS AND ADMINISTRATORS OF THE THREE CONTROL AND THREE EXPERIMENTAL SCHOOL SYSTEMS OF THE PHASE I POPULATION SUBSEQUENTLY INVOLVED IN THE ACTIVITIES OF PHASE II

Decision* Item No.	Control Systems						Experimental Systems					
	Original Congru.			Subsequent Congru.			Original Congru.			Subsequent Congru.		
	16	20	29	16	20	29	1	17	31	1	17	31
8	1.629	7.925	4.238	2.363	5.131	4.701	1.482	2.501	6.201	1.903	1.978	5.914
11	0.598	1.192	1.303	0.317	2.751	0.830	1.690	0.470	0.817	2.565	1.231	2.503
15	2.117	9.056	4.859	5.995	4.517	2.932	2.691	4.569	2.038	2.179	4.085	2.846
24	3.411	9.051	4.664	1.959	4.381	3.954	4.249	0.940	1.585	1.647	1.289	2.800
25	4.487	4.680	5.316	8.417	3.860	4.136	5.169	2.869	4.260	5.208	3.202	2.803
Totals	12.242	31.904	20.445	19.051	20.640	16.553	15.281	11.349	14.901	13.502	11.785	16.866

*Decision items comprising the functional area "school-community relations": 8-the decision on the means for increasing community understanding of curriculum developments; 11-the decision on how to report pupil progress to parents; 15-the decision on which community drives and activities merit school participation; 24-the decision on the content of local news items to be released; 25-the decision on the use of citizens' committees.

two control school systems display a decrease in magnitude, while the composite congruence score for the third control school system displays an increase of approximately commensurate magnitude. On the other hand, the composite congruence score for one experimental school system decreased slightly, for another school system it remained almost constant, and for a third school system it increased by an amount corresponding to the decrease in congruence for the first system. Moderate variations from the expected general pattern also were apparent for the individual congruence scores of certain decision items in the school systems.

By way of summary, there is an identifiable pattern to the changes in congruence scores of teachers and administrators, of teachers, and of administrators. The composite congruence scores from the responses to all 25 decision items for teachers and administrators, teachers, and administrators, in the three control school systems displayed a consistent decrease during Phase II of the Project. Conversely, the composite congruence scores for the responses of teachers and administrators, teachers, and administrators of the experimental school systems displayed a consistent and appreciable increase in magnitude during Phase II. Examination of the changes in composite congruence scores for the responses of teachers and administrators, teachers, and administrators to the five decision items in each of the functional areas, revealed regular and consistent decreases of an appreciable magnitude in congruence for the control school systems. The experimental school systems however, reflected increases in congruence only for decision items comprising the functional areas of curriculum and staff personnel.

Tests of Hypotheses 3 and 4

Hypotheses 3 and 4 are stated:

3. An increase in the congruence in the perceptions of decision points will result in a corresponding increase in planned instructional change.

4. An increase in the congruence in the perceptions of decision points will result in a corresponding increase in implemented instructional change.

During Phase II of the study, the relationship between the change in congruence in perceptions of decision making responsibilities and planned and implemented instructional change was explored for three experimental school systems using three school systems as controls. The three experimental and three control systems previously had been selected from the ten school systems which comprised the sub-sample of Phase I. In selecting the school systems for Phase II of the study, the control and the experimental school systems were matched, largely on the basis of their original congruence scores. The three experimental and the three control school systems were paired as follows 1 and 29, 17 and 16, and 31 and 20.

To test Hypotheses 3 and 4, the composite congruence scores of Phases I and II were used, instead of the individual decision item or functional area grouped category scores. The Phase II congruence scores in the functional areas of curriculum and staff personnel however, correspond closely to the congruence scores for the composite of all twenty-five decision items. The hypotheses also were examined by congruence scores reflecting each of the

functional areas of decision-making responsibility. Due to the relatively small number of school systems in the sample of Phase II, a non-statistical analysis was used to test Hypotheses 3 and 4.

The data used to test Hypothesis 3 were (1) composite congruence scores and (2) indices of curricular plan productivity for the control and the experimental school systems, derived from Phases I and II. These data are presented in Table 36.

Both the individual and the composite congruence scores for the experimental school systems reflected an increase during Phase II. The congruence scores for two of the control school systems, and the composite congruence score for the three control school systems collectively, decreased appreciably during Phase II. The corresponding curricular plan productivity scores for the control school systems, both individually and collectively, displayed a marked decrease. While the combined curricular plan productivity score for the three experimental school systems reflected a combined decrease of slight magnitude, it nonetheless represented an appreciable increase when viewed in relation to the combined curricular plan productivity score for the three control school systems.

Therefore, it may be concluded that the activities of Phase II produced an increase in congruence of decision-making perceptions among personnel of the experimental school systems. This increase in congruence also was accompanied by an increase in the magnitude of the curricular plan productivity when compared to that for the control school systems. On the basis of this relationship, Hypothesis 3 which stated that "an increase in the congruence in the perceptions of decision points will result in a corresponding increase in planned instructional change," was accepted.

TABLE 36

A COMPARISON OF CHANGES IN COMPOSITE CONGRUENCE SCORES AND INDICES OF CURRICULAR PLANNING PRODUCTIVITY FOR CONTROL AND FOR EXPERIMENTAL SCHOOL SYSTEMS DURING PHASES I AND II

School System		Phase*	Congruence Scores and Changes	Curricular Planning Productivity and Changes
EXPERIMENTAL	1	I	87.51	45.49
		II	94.63	33.00
		Δ	+ 7.12	-12.49
	17	I	49.69	8.58
		II	88.89	28.50
		Δ	+ 39.20	+ 19.92
	31	I	87.09	23.18
		II	104.96	12.75
		Δ	+ 17.87	-10.43
Exp.		Δ	+ 64.19	- 3.00
CONTROL	16	I	53.25	9.01
		II	55.11	9.00
		Δ	+ 1.86	- 0.01
	20	I	92.85	15.02
		II	65.35	0.00
		Δ	-27.50	-15.02
	29	I	89.38	27.90
		II	80.73	7
		Δ	- 8.65	-[illegible]0
Con.		Δ	-34.29	-35.43

*"delta" represents the change in the variables noted between Phase I and Phase II measurements. A plus sign reflects an increase; a minus sign reflects a decrease during Phase II of the study.

The data used to test Hypothesis 4 were (1) composite congruence scores and (2) indices of curricular plan implementation for the control and the experimental school systems. These data are presented in Table 37.

The acceptability of Hypothesis 4 is evident. Not only did the predicted relationship hold true between the experimental and the control school systems, but also it was supported within both the experimental and the control groups. Although the congruence score for one control school system increased slightly during Phase II, the congruence scores of the other two school systems, as well as the composite score, reflected a decrease in congruence of appreciable magnitude. Similarly, the composite curricular plan implementation index of the three control school systems reflected a corresponding decrease during Phase II. This is consistent with the positive correspondence between congruence and curricular plan implementation predicted in Hypothesis 4. Congruence scores for the three experimental school systems both individually and collectively, reflected an increase of some magnitude during Phase II. The composite curricular plan implementation index for the experimental school systems reflected a modest increase during Phase II of the study. Again, the positive correspondence between the increase in congruence and the increas in composite curricular plan implementation index was consistent with Hypothesis 4. In sum, therefore, the decrease in composite congruence for the control school systems during Phase II was accompanied by a corresponding decrease in their composite curricular plan implementation index. The substantial increase in the composite congruence score for the experimental school systems was accompanied by an increase in their composite curricular plan implementation index, with respect to the control school systems as well as to

TABLE 37

A COMPARISON OF CHANGES IN COMPOSITE CONGRUENCE SCORES AND INDICES OF CURRICULAR PLAN IMPLEMENTATION FOR CONTROL AND FOR EXPERIMENTAL SCHOOL SYSTEMS DURING PHASES I AND II

School System		Phase	Congruence Scores and Changes	Curricular Plan Implementation and Change
EXPERIMENTAL	1	I	87.51	21.21
		II	94.63	20.70
		Δ	+ 7.12	- 0.51
	17	I	49.69	22.81
		II	88.89	22.25
		Δ	+ 39.20	- 0.56
	31	I	87.09	19.84
		II	104.96	25.25
		Δ	+ 17.87	+ 5.41
Exp.		Δ	+ 64.19	+ 4.34
CONTROL	16	I	53.25	14.71
		II	55.11	19.00
		Δ	+ 1.86	+ 4.29
	23	I	92.85	20.06
		II	65.35	0.00
		Δ	-27.50	-20.06
	29	I	89.38	20.89
		II	80.73	21.46
		Δ	- 8.65	+0.57
Con.		Δ	-34.29	-16.20

internal references. In light of these findings, Hypothesis 4 which stated that "an increase in the congruence in the perceptions of decision points will result in a corresponding increase in implemented instructional change," was accepted.

To provide supplementary information Hypotheses 3 and 4 also were examined using congruence scores for each of the five functional areas of decision making responsibility for both the control and the experimental school systems. Comparative data between the indices of curricular plan productivity and congruence scores for the five functional areas of decision-making responsibility for the two groups of school systems are shown in Table 38.

The relationship predicted in Hypothesis 3 and supported by the data previously presented in Table 36 for composite congruence scores and indices of curricular plan productivity, held equally true for congruence scores for the various functional areas. With the exception of the increase in congruence concerning pupil personnel items in the control school systems, the congruence scores and relationships were consistent with the general pattern previously reported.

Comparisons between the indices of curriculum plan implementation and congruence scores in the five functional areas used to re-examine Hypothesis 4, are shown in Table 39.

The relationships between congruence scores in the functional areas of decision making and indices of curricular plan implementation are consistent with the general findings shown in Table 37 which supported Hypothesis 4. The only exception to perfect regularity in the functional area congruence score-curricular plan implementation patterns is found in congruence concerning pupil personnel items among the control school systems.

TABLE 38

A COMPARISON BETWEEN INDICES OF CURRICULAR PLANNING PRODUCTIVITY AND CHANGES IN CONGRUENCE SCORES FOR THE CONTROL AND THE EXPERIMENTAL SCHOOL SYSTEMS IN EACH OF THE FIVE FUNCTIONAL AREAS OF DECISION-MAKING RESPONSIBILITY

School System		Phase	Congruence Score Change From Phase I to Phase II					
			Staff Personnel	Curriculum	Business Management	Pupil Personnel	Community Relation	Curricular Plan Productivity
EXPERIMENTAL	1	I	24.935	14.575	19.174	13.535	15.281	45.49
		II	31.643	13.054	17.432	18.996	13.502	33.00
		Δ	+6.708	- 1.521	- 1.742	+ 5.461	- 1.779	-12.49
	17	I	9.769	3.927	12.382	12.251	11.349	8.58
		II	20.307	29.667	14.109	13.023	11.785	28.50
		Δ	+10.538	+25.740	+ 1.727	+ 0.772	+ 0.436	+19.92
	31	I	28.965	13.522	11.772	17.919	14.901	23.18
		II	32.753	25.100	17.672	12.564	16.866	12.75
		Δ	+ 3.788	+11.678	+ 5.900	- 5.355	+ 3.965	-10.43
Exp.		Δ	+21.034	+36.797	+ 5.885	+ 0.878	+ 2.622	- 3.00
CONTROL	16	I	16.543	9.104	9.499	5.901	12.243	9.01
		II	10.555	4.919	12.876	8.710	19.051	9.00
		Δ	- 5.988	- 5.085	+ 3.377	+ 2.809	+ 6.808	- 0.01
	20	I	22.472	12.930	13.290	9.243	31.904	15.02
		II	14.784	10.947	6.905	12.072	20.640	0.00
		Δ	-10.688	- 1.983	- 6.385	+ 2.829	-11.264	-15.02
	29	I	27.495	9.510	22.520	9.392	20.445	27.90
		II	26.634	7.069	20.853	9.620	16.533	7.50
		Δ	- 0.861	- 2.441	- 1.667	+0.228	- 3.892	-20.40
Con.		Δ	-17.537	- 9.509	- 4.675	+5.866	- 8.348	-35.43

TABLE 39

A COMPARISON BETWEEN INDICES OF CURRICULAR PLAN IMPLEMENTATION AND CHANGES IN CONGRUENCE SCORES FOR THE CONTROL AND THE EXPERIMENTAL SCHOOL SYSTEMS IN EACH OF THE FIVE FUNCTIONAL AREAS OF DECISION-MAKING RESPONSIBILITY

School System		Phase	Congruence Score Change From Phase I to Phase II					
			Staff Personnel	Curriculum	Business Management	Pupil Personnel	Community Relations	Curricular Plan Implementation
EXPERIMENTAL	1	I	24.935	14.575	19.174	13.535	15.281	21.21
		II	31.643	13.054	17.432	18.996	13.502	20.70
		Δ	+ 6.708	- 1.521	- 1.742	+5.461	- 1.779	- 0.51
	17	I	9.769	3.927	12.382	12.251	11.349	22.81
		II	20.307	29.667	14.109	13.023	11.785	22.25
		Δ	+10.538	+25.740	+ 1.727	+ 0.772	+0.436	+0.56
	31	I	28.965	13.522	11.772	17.919	14.901	19.84
		II	32.753	25.100	17.672	12.564	16.866	25.25
		Δ	+ 3.788	+ 11.578	+ 5.900	- 5.355	+ 3.965	+ 5.41
Exp.		Δ	+ 21.034	+ 36.797	+ 5.885	+ 0.878	+ 2.622	+ 4.34
CONTROL	16	I	16.543	9.104	9.499	5.901	12.243	14.71
		II	10.555	4.919	12.876	8.710	19.051	19.00
		Δ	- 5.988	- 5.085	+ 3.377	+2.809	+6.808	+ 4.29
	20	I	25.472	12.930	13.290	9.243	31.904	20.06
		II	14.784	10.947	6.905	12.072	20.640	0.00
		Δ	-10.688	- 1.983	-6.385	+2.829	-11.264	-20.06
	29	I	27.495	9.510	22.520	9.392	20.445	20.89
		II	26.634	7.069	20.853	9.620	16.553	21.46
		Δ	- 0.861	- 2.441	- 1.667	+ 0.228	- 3.892	+ 0.57
Con.		Δ	-17.537	- 9.509	- 4.675	+5.866	- 8.348	-15.20

Ancillary Findings of Phase II

Relationships between the ancillary measures of quality of curricular documents and participation in curricular planning are examined in this section, both in relation to each other as well as in relation to congruence, productivity, and implementation.

