# INSTITUTE FOR RESEARCH IN LEARNING DISABILITIES

The University of Kansas
Lawrence, Kansas, 66045

*Emphasis on Adolescents and Young Adults*

STRUCTURAL LINKAGES, EXPECTANCY CLIMATE,

AND SCHOOL EFFECTIVENESS

Cecil Miskel

Director:             Donald D. Deshler

Research Coordinator:   Jean B. Schumaker

Institute for Research in Learning Disabilities
The University of Kansas
313 Carruth-O'Leary Hall
Lawrence, Kansas 66045

## Cooperating Agencies

Were it not for the cooperation of many agencies in the public and private sector, the research efforts of The University of Kansas Institute for Research in Learning Disabilities could not be conducted. The Institute has maintained an on-going dialogue with participating school districts and agencies to give focus to the research questions and issues that we address as an Institute. We see this dialogue as a means of reducing the gap between research and practice. This communication also allows us to design procedures that: (a) protect the LD adolescent or young adult, (b) disrupt the on-going program as little as possible, and (c) provide appropriate research data.

The majority of our research to this time has been conducted in school settings in both Kansas and Missouri. School districts in Kansas which have participated or currently are participating in various studies include: Unified School District (USD) 437 Auburn-Washburn; USD 384, Blue Valley; USD 204, Bonner Springs; USD 308, Hutchinson; USD 500, Kansas City; USD 469, Lansing; USD 497, Lawrence; USD 453, Leavenworth; USD 480, Liberal; USD 233, Olathe; USD 290, Ottawa; USD 305, Salina; USD 450, Shawnee Heights; USD 512, Shawnee Mission; USD 464, Tonganoxie; USD 202, Turner; and USD 501, Topeka. Interlocal agencies in Kansas which have participated include: the Central Kansas Cooperative in Education, Salina; the East Central Kansas Special Education Cooperative, Paola; and the South Central Kansas Special Education Cooperative, Pratt. Parochial schools involved in our studies include: Bishop Miege High School, Shawnee Mission; Bishop Ward High School, Kansas City, Kansas; and O'Hara High School, Kansas City, Missouri. The Kansas State Department of Education also has been helpful in our research efforts.

Studies are also being conducted in several school districts in Missouri, including Center School District, Kansas City; the New School for Human Education, Kansas City; the Kansas City, Missouri School District; the Lee's Summit School District; the Raytown School District; and the School District of St. Joseph. In addition, school districts in Beaverton, Oregon; Delta County, Colorado; Elkhart, Indiana; Houston, Texas; Jonesboro, Arkansas; Montrose County, Colorado; Omaha, Nebraska; and Ottumwa, Iowa, have also participated in our studies. The Iowa Department of Public Instruction also has been helpful in our research effort.

Agencies currently participating in research in the juvenile justice system are the Overland Park, Kansas Youth Diversion Project; the Douglas, Johnson, Leavenworth, and Sedgwick County, Kansas Juvenile Courts; and the judicial district serving the Pittsburgh-Parsons, Kansas area. Other agencies which have participated in out-of-school studies are: Penn House and Achievement Place of Lawrence, Kansas; Kansas State Industrial Reformatory, Hutchinson, Kansas; the U. S. Military; and Job Corps. Numerous employers in the public and private sector have also aided us with studies in employment.

While the agencies mentioned above allowed us to contact individuals and supported our efforts, the cooperation of those individuals--LD adolescents and young adults; parents; professionals in education, the criminal justice system, the business community, and the military--have provided the valuable data for our research. Our sincere appreciation is expressed to all those who have contributed information to our research effort. This information will assist us in our research endeavors that have the potential of yielding greatest payoff for interventions with the LD adolescent and young adult.

# Abstract

The purpose of the investigation was to determine the effects of structural linkages and expectancy climate on four indicators of school effectiveness and to assess the stability and patterns of relationships during a school year. Samples of teachers and students from 89 elementary and secondary schools participated in the study. Data were collected early in the fall semester and late in the spring semester. As a group, the structural linkage variables were consistent predictors of the criterion variables, especially later in the school year. The findings for the structural linkages are supportive of Mintzberg's (1979) conception of professional bureaucracies. Moreover, the use of expectancy climate offers significant potential for understanding the self-fulfilling prophecy in schools.