The changes in curricular document quality and curricular plan productivity are shown in Table 40. The data reveal that both quality and productivity decreased during the period of the study. However, the decreases in both of the variables for the experimental school systems were smaller than those of the control school systems. Whatever may be the reason or reasons for the decreases in quality and productivity, it may be speculated that the relative increases in quality and productivity indices of the experimental school systems, when compared with those of the control systems, were related systematically to the activities of Phase II.

Data reflecting changes in curricular document quality and curricular plan implementation for the control and the experimental school systems are shown in Table 41. A comparison between the changes in quality and implementation indices for the experimental and the control schools reflected a considerable degree of proportionality. Both the quality and implementation indices of the experimental school systems displayed an appreciable and approximately proportionate increase over the corresponding indices for the control school systems.

The indices of staff participation, curricular plan productivity, and curricular plan implementation are presented in Table 42. The relationships between productivity and implementation, although previously examined, are

TABLE 40

A COMPARISON OF CHANGES IN SCORES FOR CURRICULAR PLAN QUALITY AND FOR CURRICULAR PLAN PRODUCTIVITY

School System		Phase	Quality and Change	Productivity and Change
EXPERIMENTAL	1	I	9.76	45.49
		II	9.32	33.00
		Δ	-0.44	-12.49
	17	I	7.05	8.58
		II	6.24	28.50
		Δ	-0.81	+19.92
	31	I	8.75	23.18
		II	8.03	12.75
		Δ	-0.72	-10.43
Exp.		Δ	-1.97	- 3.00
CONTROL	16	I	6.77	9.00
		II	6.50	9.01
		Δ	-0.27	- 0.01
	20	I	5.88	15.02
		II	0.00	0.00
		Δ	-5.88	-15.02
	29	I	9.70	27.90
		II	10.20	7.50
		Δ	+0.50	-20.40
Con.		Δ	-5.65	-35.43

TABLE 41

A COMPARISON OF CHANGES IN SCORES FOR CURRICULAR PLAN QUALITY AND FOR CURRICULAR PLAN IMPLEMENTATION

School System		Phase	Quality and Change	Implementation and Change
EXPERIMENTAL	1	I	9.76	21.21
		II	9.32	20.70
		Δ	-0.44	- 0.51
	17	I	7.05	22.81
		II	6.24	22.25
		Δ	-0.81	- 0.56
	31	I	8.75	19.84
		II	8.03	25.25
		Δ	-0.72	+5.41
Exp.		Δ	-1.97	+ 4.34
CONTROL	16	I	6.77	14.71
		II	6.50	19.00
		Δ	-0.27	+ 4.29
	20	I	5.88	20.06
		II	0.00	0.00
		Δ	-5.88	-20.06
	29	I	9.70	20.89
		II	10.20	21.46
		Δ	+ 0.50	+ 0.57
Con.		Δ	-5.65	-16.20

TABLE 42

A COMPARISON OF CHANGES IN THE SCORES FOR EXTENT OF PARTICIPATION, FOR CURRICULAR PLAN PRODUCTIVITY, AND CURRICULAR PLAN IMPLEMENTATION

	School System	Phase	Participation and Change	Productivity and Change	Implementation and Change
EXPERIMENTAL	1	I	0.00660	45.49	21.21
		II	0.00115	33.00	20.70
		Δ	-0.00545	-12.49	- 0.51
	17	I	0.00511	8.58	22.81
		II	0.00234	28.50	22.25
		Δ	-0.00277	+ 19.92	- 0.56
	31	I	0.00139	23.18	19.84
		II	0.01344	12.75	25.25
		Δ	+ 0.01205	-10.43	+ 5.41
Exp.		Δ	+0.00383	- 3.00	+ 4.34
CONTROL	16	I	0.00024	9.00	14.71
		II	0.00050	9.01	19.00
		Δ	+ 0.00026	- 0.01	+ 4.29
	20	I	0.00015	15.02	20.06
		II	0.00000	0.00	0.00
		Δ	-0.00015	-15.02	-20.06
	29	I	0.00453	27.90	20.89
		II	0.00019	7.50	21.46
		Δ	-0.00334	-20.40	+ 0.57
Con.		Δ	-0.00323	-35.43	-16.20

presented again for ready comparison with the indices of participation. For most of the variables examined thus far, the scores for the experimental school systems either increased absolutely or decreased slightly but increased in comparison with the control school systems. The participation scores were no exception. The relationship of the Phase II activities to staff participation in the experimental school systems was clear. The relationship between the increase in staff participation in the experimental school systems to Phase II activities and to the corresponding increases in productivity and implementation of curricular plans are evident from the data presented.

The congruence scores, the indices of curricular document quality and indices of staff participation are presented in Table 43. The absolute and relative increases in congruence and staff participation among the experimental school systems as well as the relative increases in their composite quality indices are readily evident.

The positive relationships predicted in Hypotheses 3 and 4 between congruence, curricular plan productivity, and curricular plan implementation were supported by the evidence. Moreover, the other supplementary variables related to each other and to the three aforementioned variables in essentially the same positive manner. Thus, positive relationships between the activities of Phase II aimed at increasing staff perceptions of decision points and (1) curricular productivity, (2) curricular implementation, (3) quality of curricular documents, and (4) staff participation in curricular planning were demonstrated.

TABLE 43

A COMPARISON OF CHANGES IN THE EXTENT OF PARTICIPATION, CONGRUENCE, AND QUALITY

School System		Phase	Congruence and Change	Quality and Change	Participation and Change
EXPERIMENTAL	1	I	87.51	9.76	0.00660
		II	94.63	9.32	0.00115
		Δ	+7.12	-0.44	-0.00545
	17	I	49.69	7.05	0.00511
		II	88.89	6.24	0.00234
		Δ	+39.20	-0.81	-0.00277
	31	I	87.09	8.75	0.00139
		II	104.96	8.03	0.01344
		Δ	+17.87	-0.72	+0.01205
Exp.		Δ	+64.19	-1.79	+0.00383
CONTROL	16	I	53.25	6.77	0.00024
		II	55.11	6.50	0.00050
		Δ	+ 1.86	-0.27	+0.00026
	20	I	92.85	5.88	0.00015
		II	65.35	0.00	0.00000
		Δ	-27.50	-5.88	-0.00015
	29	I	89.38	9.70	0.00453
		II	80.73	10.20	0.00019
		Δ	- 8.65	+0.50	-0.00334
Con.		Δ	-34.29	-5.65	-0.00323

CHAPTER IV

INVESTIGATIONS TANGENTIAL TO THE PROJECT

A number of doctoral studies tangential to the major research project have been completed or are underway. A tangential investigation is defined as one that is dependent upon the project for basic data but involves (1) additional data or (2) analyses of project data which were not made in testing hypotheses or exploring the ancillary issues. The tangential studies extended the project's range of variables among which relationships could be studied. Each of these investigations was carried out by a research assistant or by some other advanced graduate student who was associated with the research project. These students participated actively in gathering the basic data for the project. The studies were planned to explore problems which were important not only in their own right but also in terms of clarifying relationships which might be useful in interpreting the findings of the major project. A broad range of interests and topics were covered by the tangential studies, including centralization-decentralization of decision making, interaction patterns among central-office personnel, perceptual accuracy, innovativeness of staff, leader behavior, attitudes toward administrators and financial factors. Each study utilized a complete and unique design fitted to its purpose and depended upon the basic project only for relevant data. The tangential studies which had been completed at the time of writing this report

are reviewed briefly in this chapter; those still underway are only mentioned by topic or title.

Centralization of Decision Making

One type of basic data which was gathered for the research project related to the congruence of perceptions of decision points by the professional staffs in 31 school systems. For the purposes of the major project, these data were not analyzed so as to reveal staff perceptions of the degree of centralization of decision making in the various school systems. Such an analysis was made, however, by Fogarty[1] and Reinke[2] for purposes of their studies. In order that size of school system would be kept relatively constant, the 20 systems (of the 31 originally included in the research project) which employed between 100 and 200 professional staff members were used.

Data used for the computation of a measure of centralization of decision making for each school system were provided by the Decision Point Analysis Instrument. As previously explained, the respondent indicated the person in the school system who was primarily responsible for making a particular decision and also indicated the nature of his own participation in making the decision. The response data were sorted according to four administrative

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[1]Bryce M. Fogarty, Characteristics of Superintendents of Schools and Centralization-Decentralization of Decision Making. Unpublished Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison, 1964, 179 pp. See also Bryce M. Fogarty and Russell T. Gregg, "Centralization of Decision Making and Selected Characteristics of Superintendents of Schools." Educational Administration Quarterly, 2:62-72, Winter, 1966.

[2]Kenneth H. Reinke, Authority Structure and Decision Making in School Systems. Unpublished Ph.D. Dissertation, Department of Educational Administration, University of Wisconsin, Madison, 1964, 192 pp.

levels (reference groups): (1) classroom, (2) school building, (3) central office, and (4) general. The ten positions listed on the data-gathering instrument were assigned to the four administrative levels as follows: classroom -- teacher, department head; school building -- principal, vice-principal, guidance director; central office -- business manager, director of instruction, special-subject supervisor; and general -- superintendent, school board.

A formula derived from Dale's[3] description of centralization and based upon the above mentioned data, was used to determine the degree of centralization of decision making in each of the school systems.[4]

Use of the formula enabled the researchers to compute a centralization of decision-making score for each decision item and for each of the functional areas of administration in each school system.

The degree to which decision making was centralized varied among the twenty school systems; the centralization scores obtained ranged from 691 to 819. Thus, decision making was significantly more centralized in some of the systems than in others. Also, the degree of centralization of decision making was found to vary in the school systems according to the functional areas of administration in which decisions were made. Decision making was most highly centralized in the functional areas of school-community relations and business management, in that order. The functional areas of administration for which decision making was most decentralized were pupil personnel and curriculum. Decision making was found to be more highly centralized in those

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[3]Ernest Dale. Planning and Developing the Company Organization Structure. American Management Association Research Report #20, 1952, p. 107.

[4]See Bryce M. Fogarty and Russell T. Gregg, op. cit., pp. 65-67, for a detailed description of the formula and its application.

functional areas of administration which are related more remotely to the teaching-learning situation.

Characteristics of Superintendents and Centralization of Decision Making

Fogarty[5] investigated the relationships of selected personality factors and leader behavior of the superintendents of twenty school systems to the centralization of decision making in those systems. The relationships of the personality factors to leader behavior also were investigated. The personality factors were assessed by the administration of Cattell's Sixteen Personality Factor Questionnaire[6] and leader behavior was determined by use of the Leader Behavior Description Questionnaire.[7]

The data obtained by the administration of the Cattell instrument revealed that the superintendents of schools scored above the average or "normal" range for an adult male population on the personality factors of warmth and sociability, general intelligence, sensitivity, absent-mindedness, self-sufficiency, and tenseness and excitability; their scores also indicated that they were more serious, more unpretentious, and more emotional than the typical adult.

No statistically significant relationships were found between the personality factors of superintendents and degree of centralization of decision making but some of the coefficients of correlation were of sufficient size to

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[5]Bryce M. Fogarty. op. cit.

[6]R. B. Cattell, D. R. Saunders, and G. Stice. Handbook for the Sixteen Personality Factor Questionnaire. Champaign, Ill.: Institute for Personality and Ability Testing, 1957.

[7]Andrew W. Halpin and Ben J. Winer. The Leadership Behavior of the Airplane Commander. Columbus, Ohio: The Ohio State University Research Foundation, 1952. Mimeographed.

approach significance. Substantial, but not significant, relationships were found between centralization of decision making and superintendents' personality traits such as intelligence and self-sufficiency, aloofness, desurgency, and practicality. The nature of the non-significant relationships which were revealed militates against a complete rejection of the possibility of the existence of significant relationships between personality characteristics of superintendents of schools and the degree to which decision making is centralized in the school systems administered by them.

Superintendents' scores on the Leader Behavior Description Questionnaire ranged from 34 to 48 on the "initiating structure" dimension, with a mean for the distribution of 39.9 and a standard deviation of 3.8. On the dimension of "consideration", the scores ranged from 33 to 54 with a mean of 43.8 and a standard deviation of 4.4. A statistically significant relationship was not established between either of the dimensions of leader behavior and centralization of decision making; however, superintendents' scores on the "consideration" dimension of leader behavior correlated negatively with scores on system-wide contralization of decision making at a level which approached significance. In school systems where superintendents scored high on this dimension of behavior, decision making tended to be more decentralized than in systems where superintendents scored low.

The scores on the dimensions of leader behavior did not correlate significantly with personality factor scores. It can be noted, however, that superintendents who scored high on the leader behavior dimension of "initiating structure" tended to be warm and sociable, conscientious and persistent, sophisticated and polished, and practical and concerned with facts; and that

superintendents who scored high on the leader behavior dimension of "consideration" also tended to exhibit these same personality factors. In addition to these personality factors, superintendents who had high scores on the "initiating structure" dimension of leader behavior tended to be phlegmatic and composed while those who had high scores on the "consideration" dimension tended to be mature and calm, enthusiastic and happy-go-lucky, adventurous, duller in intelligence, conservative of temperament, and socially group-dependent.

Organizational Authority Structure and Centralization of Decision Making

Hypotheses concerning the relationships of centralization of decision making to school-system authority structure and to congruence of professional staff perceptions of the location of decision points were tested by Reinke.[8] He developed an Authority Structure Questionnaire, following the lead of Weiss[9], which was administered to the superintendents, the central office personnel, the principals of the secondary school or schools and three elementary schools, and a sampling of teachers from each of these schools in each of the twenty school systems included in the study. The purpose of the questionnaire was to obtain answers from respondents to two basic questions related to their roles with respect to each of the functional areas of administration of curriculum and instruction, pupil personnel, business management and school-community relations. The two questions were (1) To whom are you directly responsible?

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[8]Kenneth H. Reinke, op. cit.

[9]Robert S. Weiss. Processes of Organization. Ann Arbor: Survey Research Center, Institute for Social Research, University of Michigan, 1956.

and (2) Persons in what professional positions are directly responsible to you?

Using the data obtained by the Authority Structure Questionnaire, the authority structures for both the elementary and secondary organizational levels were constructed for each school system. The authority structure was drawn in the form of an organizational chart to reveal the number of administrative levels in the organization and the relationships between and within these levels. After an authority structure was drawn, a formula developed by Blau[10] was applied to quantify the results. The scores obtained for the elementary and secondary levels of the school system were summed to obtain the authority structure score for the school system as a whole. The larger the authority structure score, the shorter the vertical span of control and the broader the lateral span of control.

Both Pearson product-moment and partial correlation[11] coefficients were calculated and t-tests were applied. Both correlation coefficients were found to be significant at the .05 level of confidence. Consequently, the null hypothesis that there is no relationship between authority structure and centralization of decision making was rejected. The relationship found suggested that in those school systems with a flat authority structure, i.e., a short vertical span of control and a wide lateral span of control, decision making was more centralized than in school systems with a tall authority structure, i.e., a long vertical span of control and a narrow lateral span of control.

No statistically significant relationships were found between authority structure and centralization of decision making when a single functional area

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[10] Peter M. Blau and W. Richard Scott. Formal Organizations. San Francisco: Chandler Publishing Co., 1962, pp. 168-169. Also, see Reinke, op. cit., p. 73.

[11] This correlation partialed out the effect of agreement of staff perceptions of decision points on the relationship between authority structure and centralization decision making.

of administration, such as pupil personnel, was considered. However, the higher the mean score of centralization for the administrative areas the lower were the correlations between the two variables.

The relationship between authority structure and congruence of staff perceptions of decision points[12] in the school systems studied was not found to be statistically significant. When the separate functional areas of administration were considered, however, a significant relationship between the two variables were found for business management and for pupil personnel. This relationship indicated that school systems with flat authority structures tended to be characterized by higher agreement of staff perceptions of decision points than did systems with tall authority structures.

The relationship between centralization of decision making and of consensus of staff perceptions of decision points was not found to be statistically significant. The relationship varied considerably, however; among the functional areas of administration. A significant negative relationship was found for the area of pupil personnel and a fairly substantial positive correlation for that of school-community relations.

In summary, Reinke found a significant positive relationship between a flat authority structure and centralization of decision making. He concluded, however, that authority structure and centralization of decision making were independent variables. This conclusion was based upon the findings that higher agreement of staff perceptions of decision points tended to be related to a flat authority structure and that lower agreement of staff perceptions tended

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[12]See Chapter II for explanation of calculation of congruence of staff perceptions of decision points.

to be related to greater centralization of decision making.

Teachers' Perceptions of Decision Points and Interactions of Administrators

Tornow[13] sought to determine if relationships existed between: (1) congruence among high school teachers perceptions of decision points and administrators' interactions, (2) congruence among teachers' perceptions of decision points and congruence of the personal variables of administrators, and (3) administrators' interactions and personal variables of administrators. Data were obtained in 11 of the original 31 school systems which composed the school district population of the research project. Those school systems were chosen which were sufficiently large, and which were organized in such a manner, as to maintain a hierarchical position in which the incumbent had responsibility for curriculum and instruction in the system.[14]

Data for this investigation were obtained by the administration of the Decision Point Analysis Instrument and the Gough California Psychological Inventory Scale[15], and through structured interviews with the administrators. Data pertaining to the perceptions of decision points were those obtained from

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[13] Eugene W. Tornow. A Study of the Relationship of Teachers' Perceptions of Decision Points and the Interactions of the Superintendent of Schools, the Director of Instruction and the High School Principal. Unpublished Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison, 1965, 285 pp.

[14] This position is referred to in this chapter as the director of instruction although several different titles were used in the 11 school systems.

[15] Harrison G. Gough. Manual for the California Psychological Inventory. Palo Alto, California: Consulting Psychologist Press, 1960.

914 professional staff members. These members included the administrators and the secondary school teachers in each of the school systems.[16] The Gough C.P.I. was administered individually to each of the superintendents, directors of instruction, and high school principals in the 11 school systems by the investigator. He also conducted the structured interviews with each of the 33 administrators to determine the nature of the interactions among the members of each administrative triad. The data from the C.P.I. produced measures of the following 18 personal variables of the 33 administrators: dominance, capacity for status, sociability, social presence, self-acceptance, sense of well-being, responsibility, socialization, self control, tolerance, good impression, communality, achievement via conformance, achievement via independence, intellectual efficiency, psychological-mindedness, flexibility, and femininity. The first six of the above listed personal variables were grouped and named Poise, Ascendency, and Self-Assurance; the next six were grouped and named Socialization, Responsibility, and Maturity; the next three were grouped and named Achievement Potential and Intellectual Efficiency; and the final three variables were grouped and named Intellectual and Achievement Modes. This procedure was developed and reported by Gough in the C.P.I. Manual. Data obtained from the structured interviews were quantified into numerical scores as measures of (1) frequency of interactions, (2) length of interactions, and (3) total number of minutes per week spent in interactions for each of the 11 administrative triads.

The 11 school systems were ranked on each of the variables of congruence of perceptions of decision points, congruence of scores for personal variables of

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[16] Four of the eleven school systems operated two high schools. In these instances only one high school was included in the study.

the members of the administrative triads, and interaction scores for the triads. The Spearman rank-difference correlational method was utilized to test the hypotheses.

Convergence or divergence with respect to each of the personal variables of the members of school-system administrative triads varied from school system to school system. Also, among triads the degree of congruence of particular personal variables varied from the congruence of other personal variables. Similar findings with respect to interactions among the members of administrative triads were found. The nature of the interactions among triads varied among the school systems and, in addition, there were variations among the different measures of interaction within particular administrative triads. A triad characterized by frequent interactions might devote less total time to interactions than other triads which interact less frequently.

No significant relationships were found between the rankings of congruence of teachers' perceptions of decision points and the rankings of the measures of interaction among members of administrative triads for the 11 school systems. However, on the basis of the nature of the non-significant relationships discovered, the investigator cautioned against a flat rejection of the possibility of the existence of such a relationship and recommended that further pertinent research be conducted.

Congruence of teachers' perceptions of decision points were not significantly related to any of the four groupings of the personality factors of school administrators. However, two statistically significant relationships were found between congruence of teachers' perceptions and specific personal variables. Congruence of teachers' perceptions of decision points was

significantly and positively related to the personality factors of capacity-for-status and psychological mindedness of the school administrators.

Analysis of the relationship between the frequency of administrators' interactions and congruence of scores for groups of personal variables of administrators revealed three statistically significant relationships. A relationship at the .01 level of confidence was found between total time spent in interaction by administrators (of triads) and congruence of the group of variables designated as intellectual and interest modes. Relationships at the .05 level were found between frequency of interactions of administrators and (1) congruence of those personal variables combined as intellectual and interest modes of the administrators (a positive relationship) and (2) congruence of the personal variables of the administrators labeled as socialization, maturity and responsibility (a negative relationship). In other words the administrative triads highest in congruence on the personal variables of intellectual and interest modes tended to interact the greatest number of times and those administrative triads highest in congruence on the personal variables of socialization, maturity and responsibility tended to interact the least number of times.

Personal Variables of Teachers and Their Perceptions of Decision Responsibilities

On the basis of recent theoretical formulations and empirical research[17], it was postulated by Francke[18] that there would be a positive relationship

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[17] Albert H. Malo. Personality Variables Related to Administrative Potential. Unpublished Ph.D. dissertation, University of Chicago, 1959; and James M. Lipham. "Personal Variables of Effective Administrators." Administrator's Notebook, 9:1-4, September, 1960.

[18] Donald C. Francke. Perceptual Accuracy and Personal Variables. Unpublished Ph.D. Dissertation, Department of Educational Administration, University of Wisconsin, Madison, 1965, 197 pp.

between the perceptual accuracy of teachers and their personality needs and drives. The basic hypothesis investigated by him was that the accuracy with which high school teachers perceived the locus of administrative decision points in school systems would be related to measurable personal variables of the teachers. The personal variables investigated included five personality dimensions: activity drive, achievement drive, social ability, feelings of security, and emotional control; seven manifest personality needs as defined by Murray[19]: difference, dominance, sentience, superego-intergration, conjunctivity, exocathection, and extraconception; and selected biographical variables such as sex, level of professional preparation, and educational experience.

The 31 school systems which composed the school district population of the research project operated 34 high schools. From the data obtained by the administration of the Decision Point Analysis Instrument, the 34 high schools were ranked according to congruence of teachers-administrators perceptions of the locus of decision-making responsibilities. Two high schools in which there was high congruence of perceptions and two schools in which there was low congruence were selected randomly from each of the upper and lower quarters of the distribution. The teachers in these four high schools, their principals, and their superintendents were the respondents for the purposes of the study.

The responses to the Decision Point Analysis Instrument provided the data for determining consensus of perceptions of the locus of decision points for each teacher and the other teachers in his school, for each teacher and his principal, and for each teacher and his superintendent. Teacher-teacher,

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[19] Henry A. Murray. Explorations in Personality. New York: Oxford University Press, 1938.

teacher-principal, and teacher-superintendent consensus scores were calculated for each teacher, for each of the 25 decision items and for each of the four high schools by use of a modified Chi-square goodness-of-fit procedure. The superintendent's perceptions were accepted as the actual locus of the decision-making responsibilities in his school system. The accuracy of teachers' perceptions, however, were defined in terms of the degree of the perceptual consensus which they exhibited in relation to their fellow teachers, their principal, and their superintendents. The investigator obtained consensus measures for the groups of decision items which composed the five functional areas of administrative responsibility as well as for each separate decision item.

The independent measures of personality were obtained by use of a quasi-projective Sentence Completion Blank, developed and validated by Malo[20], and a Personal Values Inventory, adapted from Murray[21]. These instruments were administered by the investigator to the respondents in the four high schools. The former instrument provide measurements of the five personality dimensions previously listed and the latter provided scores for the seven personality needs.

The relationships of accuracy of teacher's perceptions of decision points to the selected personal variables were analyzed primarily by the use of product-moment correlations and regression procedures. This analysis revealed no regular patterns of relationships, among the four high schools, between accuracy of teachers' perceptions of decision points and selected personal variables of the teachers. In the investigation of the ancillary questions, however, it

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[20] Malo, op. cit.

[21] Murray, op. cit.

was found that certain personal variables of teachers were significantly related to such factors as perceptions of decision points and interests in decision-making activities. For example, teachers who were more similar to their principal with respect to such personality variables as social ability and feelings of security, indicated the principal as the decision maker significantly more often than did teachers who were less similar to their principal in regard to such variables. Teachers who were characterized by high scores on variables such as conjunctivity, exocathection, dominance, social ability and emotional control indicated significantly more preference for decision-making activity than did their fellow teachers who had low scores for these variables. Decision-making preference for the decision areas of staff personnel and school community relationships were significantly related to teacher-teachers, teacher-principal, and teacher-superintendent consensus of perceptions of the locus of decision-making responsibility. And, male teachers liked decision-making responsibility significantly more than did female teachers.

The Role of the Director of Instruction

Four of the 31 school systems which comprised the original school district population of the research project were selected by Duffy[22] for the purpose of determining the role of the director of instruction. Two criteria were employed for the selection of school systems: (1) the school systems

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[22]Emmet James Duffy. The Role of Director of Instruction--Tasks, Interactions, and Processes. Unpublished Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison, 1965, 261 pp.

employed a staff member who was responsible for curriculum and instruction in grades K-12, and (2) the superintendent of schools and this individual would permit the investigator to "shadow" the latter for a period of three weeks. Eleven school systems qualified under the first criterion. Incumbents in the first four school systems contacted constituted the population of the study. Each of the four incumbents had different official titles but in each case the incumbent was responsible directly to the superintendent for all matters relating to curriculum and instruction.

The purposes of the research were to obtain answers to questions such as: (1) What observable specific tasks characterize the role of the director of instruction in public school systems? (2) What observable interactions are involved in the role of the directors of instruction? (3) To what extent are different modes of interactions utilized? (4) What observable processes are involved in the task behaviors of the director of instruction? (5) How are the observed tasks of the director of instruction related to the ways in which the professional staff, and the incumbent himself, perceive the incumbent as a decision maker?

Data for the study included those obtained by the administration of the Decision Point Analysis Instrument to the professional staffs, including the directors of instruction, and by direct observation of these incumbents by the investigator. Each of the subjects (directors of instruction) were observed for a total of three weeks, one week at a time over a period of three months. Before beginning the observations in the four school systems, the investigator prepared for the observations by observing the directors of

instruction in two pilot school systems. To check on the reliability of his observations, each of two advanced graduate students observed, along with the investigator, one of the four subjects for an entire day, using the investigator's scheme for recording the subjects' behaviors. About 95 per cent agreement was attained between the investigator's and the graduate students' observations.

During the observation period, the investigator recorded all observed behaviors of the subjects in terms of task areas (curriculum and instruction, staff personnel, pupil personnel, school-community relations, and business management) being performed and the interactions (with whom and by what mode) and the processes (informing, receiving information, supporting, receiving support, suggesting, receiving suggestions, ordering, receiving orders, supplying materials, planning, presiding, evaluating, and socializing) involved in the task behaviors. Findings obtained by direct observations were categorized and relationships to data obtained by use of the Decision Point Analysis Instrument were determined.

It was found that a director of instruction devoted about 70 per cent of his time and frequency of behaviors to the task areas of curriculum and instruction (46%) and of staff personnel. The remaining time and behaviors were divided about equally among the other three task areas.

About 80 per cent of the director's time was spent in interactions with others. He interacted more frequently, and also for a larger share of his interaction time, with the building principal than with any other position incumbent. Committees received the second largest share of the director's

time but only a small proportion of his interactions was directed to committees. The director interacted with 30 different position incumbents and those which ranked after the two named above in amount of interaction time or of total interactions were superintendent, elementary coordinator, teacher, outside professional educator, and salesman.

Two observable processes accounted for more than 65 per cent of the total number of processes utilized by the director of instruction. These were receiving information (41%) and informing (25%). Only three other processes, i.e., suggesting, planning, and coordinating, were involved in more than five per cent (and less than eight per cent) of the director's observed behaviors.

In general, the director's role as defined by his participation in decision making as perceived by the professional staff was quite similar to his role as observed by the investigator. Also, the investigator found that the director of instruction devoted the majority of his time and behaviors to the same two task areas as those which the director perceived himself as being involved to the greatest extent in the decision-making process, i.e., curriculum and instruction and staff personnel.

Other Studies Underway

A number of other doctoral studies tangential to the research project are underway but not yet completed. The following topics will give a general indication of the nature of these studies and how they are tangential to the major project: teacher-administrator participation in decision making[23],

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[23]Edward B. Sasse. Teacher-Administrator Participation in Decision Making. Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison. In progress.

teacher innovativeness[24], leader behavior and curriculum change[25], attitudes toward women as administrators in relation to curriculum change and implementation[26], and relationships of curriculum production, change, and implementation to selected financial variables[27]. All of these studies are nearing completion and should be available in dissertation form before the end of the 1966 calendar year.