STRUCTURAL LINKAGES, EXPECTANCY CLIMATE, AND

SCHOOL EFFECTIVENESS

## Introduction

Effectiveness levels of existing and proposed programs for students with special needs and, indeed, all students depend on both expectations and linkages of teachers and administrators. Work interdependence and communication as structural linkages as well as expectancy climate define mechanisms and norms in schools that guide individual interactions. As educators formulate and implement individualized educational plans (IEP's), high levels of cooperation and effort are required. Yet, the concepts of linkage, expectation, and effectiveness are subject to theoretical and empirical controversies.

A traditional view of school organization holds that a multitiered structure is necessary to communicate accurately, to monitor actions and outcomes, and, when necessary, to order corrective actions (Ouchi, 1978). In contrast, an emergent view rejects the notion that schools are tightly linked bureaucracies. It accepts the proposition that schools lack close internal coordination and that the content and methods of instruction tend to be loosely linked to the control and influence of both the bureaucratic and collegial aspects of schools (Meyer & Rowan, 1978).

Similarly, expectancy as a determinant of educational outcomes was popularized with the publication of Pygmalion in the Classroom by Rosenthal and Jacobson (1968). Their work has been criticized severely for a variety of methodological shortcomings (Braun, 1976). Nevertheless, their findings spurred high levels of research activity that established the existence of expectancy effects (Cooper, 1979). A conventional explanation of how expectancy effects operate in schools has been that teachers hold low expectations of minority groups, disadvantaged,

or learning disabled youngsters. Students then sense the negative judgments and are not motivated to excel or to exert themselves. Ultimately, then, the teachers' expectations are confirmed. The basic idea has intuitive appeal, but it fails to explain how the prophecies are generated, how they are communicated to students and peers, or how they are maintained. The use of cognitive approaches to expectancy motivation offers an improved understanding of the self-fulfilling prophecy.

Another neglected and controversial area of study with important implications for educators is the organizational effectiveness of schools. Too often school effectiveness is defined narrowly as scores on standardized tests. To some extent the narrowness can be explained by accessibility of test scores to researchers and by political interest in reading and mathematical skills for compensatory programs started in the mid-1960s (Madaus, Airasian, & Kellaghan, 1980). Organizational effectiveness of schools, however, represents a much broader concept that involves the ultimate survivability of schools. Consequently, if we do not address the broader question, schools may die.

Integrating contextual concepts of structural linkages and an expectancy factor with theoretically-based ideas of organizational effectiveness and testing posited relationships could produce significant insights for practitioners and scholars. Therefore, two purposes guided the investigation: (a) to determine the effects of structural linkages and expectancy climate on four indicators of school effectiveness and (b) to assess the stability of the patterns and magnitudes of relationships during a school year.

Conceptual Perspective for Organizational Effectiveness

Four concepts were used as indicators of organizational effectiveness of schools: perceived adaptibility, perceived goal achievement, teacher job satisfaction, and student attitudes toward school. As recommended by Hall and Fukami

2

(1979), selection of these four criteria was based on four critical functions that Parsons (1960) postulated as necessary for survival of a social system--adaption, goal attainment, integration, and latency.

Adaptation involves the system's need to control its environment. Schools accommodate themselves to the changing demands, opportunities, and constraints of their environment. They attempt to transform the external situation and change their internal programs to meet new conditions, such as demands for programs to assist children with special needs. Goal achievement is the attainment of system goals. The system defines its objectives and mobilizes its resources to achieve these desired ends. Typical indicators of goal gratification for educational organizations are academic achievement, productivity, efficiency, and the quality of students and services. Integration refers to a social solidarity within the system. It is the process of organizing, coordinating, and unifying social relations into a single structure. Among the primary social concerns of the school are employee job satisfaction and morale. Finally, latency is the maintenance of the value system and a sense of identity with the organization. Components of latency include the attitudes of students and teachers toward school.

Conceptual Perspective for Structural Linkages

The change in perspective from schools as tightly linked to structurally loose (Bidwell, 1965) organizations suggests that some functions are less interdependent than traditional bureaucratic theory would predict. Linkages among teachers and between administrative and instructional activities not only are few in number, but have limited influence on classroom behavior.

Mintzberg (1979) explained the linkage concept relative to organizations by identifying organizations as composed of five parts: strategic apex (i.e., superintendent), support staff (i.e., business affairs, public information),

3

technostructure (i.e., specialists who serve the school by affecting the work of others), middle line (i.e., principals), and operating core (i.e., teachers). As professional bureaucracies, all five parts are present in school systems, but the technostructure, middle line, and operating core are most directly involved in instructional processes.