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[24] Dorothy McLimans. Teacher Innovativeness. Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison. In progress.

[25] Charles E. Kline. Leader Behavior, Curriculum Implementation and Curriculum Change. Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison. In progress.

[26] Eunice Warwick. Attitudes Toward Women in Administrative Positions as Related to Curricular Implementation and Change. Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison. In progress.

[27] Alva G. Blum. Relationships of Measures of Curriculum Production, Change, and Implementation to Selected Financial Variables. Ph.D. dissertation, Department of Educational Administration, University of Wisconsin, Madison. In progress.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

This chapter consists of three sections. The summary of the study is presented in section one. The conclusions based on the findings are presented in section two. The implications of the study for further research and improved practice in the schools are presented in section three.

Summary

The summary consists of two parts. First, the methodology and, then, the findings are summarized and presented.

Methodology

Basic to the study was the thesis that the extent of congruence among teachers, administrators, and supervisors were cogently related, in a positive manner at an appreciable level of significance, to the incidence of planning for instructional change and to the extent of the implementation of this planning.

The study consisted of two phases. The following hypotheses were tested during Phase I:

1. School systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of planned instructional change than will school systems in which there is high congruence.

2. School systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of implemented instructional change than will school systems in which there is high congruence.

The following hypotheses were tested during Phase II:

3. An increase in congruence in the perceptions of decision points will result in a corresponding increase in planned instructional change.

4. An increase in congruence in the perceptions of decision points will result in a corresponding increase in implemented instructional change.

The population for the investigation was composed of thirty-one public school systems in the State of Wisconsin. To insure that the administrative structures of the school systems comprising the population were of sufficient complexity and to provide for a measure of intersystem similarity, the size range of school systems included was restricted to those which employed between 100 and 700 professional staff members.

The antecedent measure for the investigation was that of the extent of congruence among teachers', administrators', and supervisors' perceptions of the locus of decision-making responsibilities. This was determined through use of the Decision Point Analysis Instrument. The original Decision Point Analysis Instrument was administered in a pilot investigation to the teachers, administrators, and supervisors of a public school system in Wisconsin similar in nature to the school systems which comprised the project population. Based

on an analysis of the responses in the pilot application, the Decision Point Analysis Instrument was revised for subsequent use in assessing congruence in the location of decision-making responsibilities.

The Decision Point Analysis Instrument consisted of twenty-five decision items, related to and divided equally among the functional task areas of pupil personnel, staff personnel, curriculum, business management, and school-community relations. It also contained the titles of the ten following positions, listed in random order, common to each of the school systems in the population: business manager, principal, vice principal, department head, special subject supervisor, superintendent, director of instruction, guidance coordinator, board of education, and teacher. For each decision item, 6,183 teachers, administrators, and supervisors provided answers to the following three questions: (1) Who makes this decision? (2) What other persons participate in making this decision? (3) What is the nature of your participation in making this decision? Only the responses indicative of the locations of primary decision-making responsibilities were analyzed for use in testing the hypotheses. Implications derived from the latter two questions were used to supplement the basic findings.

An analysis of responses indicative of staff perceptions of the locus of decision-making responsibilities was used as the bases for ranking the thirty-one school systems according to the extent of their congruence of these perceptions. From the population of thirty-one school systems ranked according to congruence, ten were selected for further investigation. Five of the ten school systems selected were high in congruence and five were low in congruence.

Evidence of planning for instructional change was obtained through the collection and analysis of all curricular plans produced in the five high and

the five low congruence school systems during the school years 1962-63, '63-'64, and the first two months of '64-'65. A curriculum communication reproduced and distributed by a local school system was selected as a curricular plan for subsequent analysis if it met the following six criteria: (1) it was a statement of the scope and sequence of content for a subject area, (2) it was locally produced, (3) it dealt with curricular design as opposed to managerial directives, (4) it had been revised in the process of reproduction, (5) it was not repetitive of a previously distributed document, and (6) it was a reorganization of a previous plan. The curricular plans from each school system which met the criteria were consolidated into subject area documents and evaluated in terms of quantity and quality.

The quantity of Productivity Index for each school system was defined in terms of the average number of curricular plans (units) produced annually. In order to determine the Quality Index, each curricular document was content analyzed and evaluated. First, the organization of each document was examined in order to determine the nature of scope and sequence among, but not within, the respective grade and subject levels. Each document was evaluated for organization on this criterion along a five point scale which ranged from "incomplete coverage of levels with included levels unrelated" to "complete coverage of levels with interrelatedness among all levels." Secondly, within each of the levels of the total document, evaluations were made on the three criteria "statement of objectives", "facilitation through procedures and/or aids", and "evaluation", using similar five point scales. The scores were than averaged for levels and summed for documents to obtain the composite curricular document quality score for each school system.

The principal subsequent measures which were developed in relation to the antecedent measure in order to test Hypotheses 1 and 2, were (1) the incidence of planned instructional change, and (2) the incidence of implementation of plans for instructional change. Data relative to these two measures were elicited in the first instance as described above and in the second through structured interviews with teachers whose subject area and level of teaching involved curricular plans included within the various curricular documents. Within each school system, an eighteen per cent sample of all teachers who were using the curricular plans were selected randomly for the interviews. Each teacher was interviewed concerning only one curricular plan. Each of the interviewees was asked three questions concerning twelve instructional decision-making activities related to three areas of instruction—program, organization, and facilities. The instructional decision-making activities used to focus the interviews were related to but not paired with twenty-five items included in the Decision Point Analysis Instrument to which each interviewee had responded previously. For each curricular plan, each teacher was asked three questions concerning twelve aspects of plan usage: (A) How much do you use this plan for ...? (B) How much of a change is this from what you were doing before? Each of the responses to Questions A and B were scored by each interviewer on a three point scale, as either "none", "some", or "much". Teachers, who indicated in their responses to Question B that the plan contained "some" or "much" change, were asked a third question: (C) What kind of change is this: addition, subtraction, or rearrangement? The three possible responses to Questions A and B were assigned values of 1, 2, and 3, respectively.

Each school system's composite score derived from the responses to Question B of the Curriculum Implementation Index served as its measure of incidence of planned instructional change. The composite score from the responses to Question A was used as each school system index of its incidence of implementation of instructional plans.

During Phase II of the project, the relationships between change in congruence in staff perceptions of decision-making responsibilities and planned and implemented instructional change were explored. This phase of the project was focused upon the testing of Hypotheses 3 and 4.

Three experimental and three control school systems, previously selected from the ten school systems of the sub-sample of Phase I, comprised the sample of Phase II. In order to select the sample for Phase II, the control and experimental school systems were matched on the basis of their original scores for congruence of staff perceptions of decision points as well as other characteristics. Three experimental and three control school systems were paired as follows: 1 and 29, 17 and 16, and 31 and 20.

The activities conducted during Phase II were essentially of two types -- (1) those designed to improve congruence in staff perceptions of decision points and, (2) those designed to assess change in curricular planning and the instructional program. Phase II activities of the first type were conducted only in the three experimental school systems. Phase II activities of the second type were conducted not only in the three experimental school systems but also in the three control school systems.

In order to improve congruence in staff perceptions of decision points, the investigators worked closely with groups of administrators and supervisors

and of administrators and teachers in each of the experimental school systems. Among other activities, the investigators acquainted the members of these groups with the results of the decision point analysis with respect to the locus of decision-making responsibilities in each of the school systems. They stimulated the exchange of ideas relating to the allocation of decision-making responsibilities. They endeavored to develop a higher degree of agreement among teachers, supervisors, and administrators regarding the location of decision-making responsibilities related to instructional problems.

Changes in the perceptions of decision-making responsibilities were assessed through post administration of the Decision Point Analysis Instrument. This post administration was conducted in control as well as in experimental school systems following the previously described activities. Changes in the extent of planning for instructional change and the implementation of plans for instructional change were assessed through post analysis of curricular plans and documents as well as other post interview procedures related to the instructional program. The assessment of change in the latter variables was conducted for control as well as experimental school systems. The post analysis of curricular changes was based on an examination of curricular materials developed in both the control and the experimental school systems. All curricular materials developed in each of the school systems during the second portion of the study were collected near the conclusion of Phase II for subsequent analysis.

Findings Related to the Hypotheses

During Phase I of the investigation, the hypotheses that there exists a systematic and cogent relationship between congruence in staff perceptions of decision-making responsibilities and (1) the incidence of planned instructional change, and (2) the incidence of implementation of plans for instructional change, were tested. In order to test the hypotheses, each school system's scores indicative of congruence in perceptions of decision-making responsibilities were correlated with the corresponding scores for (1) the incidence of planned instructional change, and (2) the incidence of implementation of plans for instructional change.

A positive relationship of magnitude 0.1005 was found to exist between congruence of perceptions of decision-making responsibilities and the incidence of planning for instructional change. Therefore, Hypothesis 1 which stated that "school systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of planned instructional change than will school systems in which there is high congruence," was rejected in favor of the null hypothesis.

A negative relationship of magnitude 0.0449 was found to exist between congruence in perceptions of decision-making responsibilities and the incidence of implementation of plans for instructional change. On the basis of this finding, Hypothesis 2 which stated that "school systems in which there is low congruence in the perceptions of decision points will reflect a lower incidence of implemented instructional change than will school systems in which there is high congruence", was rejected in favor of the null hypothesis.

During Phase II of the study, the relationships between the change in congruence in perceptions of decision-making responsibilities and planned and implemented instructional change were explored. In order to test Hypotheses 3 and 4, the composite congruence scores obtained from the administration of the Decision Point Analysis Instrument during Phases I and II were used for the experimental and control school systems. Due to the relatively small number of school systems in the sample of Phase II, a non-statistical examination was used to test Hypotheses 3 and 4. The data used to test Hypothesis 3 were (1) composite congruence scores and (2) indices of curricular plan productivity for the control and the experimental school systems. The data used to test Hypothesis 4 were (1) composite congruence scores and (2) indices of curricular plan implementation.

The data pertinent to Hypothesis 3 revealed that both the individual and the composite congruence scores for the experimental school systems increased during Phase II. Similarly, while the congruence score of one control school system increased slightly, the congruence scores for the other two control school systems as well as the composite congruence score for all control systems decreased appreciably during Phase II. The corresponding curricular plan productivity scores for the control school systems both individually and collectively displayed an appreciable decrease. While the curricular plan productivity score for the three experimental school systems reflected an overall decrease of slight magnitude, it represented an appreciable increase in the range of differences in the scores for the curricular plan productivity in the control school systems. On the basis of this relationship, Hypothesis 3

which stated that "an increase in perceptions of decision points will result in a corresponding increase in planned instructional change," was not rejected.

The acceptability of Hypothesis 4 also was readily evident from an examination of the data. Not only did the predicted relationship between the experimental and control school systems hold true but it was supported also within both the experimental and control groups of school systems. It was pointed out above that, although the congruence score for one control school system increased slightly during Phase II, the congruence scores for the other two control systems, as well as the composite score for the control systems, reflected a decrease in congruence of appreciable magnitude. Similarly, the composite curricular plan implementation index of the three control school systems reflected a correspondingly appreciable decrease during Phase II. The congruence scores for the three experimental school systems, both individually as well as collectively, reflected an increase of appreciable magnitude during Phase II. The composite curricular plan implementation index for the experimental school systems reflected a modest increase during Phase II of the study. The positive correspondence between the change in congruence of perceptions and the change in composite curricular plan implementation index is consistent with the prediction of Hypothesis 4. Therefore, Hypothesis 4 which stated that "an increase in the congruence in the perceptions of decision points will result in a corresponding increase in implemented instructional change," was not rejected in favor of the null form.

Findings Related to the Ancillary Questions

Findings related to the ancillary questions revealed a number of supplementary relationships which supported and clarified the hypotheses and objectives of both phases of the project. Only the most meaningful of the statistically significant findings reported in Chapter III, of most value in the formulation of conclusions, are summarized here. In order to assist in concept formation, the findings formerly presented separately according to the analytical method which produced them, are presented here according to such potentially meaningful groupings as decision making, planning and implementation of curriculum, leader behavior, and biographical relationships.

Congruence scores for each of the 25 decision items, originally grouped arbitrarily into the five administrative areas of pupil personnel, staff personnel, curriculum, business management, and school-community relations, were factor analyzed by means of the principal component and image procedures. Patterns produced by both techniques displayed remarkable similarity. The five major groupings of decision items largely common to both analytical methods were named (1) "regulatory actions" (school management), (2) "educational leadership", (3) "pupil and instructional evaluation", (4) "pupil personnel practices related to instruction", and (5) "procurement of instructional materials". Analyses of data for the ten school systems revealed that congruence of perceptions scores for decision items in the functional administrative areas of staff personnel, curriculum, and school-community relations were more related to the composite congruence scores for all 25 decision items than were scores in the areas of pupil personnel and business management.

Superintendents' self-ratings of "consideration" and the extent to which their teachers indicated non-involvement in decision making were positively related. D cisions in which teachers exercised primary responsibility also involved their principals to a considerable extent; decisions in which superintendents exercised primary responsibility also involved their boards of education to a considerable extent. Those decisions for which teachers and principals exercised primary responsibility were characterized by minor activity on the part of their superintendents and boards; and those decisions for which superintendents and boards exercised primary responsibility were characterized by minor activity on the part of teachers and their principals. The extent to which teachers implemented curricular plans was positively related to the extent (1) to which they shared in the responsibility for making decisions and (2) to which they participated in making decisions by providing information. The extent to which teachers indicated they were not involved in making decisions was found to be negatively related to their implementation of curricular plans.

With specific regard to curriculum, measures of productivity were found to be positively related to quality. The extent of change in curricular plans was found to be positively related to the amount of staff participation in their production and also to the extent to which the plans were implemented. The degree of quality of curricular plans was found to be positively related to the extent of congruence of perceptions among staff members on decision items related to "regulatory actions". The "initiating structure" behavior of the superintendent was found to be negatively related to the quality of his school system's curricular plans. Teachers' ratings of their superintendents'

"consideration" were found to be positively related to the extent to which the teachers implemented curricular plans.

The "initiating structure" behavior of the superintendent was found to be negatively related to his school system's 1963-64 per pupil expenditure. A positive relationship was found to exist between the superintendent's "initiating structure" behavior and the extent of congruence of perceptions among his staff on decision items related to "regulatory actions". The superintendent' self-rating of "initiating structure" also was found to be positively related to the extent of congruence among his staff on decision items related to "procurement of instructional materials", "the use of rooms and multipurpose areas", and "pupil personnel practices related to instruction". A positive relationship was found to exist between superintendents' self-ratings of "initiating structure" and the ratio of female to male teachers in their school systems. Teachers' ratings of their superintendents' "initiating structure" behavior were found to be positively related to their ratings of his "consideration" behavior.

The superintendents' self-ratings of his "consideration" were found to be positively related to their teachers' ratings of his "consideration". Similarly, the superintendents' self-ratings of "initiating structure" were found to be positively related to their teachers' ratings of his "initiating structure". Superintendents' self-ratings of "consideration" were found to be positively related to their self-ratings or "initiating structure".

Teachers' tenure in their present position was found to be positively related to their ratings of their superintendent's "consideration" and "initiating structure", and to their superintendent's self-rating of his

"initiating structure". Teachers' tenure in the school system, and that in their present position, were positively related to their rating of their superintendent's "initiating structure" as well as the superintendent's self-rating of his "consideration". Teachers' tenure in their present school was found to be positively related to their rating of the superintendent's "consideration" and "initiating structure", the superintendent's self-rating of his "consideration", and their years of tenure in their present positions and in the school system. Teachers' teaching experience was found to be positively related to their ratings of their superintendent's "consideration" and "initiating structure", their superintendent's self-rating of "consideration", the school system female to male ratio, and their years of tenure in the school system, school, and position. The extent of teachers' professional preparation was found to be negatively related to their superintendent's self-rating of "initiating structure" as well as to teacher sex—males being characterized by greater preparation than females.

Analyses of biographical and background data revealed that in school systems comprising both the population and the sample, significantly greater percentages of administrative positions were held by males than females; for teaching positions, regardless of their level, the converse was true. For both high and low congruence school systems the number of female teachers per female administrator was significantly greater than the number of male teachers per male administrator. Teachers and administrators of the high congruence school systems were characterized by considerably more recent

formal study than their counterparts in the low congruence school systems. A comparison within each of the congruence groups revealed that teachers in both the high and the low congruence school systems were characterized by more recent formal study than were their administrators. For the population of school districts as well as for the high and the low congruence school systems of the sample, administrators were characterized by more tenure in the school system and the position, and by more teaching and administrative or supervisory experience, than were teachers. Teachers' preparation was found to be positively related to tenure in their position and in the school system, teaching experience, and administrative or supervisory experience. Teachers' recency of formal study was found to be negatively related to tenure in their present position, school, and school system, to teaching experience, and to sex—males being characterized by more recent formal study than females.

Conclusions

The conclusions based on the previously summarized findings are presented in two groups. The first group of conclusions is based upon (1) the antecedent measure of congruence of perceptions of the location of decision-making responsibilities, and (2) the data relevant to the two major subsequent measures—(a) the productivity of curricular plans, and (b) the implementation of curricular plans. The second group of conclusions derives from findings related to ancillary measures elicited through supplementary instrumentation. Supplementary conclusions relate to findings in the areas of leader behavior, the biographical data of teachers, and the background data of school systems.

Conclusions Related to the Hypotheses and the Major Variables

Three general conclusions were drawn from the findings related to the hypotheses and the major variables. These conclusions are:

1. The Decision Point Analysis Instrument was shown to be a useful device for the assessment and the quantification of these perceptions of the locus of decision-making responsibilities. The location of decision points as perceived by the professional staff in a school system can be identified, measured, and quantified. Based upon the assessment, indices of congruence can be established. The extent of congruence among perceptions of staff members in individual school systems not only can be manipulated but can be improved through such manipulative activities.
2. The ability to assess, measure, identify, and quantify certain variables related to the planning and implementation of curricular documents also was demonstrated. This measurement and quantification in such subjective areas as curricular planning and implementation was accomplished through the development and application of such measures as the curricular plan productivity index, the curricular plan implementation index, the curricular document quality index, and the index of staff participation in the production of curricular plans and documents. The instruments from which these indices were calculated, proved to be of considerable value in the quantification of subjective types of curricular information for submission to subsequent statistical analysis.

3. The data pertinent to Hypotheses 1 and 2 indicated that the relationship between the extent of congruence in staff perceptions of decision-point location was not significantly related to the production of curricular plans and the implementation of these plans. It was found however, in the tests of Hypotheses 3 and 4 that the manipulative efforts to increase congruence among staff members' perceptions did so and that the increase in congruence was accompanied by measurable increases in both the productivity and the implementation of curricular plans. The relationship between increases in congruence of perceptions to productivity and implementation of curricular plans occurred only in the experimental school systems and not in the control school systems. Although the positive results of the tests of Hypotheses 3 and 4 indicated the possibility of a causal relationship, much caution must be exercised in reaching any such conclusions. The nature of the study, based upon a design involving experimental and control groups, points to the possibility of causality without providing substantial assurances that its existence is in fact due to the identified variables. Under control and experimental conditions involving a small number of school systems, an increase in congruence in perceptions during Phase II of the project was accompanied by increases in curricular productivity and in curricular implementation.

A number of specific conclusions were drawn from the findings related to curriculum, a major focus of the study, and are presented in the following paragraphs:

1. School systems higher than others in the number of curricular plans produced were found to be characterized by curricular plans of substantially better quality than those produced in other school systems. Thus, those school systems producing more curricular plans also produce significantly better ones.
2. School systems characterized more than others by a greater extent of staff participation or involvement in curricular planning and development ranked higher in curricular-plan productivity than did school systems not so characterized.
3. School systems characterized more than others by greater productivity of curricular plans, also ranked higher in the extent to which their teachers implemented these curricular plans in the classroom.
4. The curricular plans produced in school systems characterized by a greater amount of staff participation reflected more provision for change in instructional content than did the plans produced in systems not so characterized. This was true regardless of whether the plans reflected change by the addition, deletion, or rearrangement of curricular content.
5. School systems which were more productive of curricular plans than others also produced plans which reflected significantly more provision for instructional change. Also the plans were implemented to an appreciably greater extent than were plans produced in school systems where there was low productivity and relatively little planned instructional change.

6. The more teachers were involved in making decisions, particularly those decisions related to the instructional program, the more they implemented curricular plans in the classrooms. This was true regardless of whether the teachers actually made the decisions, recommended the preferred decisions, or only provided information for the decision maker.
7. The more teachers were in agreement on the locus of responsibility for regulatory decisions the better was the quality of the curricular plans which they produced.
8. The quality of curricular plans and documents was negatively related to the "initiating structure" behavior of the superintendent. On the other hand, the "consideration" behavior of the superintendent was positively related to the extent to which teachers in his system implemented curricular plans. Thus, in curricular planning and implementation, it appears that "consideration" is a relatively more valuable behavior for the superintendent to exhibit than is "initiating structure" behavior.

Conclusions Related to Supplementary Variables

A number of general and specific conclusions related to the leader behavior of superintendents, the background variables of school systems, and the biographical variables of teachers are worthy of mention.

1. School systems having superintendents high in "initiating structure" behavior were characterized by appreciably lower per pupil expenditures than were other systems. Apparently, school systems with

higher per pupil expenditures—the more affluent school systems—have superintendents who are less prone to 'rock the boat' than those of less affluent school systems.

2. A direct relationship was noted between the extent of superintendents' self-ratings of "consideration" and the extent to which their teachers indicated they were not involved in decision making. It may be that highly considerate superintendents discourage teachers from participating in educational planning and decision-making activities and, in reality, exemplify "paternalistic" patterns of leader behavior.
3. Those teachers who saw their superintendent as highly considerate were the older and more experienced staff members.
4. Superintendents and teachers were more in agreement than in disagreement in their recognition of the superintendent's "initiating structure" and "consideration" behaviors.
5. The self-perceptions of superintendents indicated that "initiating structure" and "consideration" behaviors are more complementary than mutually exclusive leadership characteristics.
6. The data lent support to the speculation that the more teachers function in educational leadership or "initiating structure" roles, the more they raise their expectations for their superintendent's role as instructional leader and the more critical they become of the manner in which he fulfills this role. It also may be theorized that teachers who are exposed to more recent formal study than others become more cognizant of the need for educational leadership and "initiating structure" behaviors with consequent increases in their expectations

for their superintendent's role and the manner in which he executes this role. Older teachers may be less aware of the need for educational leadership and, accordingly, more satisfied with their superintendent's performance than younger teachers.

7. Male teachers, in general, had achieved a higher level of advanced study than had female teachers; however, the teachers with appreciably more tenure and experience had experienced more advanced study than the less experienced teachers.

Implications

There are many implications that grow out of efforts devoted to the research enterprise. The number of implications recognized and recorded are limited primarily by the imagination of the researchers and the practical length of the publication. The implications indicated here are only those that seem reasonably prominent in the areas of theory, research and practice.

Theory

The first of these implications for the theory of Educational Administration is that the social systems model suggested in the design of this research serves the expectations of a theory. This research stimulated a better understanding of the social systems model in terms of its limits of applicability in the development of hypotheses in the study of educational administration. The study of the interrelationships of the institutions and persons is far from finished; the systems model has not exhausted its period of usefulness. The research has, however, indicated some of the limitations that should be observed in the selection of variables for study.

A second aspect of the implications for theory perhaps is held in common with research in almost any field. This is the testing of long held, but possibly non-verbalized, assumptions that for many people constitute a basis for theory development. Often, long held assumptions are disturbed and disrupted by research efforts. An example is the assumption about the commonality of perceptions of decision points in the school organization that was tested in this research.

A third implication in the field of theory is that of the identification of more and more variables that show promise of being worth exploring with respect to their viable relationships.

Research

First, there has been an expansion of instrumentation for collecting data about perceptions and task outcomes. Any time a new instrument is developed, its purpose clearly stated, and its quality as a data collecting device established, it serves the purpose of research as a way of seeking and verifying information.

A second implication about research is that the number of variables in which quantification is possible has been increased. So much of the work in education has relied upon the so-called intangibles in the outcomes of the educational enterprise. It becomes increasingly evident that more and more of the intangible can be manipulated and can be quantified. This research has supported the reason for having confidence in the fact that more variables can be subjected to research techniques.

A third implication for these and perhaps other researchers is that the cost factors involved in collecting data from widely separated areas in sufficient quantities to accommodate current statistical procedures need to have careful consideration at each stage in the planning of the research activity. There is no formula that would indicate what should be the normal expectation of dollar costs for any given amount of information. It is evident, however, that there are under-estimations or over-estimations that well might have been avoided had some of the implications from other research endeavors been used as a basis for making judgments. This research provided for those engaged in it an opportunity to study the economics of research efforts.

Practice

School administrators are continuously and unrelentingly subjected to the necessity of selecting behaviors which give promise of enhancing the accomplishment of organizational goals. Research in the areas of the interpersonal relationships related to outcomes becomes one basis for the selection of behaviors. It is believed that this research offers some suggestions to administrators and teachers which may improve their interpersonal relations and patterns of action.

A second implication in the area of the practice is that there has been an identification of the type of data that can be secured through established instruments in determining the degree of accountability characterizing the work of each person who has received an assignment or a delegation. Administrators, supervisors, and teachers long have accepted the obligation of planning changes in the curriculum. The planning stage often is the last stage and the end product. The economics of change do not permit only half of the task to be

accomplished. It is essential, when instructional plans are made, that some effort be made to assess the extent to which the plans have been actualized in the classroom. This study has provided a means of raising the question and seeking reasonably sound answers as to how much of the planning has resulted in primary application to the teaching-learning situation.

A third and final implication of a practical nature is that some of the data provided in this report suggest some patterns for in-service activities that perhaps might not have occurred to many teachers and administrators. The extent to which administrative behavior is characterized by and perceived as "initiating structure" or "consideration" has some pertinent relationships to the kinds of outcomes that characterize the individual and group efforts of school faculties. It is believed that inservice activities are dominant responsibilities both for superordinates and subordinates and any information that can improve the quality of these interacting efforts are worth the attention of practitioners.

APPENDICES

APPENDIX A

DECISION POINT ANALYSIS

You are participating in a study sponsored by the U.S. Office of Education and the University of Wisconsin. Its purpose is to determine the nature of decision making in school systems. As you consider each of the questions, think and respond from the viewpoint of your present position.

Using the indicated lines on the next page, please write your name, the title of your position, and the name of the school building in which you work. Provide the background data requested by writing the appropriate number in the box to the left of each question. All responses will remain confidential and none will be identified by person.

When you have provided the background data, remove this cover page and the background data page and give them to the person in charge.

USOE/UW/10-14-63

I.B.M. Use Only

1. Name: _____

2. Title of Position: _____

3. School Building: _____

4. [ ]

5. [ ]

6. [ ]

7. [ ]

8. [ ]

9. [ ]

10. [ ]

11. [ ]
year

BACKGROUND DATA

1. Write your name on the line to the left.

2. Write the title of your position.

3. Write the name of the school building in which you work.

4. Sex:
   1. Male
   2. Female

5. Number of years in present school system.

6. Number of years in present school.

7. Number of years in your present position.

8. Total years of teaching experience.

9. Total years of administrative or supervisory experience.

10. Highest level of professional preparation:
    1. Less than Bachelors Degree
    2. Bachelors Degree
    3. Bachelors + 16 Credits
    4. Masters Degree
    5. Masters + 16 Credits
    6. Masters + 32 Credits
    7. Doctors Degree

11. In what year were you last enrolled in one or more college credit courses?

DECISION POINT ANALYSIS

DIRECTIONS: This instrument contains twenty five decision items. The column to the left is a list of positions of persons in your school system who may participate in making these decisions. In the column to the right there are three questions regarding each of the decision items. For each decision item, answer the three questions in the manner indicated.

POSITIONS:

DECISION ITEMS:

DECISION ITEM (SAMPLE): The decision on the practice of using workbooks in the instructional program.

	I	II
Business Manager		
Principal		
Vice-Principal		
Department Head		
Special Subject Supervisor		
Superintendent		
Director of Instruction		
Guidance Coordinator		
Board of Education		
Teacher		

QUESTIONS:

A. WHO MAKES THIS DECISION?
Choose the <u>one</u> person in your school system who is <u>primarily</u> responsible for making this decision. Place the number one (1) in the box in Column I opposite the title of that person.

B. WHAT OTHER PERSONS PARTICIPATE IN MAKING THIS DECISION?
Select at least two persons, other than the one already indicated in answering Question A, who participate in making this decision. Rank these persons 2, 3, -, -, according to the extent to which they participate. In Column I, place the number of the rank you give each participant opposite the title of that position.

C. WHAT IS THE NATURE OF <u>YOUR</u> PARTICIPATION IN MAKING THIS DECISION?
Select one of the four following choices which best describes <u>your</u> participation in making this decision and write the number of this choice in the box provided in Column II.

1. Make the decision.
2. Recommend the preferred decision.
3. Provide information only.
4. None.

DECISION ITEMS

1. The decision on the selection of curriculum problems for study.

2. The decision on the ways to group pupils by classes.

3. The decision on the priority for the use of unscheduled rooms and multipurpose areas.

4. The decision on the orientation activities for new staff members.

5. The decision on the appointment of teachers to curriculum committees.

6. The decision on the educational specifications for a new or remodeled building.

7. The decision on the instructional aids to be included in the budget.

8. The decision on the means for increasing community understanding of curriculum developments.

9. The decision on the content of pupils' cumulative records.

10. The decision on the selection of teachers for participation in experimental instructional programs.

11. The decision on how to report pupil progress to parents.

12. The decision on the retention of pupils.

13. The decision on the adequacy of teacher performance.

14. The decision on the regulations concerning lesson plans.

15. The decision on which community drives and activities merit school participation.

16. The decision on the rules governing pupil conduct.

17. The decision on the selection of textbooks.

18. The decision on the procedure for obtaining instructional supplies.

19. The decision on how to evaluate the curriculum.

20. The decision on the activities for in-service development of the staff.

21. The decision on the practices for assigning homework.

22. The decision on the assignment of teaching and non-teaching loads.

23. The decision on who will participate in the formulation of the school budget.

24. The decision on the content of local news items to be released.

25. The decision on the use of citizens committees.

APPENDIX B

CARD FORMAT FOR BACKGROUND DATA AND DECISION ITEMS

Background Data Card Format:

Col. 1: 1 (a 1 indicates the card is for background data)

Cols. 2-5: respondent's four digit identification number.

Cols. 6-9: system and school code number.

Cols. 10-13: respondent's position code number.

Col. 14: sex (1 - male; 2 - female)

Cols. 15-16: number of years in present school system.

Cols. 17-18: number of years in your present school.

Cols. 19-20: number of years in your present position.

Cols. 21-22: total years of teaching experience.

Cols. 23-24: total years of supervisory or administrative experience

Col. 25: code number indicating highest unit of professional preparation.

Cols. 26-27: year the respondent was last enrolled in one or more college credit courses.

Decision Item Response Data Record Card Format:

Col. 1: 2, 3, 4, 5, or 6 (2-card containing responses to items 1-5, 3-card containing responses to items 6-10, . . ., 6-card containing responses to items 21-25).

Cols. 2-5: respondent's four digit identification number.

Cols. 6-9: system and school code numbers.

Cols. 10-13: respondent's position code number.

Cols. 14, 26, 38, 50, 62: (numbers 3, 2, 1, or 0 depending on whether the respondent gave all 3, or only 2, 1, or 0 of the desired question responses, for each of the five decision items on each card)

Cols. 15-24,
27-36,
39-48,
51-60, and
63-72: (the ten position cells for each of the five decision items on a card. The respondent indicates the primary, secondary, tertiary decision-makers by assigning numbers 1, 2, and 3 to the desired cells for each of the items. The cells not assigned 1, 2, and 3 are punched zero. A sample decision item response pattern:
300102000304)

Cols. 25, 37, 49, 61, and 73: (punched 1, 2, 3, or 4 to indicate the nature of the respondent's perception of his participation in the decision-making.)

Cols. 74-80: blank

All data record cards were punched in numeric mode.

APPENDIX C

CONGRUENCE CALCULATION PROGRAM

```
      ODIMENSION AA(5,10), AAA(5,10),AAB(5,10),
      AAC(5,10),AAT(5),1ADA(5,10),BEAN(5,10),
      CHIT(5,10),BB(5,10),BBA(5,10),BBB(5,10),
      2BBC(5,10),BBT(5),BDA(5,10),CHIA(5),SUMI(5)
C     PRESTORE PROGRAM
      DO 6 I=1,5
      DO 6 J=1,10
      AA(I,J)=0.0
      AAA(I,J)=0.0
      AAB(I,J)=0.0
      AAC(I,J)=0.0
      ADA(I,J)=0.0
      BB(I,J)=0.0
      BBA(I,J)=0.0
      BBB(I,J)=0.0
      BBC(I,J)=0.0
      BDA(I,J)=0.0
      BEAN(I,J)=0.0
    6 CONTINUE
      DO 7 I=1,5
      AAT(I)=0.0
      BBT(I)=0.0
      CHIT(I)=0.0
      CHIA(I)=0.0
    7 CONTINUE
      KOG=0
      LOT=0
      SUMC=0.0
      SUMI(I)=0.0
   10 READ 15,ED,((AA(I,J)J=1,10),I=1,5)
   15 FORMAT (F3.0,11X,5(10F1.0,2X))
      IF(ED) 30,20,20
   20 DO 99 I=1,5
      DO 99 J=1,10
      IF (AA(I,J)) 13,99,13
   13 IF (AA(I,J)-4.0) 27,99,99
      SUM TEACHERS ONES, TWOS, AND THREES
   27 KOG=AA(I,J)
      GO TO (1,2,3),KOG
    1 AAA(I,J)=AAA(I,J) + 1.0
      GO TO 99
    2 AAB(I,J)=AAB(I,J) + 1.0
      GO TO 99
    3 AAC(I,J)=AAC(I,J) + 1.0
   99 CONTINUE
C     READ MORE TEACHER CARDS IN SET
      GO TO 10
C     DETERMINE TEACHERS ITEM TOTALS FOR ONE RESPONSES
   30 DO 98 I=1,5
      DO 98 J=1,10
   98 AAT(I)=AAT(I) + AAA(I,J)
```

```
C       CALCULATE DECIMAL CELL ITEM FREQUENCY FOR
        TEACHERS
        DO 97 I=1,5
        DO 97 J=1,10
   97   ADA(I,J)=AAA(I,J)/AAT(I)
C       DO BASIC CALCULATIONS FOR ADMINISTRATORS SET
        OF CARDS
  100   READ 115,ED((BB(I,J),J=1,10),I=1,5)
  115   FORMAT(F3.0,11X,5(10F1.0,2X))
        IF(ED) 300,300,200
  200   DO 199 I=1,5
        DO 199 J=1,10
        IF(BB(I,J)) 113,199,113
  113   IF(BB(I,J)-4.0) 127,199,199
  127   LOT=BB(I,J)
        GO TO (71,72,73),LOT
   71   BBA(I,J)=BBA(I,J) + 1.0
        GO TO 199
   72   BBB(I,J)=BBB(I,J) + 1.0
        GO TO 199
   73   BBC(I,J)=BBC(I,J) + 1.0
  199   CONTINUE
        GO TO 100
  300   DO 198 I=1,5
        DO 198 J=1,10
  198   BBT(I)=BBT(I) + BBA(I,J)
C       CALCULATE DECIMAL CELL FREQUENCY FOR
        ADMINISTRATORS
        DO 197 I=1,5
        DO 197 J=1,10
  197   BDA(I,J)=BBA(I,J)/BBT(I)
C       INTERMEDIATE LOOP,CALCULATION OF THE JOINT
        MEAN FOR EACH CELL
        DO 500 I=1,5
        DO 500 J=1,10
  500   BEAN(I,J)=(ADA(I,J) + BDA(I,J))/2.0
C       COMPUTE CHIT FOR TEACHERS
        DO 96 I=1,5
        DO 96 J=1,10
  960CHIT(I)=CHIT(I)+((((ADA(I,J)-(.1))*(ADA(I,J)-
                                        (.1)))/(.1))*
     1(BEAN(I,J)))
C       COMPUTE CHIA FOR ADMINISTRATORS
        DO 596 I=1,5
        DO 596 J=1,10
 5960CHIA(I)=CHIA(I)+((((BDA(I,J)-(.1))*(BDA(I,J)-
                                        (.1)))/(.1))*
     1(BEAN(I,J)))
        DO 714 I=1,5
  714   SUMI(I)=(CHIA(I) + CHIT(I))
        DO 717 I=1,5
  717   SUMC=SUMC + SUMI(I)
C       OUTPUT
```

```
      DO 103 I=1,5
      PRINT 206,I
      PRINT 205,(AAA(I,J), J=1,10),CHIT(I)
      PRINT 205,(AAB(AAB(I,J),J=1,10),AAT(I)
      PRINT 205,(AAC(I,J),J=1,10),CHIT(I)
      PRINT 283,(ADA(I,J),J=1,10)
      PRINT 222
      PRINT 207,I
      PRINT 208,(BEAN(I,J),J=1,10)
      PRINT 225
      PRINT 209,I
      PRINT 210,(BBA(I,J),J=1,10),CHIA(I)
      PRINT 210,(BBB(I,J),J=1,10),BBT(I)
      PRINT 210,(BBC(I,J),J=1,10),CHIA(I)
      PRINT 281,(BDA(I,J),J=1,10)
      PRINT 236,(SUMI(I))
  103 PRINT 330
      PRINT 238,SUMC
      STOP
 2060FORMAT(5X,2HI=,1X,12/7X,1HO,7X,1H1,7X,1H2,
     7X,1H3,7X,1H4,7X,
    11H5,7X,1H6,7X,1H7,7X,1H8,7X,1H9)
  205 FORMAT(10(4X,F4.0), 5X,F20.6)
  283 FORMAT(10(F8.4))
  222 FORMAT(//)
  207 FORMAT(5X,2HI=,1X,I2/)
  208 FORMAT (10(2X,F8,4))
  225 FORMAT(//)
 2090FORMAT(5X,2HI*,1X,I2/7X,1HO,7X,1H1,7X1H2
     7X,1H4,7X,1H4,7X
    11H5,7X,1H6,7X,1H7,7X,1H8,7X,1H9)
  210 FORMAT (10(4X,F4.0),5X,F20.6)
  281 FORMAT(10(F8.4))
  236 FORMAT(F20.9)
  238 FORMAT(F20.9)
  330 FORMAT(/////)
      END
      END
```

APPENDIX D

THE UNIVERSITY OF WISCONSIN
Department of Educational Administration

A PRODUCTIVITY INDEX OF INSTRUCTIONAL PLANNING
(USOE PROJECT 1913)

I. Definition of a plan.

A plan for instructional change, as defined for USOE Project 1913, is a written document prepared for distribution through an administrative office of a school dealing with curricular design and/or instructional procedures related to teacher-pupil interaction.

II. The Productivity Index.

Plans will be studied for the fact of existence in terms of:

1. Productivity is considered as the average annual volume of distributed curriculum plans.
   The period from June through May will be considered one school year. Three school years will be studied, namely, 1962-63, 1963-64, and 1964-65. Only the portion of the 1964-65 school will qualify in the formula which has elapsed at the time of the assessment. (October)

$$PRO_{ss} = \sum \frac{Q_p \text{ 1962-63} + Q_p \text{ 1963-64} + \frac{x}{12} Q_p \text{ 1964-65}}{2 + \frac{x}{12}}$$

Note: PRO_{ss} = Productivity of School System

x = Number of months in 1964-65 year (June 1, 1964 - October 31, 1964)

Q_p = Quantity of produced units. (See "Definition of unit")

III. Criteria for selecting a local school document as a curriculum plan.

A. A document will be accepted as a curriculum plan if:
   1. It is a statement of the scope and sequence of content for an area.
   2. It is locally produced.
   3. It deals with curriculum design as opposed to administrative managerial directives.
   4. It has been revised in the process of reproduction.
   5. It is not repetitive of a previously distributed document.
   6. It is a re-organization of a previous plan.

B. Definition of a Unit
   1. One subject area for one grade will constitute one unit.
   2. A non-graded designation but organized as a special group will constitute one unit.

5/17/65cjr

THE UNIVERSITY OF WISCONSIN
Department of Educational Administration

U.S.O.E. Project # 1913

Classification for
Curriculum Documents

I. Art

II. Music

III. Business Education

IV. English Language

V. Foreign Language

VI. Home Economics

VII. Industrial Arts

VIII. Mathematics

IX. Physical Education

X. Science

XI. Social Science

XII. Special Education

XIII. Miscellaneous

Name

School

System

Interviewer

Plan

Date

CURRICULUM IMPLEMENTATION INDEX

	A. How much do you use this plan for ....? None Some Much	B. How much of a change is this from what you were doing before? None Some Much	C. What kind of a change is this: addition, subtraction, or rearrangement? (For answers in B of Some or Much)
Program			
1. Selecting course content.	1. ___ ___ ___	1. ___ ___ ___	1. ___ ___ ___
2. Determining emphasis on skill development.	2. ___ ___ ___	2. ___ ___ ___	2. ___ ___ ___
3. Selecting teaching methods.	3. ___ ___ ___	3. ___ ___ ___	3. ___ ___ ___
4. Selecting procedures for evaluating pupil progress.	4. ___ ___ ___	4. ___ ___ ___	4. ___ ___ ___
Organization			
5. Determining grouping of pupils for instructional purposes.	5. ___ ___ ___	5. ___ ___ ___	5. ___ ___ ___
6. Determining time distributions for this subject.	6. ___ ___ ___	6. ___ ___ ___	6. ___ ___ ___
7. Developing working relations with other staff.	7. ___ ___ ___	7. ___ ___ ___	7. ___ ___ ___
8. Selecting resource persons from outside the system.	8. ___ ___ ___	8. ___ ___ ___	8. ___ ___ ___
Facilities			
9. Determining use of the building(s) and grounds. (multi-purpose room, library, resource center, etc.)	9. ___ ___ ___	9. ___ ___ ___	9. ___ ___ ___
10. Determining use of previously existing instructional supplies (instructional aids such as texts, workbooks, filmstrips, consumable supplies, etc.)	10. ___ ___ ___	10. ___ ___ ___	10. ___ ___ ___
11. Selecting instructional supplies (instructional aids such as texts, workbooks, filmstrips, films consumable supplies, etc.)	11. ___ ___ ___	11. ___ ___ ___	11. ___ ___ ___
12. Determining use of instructional equipment (overhead projector, microscope, language laboratory, furniture, non-consumable equipment, etc.)	12. ___ ___ ___	12. ___ ___ ___	12. ___ ___ ___

APPENDIX F

THE UNIVERSITY OF WISCONSIN
Department of Educational Administration

Analysis and Appraisal of a Curriculum Document as a Plan

Project USOE 1913 A score _____ C score _____ School System _____

Date: December 7, 1964 B score _____ D score _____ Document code _____

Document score _____

Rater _____

Definitions: area - content of one subject; level - grade designation or grouping such as "ungraded"; document - one area and K-12 levels.

Part One - Analysis by total document

A. Organization (scope and sequence among levels but not within a level).

Circle the appropriate boxed number

(1)	(2)	(3)	(4)	(5)
Incomplete coverage of levels with included levels unrelated.	Incomplete coverage of levels but levels included are inter-related	Complete coverage of levels with levels unrelated.	Complete coverage of levels but related within groupings of levels.	Complete coverage of levels with inter-relatedness among all levels.

Part Two - Analysis by levels in the total document (Score by levels and record average score.).

B. Statements of Objectives

(1)	(2)	(3)	(4)	(5)
None or found only in general statements of objectives.	Listings so general as to be applicable to all or most areas and levels.	Listings applicable only to content expectations for a specific level.	Listing imply multiple learning outcomes applicable to all or most levels.	Listings imply multiple learning outcomes applicable to a specific level.

Plan scores:

a)____; b)____; c)____; d)____; e)____; f)____; g)____; h)____; i)____; j)____; k)____; l)____; m)____;

n)____; o)____; p)____; q)____; r)____; s)____; t)____; u)____; v)____; w)____; x)____; y)____; z)____.

Average score _____

C. Facilitation through procedures and/or aids.

(1)	(2)	(3)	(4)	(5)
None or applicable to all or most areas and levels.	Suggestions applicable to levels but not identified with point of use.	Suggestions (general in nature) applicable to level and identified with point of use.	Suggestions (specific in nature) applicable to level and identified with point of use.	Suggestions include techniques for appropriate use.

Plan scores:

a)____; b)____; c)____; d)____; e)____; f)____; g)____; h)____; i)____; j)____; k)____; l)____; m)____;

n)____; o)____; p)____; q)____; r)____; s)____; t)____; u)____; v)____; w)____; x)____; y)____; z)____.

Average score_____

D. Evaluation.

(1)	(2)	(3)	(4)	(5)
None or applicable to all or most areas and levels.	Directional questions about pupil learning.	Specific procedures suggested for the evaluation of content only.	Specific procedures suggested for multiple learning outcomes for all or most levels.	Specific procedures suggested for multiple learning outcomes for a specific level.

Plan scores:

a)____; b)____; c)____; d)____; e)____; f)____; g)____; h)____; i)____; j)____; k)____; l)____; m)____;

n)____; o)____; p)____; q)____; r)____; s)____; t)____; u)____; v)____; w)____; x)____; y)____; z)____.

Average score _____

APPENDIX G

INDEX OF PARTICIPATION

Suggestions to Staff Members

1. It looks as if <u>days</u> instead of weeks should be the unit of time used in the formula:

   $$\frac{\text{Days devoted to production}}{\text{Total days of employment}} = \text{Index of Participation}$$

   <u>Note</u>: 8 hours = one day

2. Data for Form I are to be obtained from the office of the Superintendent of Schools (Central Office).

3. Data concerning the various committees which worked on the plans of a document are to be obtained from the Central Office, checked with the Chairman of each committee, and, finally, with the members of the committee who are interviewed. (Make an effort to ascertain (1) that no committees are omitted, (2) that no persons are included as committee members who were <u>not</u> members, and (3) that no persons are omitted from the committee membership who <u>were</u> members.)

4. Always interview the chairman of each committee (list chairman's name first) if he is still in the school system; otherwise start with first name in alphabetically listed <u>members</u> of the committee.

5. Interview four other members of the committee who have been randomly selected (when the committee was composed of more persons than the chairman and four members). If a randomly selected member is no longer in the school system, or otherwise unavailable, interview the next person on the alphabetical list of members.

6. Show document (plan) to each committee member interviewed and ask him to make the best estimate he can of the <u>total number of hours</u> he devoted to its development. (Probes can be used, such as: How many weeks did you work on this committee? About how many hours per week? How often did the committee meet? For what average length of time? Did you spend time outside of committee meetings as well as in them? What was the average number of hours (minutes) spent in preparation for a committee meeting? Etc.)

7. Amount of time for each member of the committee who was <u>not</u> interviewed will be recorded as the average amount of time spent by the members who were interviewed.

DATA RELATING TO PARTICIPATION INDEX
Employment of Professional Instructional Personnel

School System _____ FORM I
Data collected by _____ Date _____

Questions To Be Answered	1962-63 School Year	1963-64 School Year
1. What was the typical length of contractual employment of professional instructional personnel, in terms of the number of working (school) days?		
2. How many professional instructional personnel were employed <u>full-time</u> during the school (contract) year?		
3. How many professional instructional personnel were employed <u>part-time</u> during the school (contract) year? (Record data in terms of <u>full-time</u> equivalents.)		

4. Data concerning <u>additional employment</u> of professional instructional personnel. <u>Instructions</u>: In providing the data needed for the table below, do <u>not</u> count any members of the teaching staff who were employed for additional periods of time if they were <u>not</u> expected to carry on <u>any</u> regular-year type of curriculum development activities. Teachers who were assigned full-time teaching responsibility in summer school thus would not be reported.

Summer, 1962		Summer, 1963		Summer, 1964	
No. of Additional Days of Employment	No. of Persons Employed	No. of Additional Days of Employment	No. of Persons Employed	No. of Additional Days of Employment	No. of Persons Employed
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____
____Days	____	____Days	____	____Days	____

APPENDIX H

MATRIX OF INTERCORRELATIONS AMONG THE CONGRUENCE SCORES OF THE SAMPLE SCHOOL SYSTEMS FOR EACH OF TWENTY-FIVE DECISION ITEMS

1.0000

0.7020 1.0000

0.2598 0.5042 1.0000

0.1629 -0.1673 -0.3871 1.0000

-0.1859 -0.0131 0.5334 -0.2343 1.0000

0.0607 0.4501 0.3653 0.3067 0.0143 1.0000

0.2489 0.5831 -0.0191 0.0967 0.0790 0.3926 1.0000

-0.0348 0.1072 -0.1253 0.6316 -0.3604 0.1863 0.3140 1.0000

0.1836 0.7087 0.3621 -0.3678 0.1092 -0.1717 0.2950 0.0115 1.0000

-0.3478 -0.2917 -0.0361 0.3356 0.3210 0.0183 0.1023 0.4304 -0.0446 1.000

0.2648 0.7617 -0.5522 -0.1044 0.2620 0.2196 0.4572 0.2409 0.8639 0.2354 1.0000

-0.2653 -0.0250 -0.0209 0.1493 0.0248 -0.3848 0.2339 0.5968 0.1350 0.4033 0.1775 1.0000

0.1335 0.3025 0.4878 0.0670 0.6440 0.0249 0.2300 0.1247 0.2144 0.0356 0.3112 0.3690 1.0000

-0.2449 0.2454 0.3159 0.2002 0.4722 -0.4856 0.0789 0.1026 0.6675 0.1095 0.5384 0.4390 0.6934 1.0000

0.0478 -0.1960 -0.0239 0.5003 -0.2905 0.4663 0.0193 0.5588 0.4794 0.4913 -0.1081 0.2497 -0.3301 -0.5898 1.0000

-0.3423 -0.2500 0.3633 -0.3137 0.6364 -0.5526 -0.3329 -0.2754 0.0460 0.0734 -0.0416 0.4549 0.5927 0.5845 -0.3016 1.0000

0.3956 0.2610 0.4064 0.3589 0.6110 0.2146 0.1028 0.0299 0.1072 0.1364 0.2972 0.1409 0.8274 0.4296 -0.1450 0.4408 1.0000

0.2478 0.2074 -0.0599 0.5480 0.0258 0.4076 0.4715 0.4615 -0.2431 -0.1426 -0.0675 0.1307 0.5812 0.0811 0.0205 -0.1435 0.4586 1.0000

0.2829 0.6710 0.1739 -0.1427 -0.3111 0.0136 0.2581 0.2752 0.8598 0.0406 0.7870 0.0834 -0.1557 0.3146 -0.1046 -0.3550 -0.1636 -0.2897 1.0000

0.0121 0.2418 -0.2033 0.4862 -0.1587 0.0964 0.4744 0.7338 0.3901 0.6687 0.5639 0.4307 -0.0056 0.2256 0.3212 -0.3622 0.0568 0.1090 0.5913 1.0000

-0.1994 -0.2355 -0.4026 0.0946 -0.0753 -0.6294 0.0872 0.1999 -0.0752 0.0732 -0.2546 0.7808 0.2565 0.2826 -0.0616 0.4940 0.1062 0.1139 -0.1982 0.0929 1.0000

-0.1709 0.0336 0.3366 0.1355 0.7194 0.0294 0.2550 0.2224 0.2402 0.8213 0.5079 0.4399 0.5067 0.4776 0.1393 0.4054 0.5443 -0.0076 0.0583 0.5113 0.1117 1.0000

0.0874 0.5417 0.4927 -0.0804 0.1550 0.4421 0.5569 0.3639 0.2084 -0.1968 0.3885 0.1465 0.4927 0.2707 -0.0337 -0.0750 0.1344 0.6141 0.1095 0.0483 -0.2098 0.0446 1.0000

-0.0607 -0.3410 -0.1213 0.6947 0.1345 0.4306 -0.0259 0.3717 -0.4063 0.7515 -0.0128 -0.0539 -0.1304 -0.3342 0.6690 -0.2644 0.2161 -0.0907 -0.1851 0.4637 -0.2757 0.4863 -0.2305 1.0000

0.0132 0.2414 0.2046 0.3001 0.5826 0.4191 0.6136 0.3201 0.1456 0.[illegible]754 0.4634 0.1169 0.5318 0.3138 0.0414 -0.0577 0.5070 0.4856 0.0167 0.5273 -0.[illegible]592 0.7459 0.4312 0.4836 1.0000

APPENDIX I

INTERCORRELATIONS BETWEEN MEASURES OF CONGRUENCE, CURRICULAR PLANNING, AND LEADER BEHAVIOR, FOR THE TEN SCHOOL SYSTEMS OF THE SAMPLE

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1.000	.910[b]	.413	.768[b]	.555	.667[a]	.613	.602	.424	.206	.272	.545	.389
2		1.000	.333	.649[a]	.376	.579	.742[a]	.616	.216	.163	.263	.574	.127
3			1.000	.431	-.035	-.123	.377	-.092	.161	- .087	.885[b]	.114	.114
4				1.000	.276	.315	.353	.288	.759[a]	.180	.176	.136	.362
5					1.000	.251	.562	.015	.363	.427	-.328	.654	.831
6						1.000	.011	.949[b]	.072	.017	.035	.269	.008
7							1.000	.020	.041	.236	.153	.659[a]	.385
8								1.000	-.077	-.083	.129	.154	-.203
9									1.000	.411	-.120	.189	.377
10										1.000	-.234	.219	.259
11											1.000	.055	-.282
12												1.000	.195
13													1.000
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													

The variables identified by number in this table are listed by corresponding number and defined on pages 92, 95, and 96.

APPENDIX I (Continued)

Variable	14	15	16	17	18	19	20	21	22	23	24	25	26
1	.461	.389	.446	.394	.272	.206	.310	.497	.420	.100	.153	.206	-.089
2	.675[a]	.180	.335	.415	.263	.163	.176	.506	.567	.106	.213	.410	-.099
3	.002	.156	.081	-.298	.885[b]	-.087	-.106	.178	-.122	.100	.092	.210	-.202
4	.159	.784[b]	.149	.165	.176	.180	-.051	.283	.076	.259	.231	.144	-.334
5	.502	.234	.790[b]	-.108	-.328	.427	.057	.383	-.071	.169	.227	.206	.464
6	.083	.100	.151	.889[b]	.035	.017	.800[b]	.272	.703[a]	-.216	-.204	-.274	-.147
7	.866[b]	-.069	.518	-.191	.153	.236	-.298	.385	.133	.304	.451	.727[a]	.249
8	.098	-.021	-.042	.936[b]	.129	-.083	.730[a]	.145	.825[b]	-.154	-.133	-.165	-.245
9	-.027	.982[b]	.306	-.135	-.120	.411	-.124	.416	-.188	.052	-.028	-.145	-.100
10	.441	.277	.087	-.103	-.234	1.000	.134	.248	.160	.318	.235	.049	.792[b]
11	-.138	-.094	-.088	-.045	1.000	-.234	.122	.146	.120	-.180	-.192	-.019	-.281
12	.610	.065	.889[b]	-.074	055	.219	-.024	.733[a]	.239	-.335	-.208	.170	.238
13	.197	.305	.493	-.277	-.282	.259	-.096	-.019	-.388	.473	.473	.250	.304
14	1.000	-.156	.358	-.010	-.138	.441	-.125	.466	.306	.279	.436	.698[a]	.425
15		1.000	.199	-.060	-.094	.277	-.111	.326	-.181	.035	-.056	-.198	-.256
16			1.000	-.249	-.088	.087	-.142	.556	-.081	-.278	-.182	.075	.174
17				1.000	-.045	-.103	.760[a]	.064	.696[a]	-.188	-.181	-.288	-.269
18					1.000	-.234	.122	.146	.120	-.180	-.192	-.019	-.281
19						1.000	.134	.248	.160	.318	.235	.049	.792[b]
20							1.000	.136	.577	-.181	-.225	-.406	.091
21								1.000	.094	-.500	-.397	-.034	-.016
22									1.000	.018	.040	.088	.075
23										1.000	.970[b]	.678[a]	.314
24											1.000	.820[b]	.275
25												1.000	.138
26													1.000

APPENDIX I (Continued)

Variable	27	28	29	30	31	32	33	34	35
1	.233	-.044	.038	-.186	-.284	.266	-.211	-.521	.221
2	.189	-.159	-.078	-.275	-.393	.033	-.422	-.588	.119
3	.144	.274	.396	.320	.365	.333	-.496	-.324	.323
4	.098	-.325	-.304	-.459	-.455	-.155	-.191	-.237	.021
5	.269	.173	.349	.098	-.057	.544	.598	-.326	.592
6	.095	-.046	-.153	-.215	-.280	.203	-.148	-.226	-.193
7	.291	.048	.290	.019	-.129	.206	-.139	-.632[a]	.500
8	.128	-.085	-.228	-.304	-.346	.025	-.386	-.298	-.348
9	-.068	-.347	-.413	-.399	-.391	-.186	.244	.099	.024
10	-.102	.065	-.138	-.324	-.182	.120	.485	.067	-.019
11	.085	.237	.294	.314	.372	.256	-.713[a]	-.227	.037
12	.282	-.069	.108	.056	-.199	.238	.005	-.442	.328
13	.275	.296	.470	.173	.119	.557	.637[a]	-.237	.647[a]
14	.002	-.022	.109	-.079	-.196	.063	.003	-.444	.378
15	-.070	-.393	-.479	-.436	-.417	-.269	.153	.127	-.067
16	.398	.001	.233	.165	-.119	.355	.263	-.379	.471
17	-.131	-.193	-.300	-.320	-.312	-.067	-.258	.000	-.411
18	.085	.237	.294	.314	.372	.256	-.713[a]	-.227	.037
19	-.102	.065	-.138	-.324	-.182	.120	.485	.067	-.019
20	-.182	.315	.124	.131	.204	.445	.013	.034	-.116
21	-.378	-.300	-.072	.079	-.073	.073	-.066	-.036	.307
22	.255	.095	-.267	-.332	-.348	-.079	-.427	-.493	-.421
23	.252	.434	.203	-.087	.041	.091	.187	-.421	.229
24	.234	.421	.270	-.007	.057	.100	.128	-.513	.355
25	.196	.293	.301	.144	.065	.011	-.163	-.661[a]	.500
26	.111	.413	.279	.053	.139	.414	.604	-.053	.165
27	1.000	.283	.134	-.149	-.258	.148	-.092	-.731[a]	-.095
28		1.000	.781[b]	.681[a]	.736[a]	.749[a]	.152	-.449	.473
29			1.000	.875[b]	.837[b]	.879[b]	.179	-.285	.788[b]
30				1.000	.937[b]	.705[a]	.076	-.079	.737[a]
31					1.000	.693[a]	.100	.071	.609
32						1.000	.331	-.231	.647[a]
33							1.000	.329	.303
34								1.000	-.259
35									1.000

[a]Correlation is significant at the 5 per cent level.
[b]Correlation is significant at the 1 per cent level.

APPENDIX J

INTERCORRELATIONS AMONG THE SCORES OF INDIVIDUAL TEACHER RESPONDENTS ON FIFTY VARIABLES

VARIABLE	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1.000	.312	-.566	-.115	.159	.084	.368	.041	.135	.172	.126	.190	.287
2		1.000	-.024	-.406	.134	.036	.050	.218	.112	.194	.157	.144	.258
3			1.000	.063	-.050	.001	-.109	.115	-.096	-.053	-.039	-.098	-.054
4				1.000	-.065	-.005	.021	.100	-.074	.030	.066	.054	-.104
5					1.000	.634	.045	-.104	.053	.057	.044	.077	.033
6						1.000	.129	-.072	-.046	.074	.045	.108	.013
7							1.000	.293	.128	.270	.243	.270	.259
8								1.000	.153	.065	.017	.012	.116
9									1.000	-.001	-.061	.010	.187
10										1.000	.904	.860	.777
11											1.000	.830	.722
12												1.000	.715
13													1.000
14													
15													
16													
17													
18													
19													
20													
21													
22													
23													
24													
25													
26													

The variables identified by numbers in this table are listed by corresponding number and defined on pages 105 through 107.

APPENDIX J (Continued)

VARIABLE	14	15	16	17	18	19	20	21	22	23	24	25	26
1	.034	.003	-.061	-.137	-.309	-.293	-.069	-.108	.095	-.105	-.051	-.040	.037
2	-.031	-.088	-.115	.017	-.080	-.062	.037	.069	-.070	.018	-.095	-.030	-.071
3	.063	-.086	.080	.040	.121	.102	.031	-.032	-.081	.066	-.015	-.032	-.006
4	.006	.080	.013	-.035	.057	.046	.011	-.068	.068	.169	.167	.034	-.017
5	.045	.023	.026	-.154	.018	-.093	.134	-.095	.075	-.155	.100	.004	-.060
6	-.006	.063	.076	-.229	-.084	-.180	-.034	-.113	.077	-.122	.000	.021	.039
7	.058	-.128	-.017	-.180	-.498	-.417	-.185	-.282	.011	-.155	-.099	-.201	.283
8	.010	-.270	-.013	.117	-.248	-.212	-.248	-.040	-.150	.406	.026	.029	-.100
9	-.023	-.360	-.148	.062	-.076	-.063	-.312	-.175	-.030	.013	-.035	-.249	.091
10	.158	.181	-.184	-.243	-.189	-.152	-.038	-.053	.049	.026	.018	-.126	.000
11	.162	.229	-.188	-.147	-.113	-.137	-.002	-.020	.056	.085	.061	-.059	.013
12	.077	.010	-.175	-.215	-.150	-.153	-.044	-.091	.063	.025	.027	-.116	.054
13	.213	.136	-.202	-.138	-.224	-.185	-.210	-.095	.033	.055	-.051	-.149	.033
14	1.000	.162	-.024	-.017	-.034	-.035	-.057	.035	.049	-.001	-.049	-.044	.021
15		1.000	.029	-.089	-.038	.046	.237	.091	-.010	-.048	.144	.233	-.054
16			1.000	-.094	.018	.058	.018	-.012	.008	-.041	-.043	-.060	.007
17				1.000	.207	.009	-.114	.059	-.165	.170	-.020	.125	-.029
18					1.000	.400	-.001	-.044	.048	.052	.049	.006	-.100
19						1.000	.071	.038	-.068	-.019	-.066	-.129	-.057
20							1.000	.231	-.276	-.026	.238	.306	-.376
21								1.000	-.316	.065	.098	.291	-.212
22									1.000	-.019	-.077	-.073	.020
23										1.000	.377	.384	-.171
24											1.000	.523	-.146
25												1.000	-.178
26													1.000

VARIABLE	27	28	29	30	31	32	33	34	35	36	37	38	39
1	.156	.069	-.020	.067	-.006	-.104	-.130	-.166	.161	.198	.092	.050	-.024
2	-.104	-.118	.055	.074	-.025	.098	-.044	-.045	.051	.148	.068	-.008	-.008
3	-.058	-.120	.027	-.058	.041	.054	.064	.120	-.047	.006	.112	-.045	.082
4	-.080	-.018	-.143	-.094	-.070	-.012	-.012	-.002	.045	.104	.036	-.079	.037
5	.043	.016	.038	.004	-.004	.009	-.089	-.045	-.037	.017	.047	.067	.087
6	.084	.127	-.001	-.045	-.018	.024	.001	-.010	-.003	.044	-.001	.059	.051
7	.328	.153	-.066	-.074	-.052	-.087	-.036	.076	.3467	.364	.364	-.059	-.059
8	-.270	-.234	-.025	.101	.045	-.017	.001	.123	.3043	.426	.331	-.132	-.109
9	-.013	-.046	.153	.093	.074	-.110	-.058	.065	.3221	.327	.198	-.043	-.213
10	.087	.086	.026	.036	-.014	.173	-.105	-.026	.061	.171	.114	-.059	-.058
11	.143	.120	-.019	-.018	-.086	.125	-.162	-.026	.019	.072	.062	-.044	-.035
12	.135	.113	-.008	.009	-.022	.142	-.138	-.020	.069	.165	.123	-.101	-.036
13	.099	.023	.037	-.022	-.018	.159	-.061	-.087	.149	.238	.189	-.052	-.076
14	.090	-.009	-.007	.011	-.005	-.026	-.049	-.019	-.031	-.038	.088	-.027	.022
15	.085	.165	-.020	-.079	-.053	-.009	.009	-.147	-.210	-.235	-.164	.172	.132
16	-.033	-.073	.039	-.021	.013	-.094	.027	-.001	.001	.040	.078	.030	.064
17	-.095	-.051	-.001	.117	.049	-.014	-.062	-.022	-.081	-.010	.004	-.067	-.032
18	-.150	-.086	.088	-.001	-.008	.255	-.071	-.035	-.149	-.187	-.165	-.120	-.012
19	-.152	-.164	.058	.006	.088	.159	.065	-.055	-.170	-.068	-.184	-.046	-.024
20	-.068	.026	.008	-.112	-.008	-.216	-.021	.093	-.505	-.463	-.287	.179	.301
21	-.289	-.047	-.117	-.086	.006	.225	-.221	.012	-.487	-.436	-.367	.144	.049
22	.145	-.111	-.076	.024	-.105	.032	.087	-.169	.195	.166	-.016	.033	.006
23	-.208	-.165	-.077	-.040	-.099	-.062	.013	.103	-.063	-.053	-.050	.011	-.010
24	-.127	.032	-.045	-.092	-.088	-.028	-.128	.032	.032	-.192	-.192	.144	.141
25	-.162	-.038	-.105	-.111	-.135	-.028	-.100	-.010	-.307	-.292	-.254	.187	.205
26	.457	.220	-.036	-.042	-.055	-.092	-.062	.104	.021	.110	.253	-.136	-.244

VARIABLE	40	41	42	43	44	45	46	47	48	49	50
1	-.026	.015	.015	-.003	.056	-.054	.064	.112	.070	-.065	-.075
2	.028	-.099	-.056	.048	-.129	-.034	.143	-.089	.037	-.046	.036
3	.090	.008	-.015	-.030	-.076	.031	-.117	-.127	-.030	-.023	.127
4	.018	-.010	-.028	-.072	-.008	-.030	.049	-.079	.061	.025	-.001
5	.105	.042	.051	-.064	-.022	.018	.015	-.111	.140	.171	-.214
6	.039	.121	.094	-.032	.002	-.017	-.029	-.062	.027	.067	-.083
7	-.157	.023	.205	-.039	-.139	-.075	-.049	-.068	-.112	-.100	.192
8	.031	-.037	-.043	-.069	-.024	-.013	-.048	.071	.001	-.105	.060
9	-.178	-.054	.034	-.025	.130	.061	.027	.095	-.027	-.161	.078
10	-.014	-.144	.092	-.080	-.071	-.185	-.041	-.125	-.008	.004	.033
11	-.022	-.150	.072	-.104	-.083	-.164	-.027	-.152	.026	.061	-.020
12	-.016	-.131	.098	-.122	-.090	-.173	-.006	-.098	-.014	.012	.022
13	.012	-.127	.080	-.052	-.060	-.186	-.085	-.120	-.029	-.077	.090
14	-.056	.005	.004	-.058	.146	.004	-.032	-.011	.198	-.103	-.072
15	.059	.028	-.091	-.076	-.058	-.089	.050	-.115	.090	.053	-.043
16	-.021	.001	.021	.094	.116	.075	.042	.126	-.047	.046	-.041
17	-.025	-.140	-.113	-.060	.026	.031	.065	.041	.068	-.103	.028
18	.016	-.069	-.134	.007	-.089	-.002	.019	-.119	.093	-.028	.017
19	.018	.022	-.009	.043	-.059	.014	-.040	-.074	-.064	-.008	.108
20	.215	-.119	-.145	.081	-.067	.128	.133	-.019	.156	.036	-.125
21	.144	-.185	-.185	.105	.249	-.055	.241	.149	.057	-.033	-.062
22	-.098	.250	.159	-.227	-.036	-.139	-.192	-.034	.024	.072	-.074
23	.026	-.150	-.117	-.124	-.104	-.071	-.103	.004	.059	.016	-.057
24	.077	-.089	-.092	-.127	-.099	-.170	-.026	-.047	.021	.011	.005
25	.145	-.072	-.211	-.186	-.119	-.215	-.084	-.010	.006	-.004	.019
26	-.245	-.062	.059	-.080	-.190	.002	-.079	-.174	-.114	.097	.085

APPENDIX J (Continued)

VARIABLE	27	28	29	30	31	32	33	34	35	36	37	38	39
27	1.000	.515	-.066	-.075	-.050	-.134	-.231	-.103	-.083	-.111	.065	-.026	-.148
28		1.000	-.109	-.146	-.077	-.007	-.127	-.165	-.093	-.114	-.093	-.032	-.131
29			1.000	.571	.436	.033	-.131	-.055	-.063	.053	.016	-.065	.150
30				1.000	.552	.006	-.150	-.076	.095	.096	-.004	-.006	.046
31					1.000	.100	-.146	-.144	-.032	.084	-.033	-.065	.025
32						1.000	-.237	-.147	-.109	.095	-.081	-.353	-.083
33							1.000	.134	.002	-.178	-.032	.008	-.042
34								1.000	-.014	-.019	.010	-.075	-.211
35									1.000	.578	.401	-.211	-.225
36										1.000	.544	-.234	-.223
37											1.000	-.206	-.252
38												1.000	.322
39													1.000
40													
41													
42													
43													
44													
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APPENDIX J (Continued)

VARIABLE	40	41	42	43	44	45	46	47	48	49	50
27	-.208	-.066	-.088	-.216	-.062	-.063	-.044	-.007	-.014	.010	.018
28	-.185	-.017	-.093	-.239	-.003	-.015	-.151	.027	-.019	-.091	.085
29	.153	-.053	-.147	.005	-.090	.144	.055	-.051	.107	.055	-.107
30	.033	-.015	-.128	-.021	-.055	.050	.110	-.069	.028	.125	-.118
31	-.014	-.018	-.147	-.094	-.049	.097	.030	.042	-.008	.008	-.015
32	.064	-.329	.239	.045	-.403	-.203	.039	-.332	-.140	-.093	.363
33	.001	.609	.156	.376	.007	-.143	-.126	-.008	-.130	.153	.015
34	-.152	-.057	.124	.083	.077	.111	-.183	.089	.011	-.017	-.004
35	-.204	-.034	.137	-.075	-.096	.098	.009	-.034	-.047	-.017	.064
36	-.162	-.077	.003	-.203	-.090	-.032	-.079	-.030	-.080	-.102	.147
37	-.205	-.039	.035	-.139	-.080	.124	-.205	-.130	.027	.006	.036
38	.153	.095	-.100	-.021	.153	-.029	-.017	.033	-.109	.077	-.081
39	.363	.071	-.059	.093	-.018	-.086	.104	-.040	-.008	-.011	-.029
40	1.000	-.006	-.074	.017	.024	.004	.083	-.001	-.069	.073	-.021
41		1.000	-.025	.072	.042	-.153	-.060	.034	-.018	.148	-.088
42			1.000	.230	-.150	-.061	-.086	-.126	-.157	-.065	.230
43				1.000	.042	-.056	.036	.006	-.146	-.036	.138
44					1.000	.133	-.058	.703	.141	-.132	-.329
45						1.000	.083	.097	.345	.028	-.331
46							1.000	-.091	.159	.083	-.123
47								1.000	-.018	-.200	-.265
48									1.000	-.220	-.547
49										1.000	-.521
50											1.000