Although analysts in the technostructure are removed from the primary work flow, they may design, plan, and change instructional processes or train people who do (Mintzberg, 1979). These specialists are concerned with adaptation to meet environmental changes and standardization to reduce the need for direct supervision. In schools, the professionals in the technostructure provide a variety of services, such as curriculum supervision and special education activities, that aid teachers to perform their tasks. During the past few years, the number of special education professionals has increased dramatically. Their primary role is to help teachers meet the changing demands for services to children with various disabilities and to standardize responses to similar needs.

The middle line of schools has authority over the operating core and embodies the coordinating mechanism of direct supervision. Among the many tasks that middle-line administrators perform are the development of liaison contacts and communication of information within their schools. However, the most time-consuming roles involve negotiating and handling disturbances. For principals, this includes working with teachers to resolve issues of student discipline.

The operating core of schools consists of teachers who perform the basic work of educating students. As professional bureaucracies, schools depend more upon standardizing instructional skills for coordination than direct supervision by the middle line. School districts assume that teacher training pro-

grams and state certification standards produce teachers with adequate teaching competencies. Once in classrooms, teachers make most of the instructional decisions, and little supervision is required.

With a high degree of independence, linkages may be limited and have little impact on work processes in schools. Thompson (1967) described this as pooled interdependence. There is little need for linkages among organizational members because each part makes a discrete contribution to the whole; each is supported by the other. In schools characterized by pooled interdependence, teachers share facilities, equipment, and budget, but they work alone with students.

Work dependencies for teaching and planning typically occur on an informal and low-frequency basis. Teachers occasionally share ideas and teaching techniques. Informal linkages are fluid. However, Bridges and Hallinan (1978) maintained that work system interdependence is present in schools where a high frequency of teacher interaction is present. They found that work system interdependence, communication, and group cohesion among teachers were all significantly related to each other. Interactions among teachers, administrators, and technical specialists occur to coordinate work activities and to satisfy human social needs. Team or group activities, such as cooperative planning and communication, reduce the structural looseness in a school's operating core.

Some organizational configurations and group practices do promote structural linkages. Newer teaching methods in open-space schools tend to move teachers into collaborative arrangements and away from the traditional arrangement of isolation in classrooms (Cohen, Meyer, Scott, & Deal, 1979). In addition, teachers, other personnel within and across subject areas, and specialists in the technostructure may assume shared responsibility for accomplishing a set of objectives. They collaborate--that is, educators communicate and plan inter-

5

dependent sequences of classroom or other activities. These assertions are attenuated by Bredo's (1977) conclusion that even among teachers on teams, interdependent activities are relatively infrequent and of limited influence.

In sum, structural linkages bind the parts of a school organization together to some extent. Important indicators of structural linkages in schools include: for the operating core, work system interdependence among teachers and communication among teachers; for the operating core and middle-line administrators, communication between the principal(s) and teachers and discipline procedures; and for the operating core and the technostructure, communication of teachers with LD specialists and work system interdependence of teachers and LD specialists. Finally, isolation, or the number of hours teachers spend in school working independently of other adults, indicates a lack of structural linkages within the operating core and with other parts of the system.

## Conceptual Perspectives for Expectancy Climate

School climate includes many variables that are broadly conceived of as norms and expectations for various members. These factors are perceived by group members and communicated to each other to shape behavior (Hellriegel & Slocum, 1974). Expectancy has long been incorporated into cognitive approaches to motivation and can explain the emergence of both teacher and student behavior. Vroom (1964) made the first explicit formulation of expectancy theory applied to organizational behavior. Although variations of the model exist, most conceptualizations employ the concepts of expectancy, valence, and instrumentality.

Expectancy refers to the subjective probability between behavior and performance levels. Expectancy is high if an educator believes that high effort will yield outcomes, such as high student achievement and positive attitudes. Valence refers to the attractiveness or desirability of a reward for an individual. Rewards that have high valences are goals the individual seeks actively

6

or strongly desires. Academic achievement and positive attitudes of students hold high valences for most teachers. Instrumentality refers to the perceived probability that a reward with a valence will be forthcoming, after a given level of performance. If teachers think that high student achievement and positive attitudes in their classrooms are likely to result in being rewarded, instrumentality is high. The basic postulate of expectancy motivation theory is that force of motivation is the product of expectancy, valence, and instrumentality.

Explaining the self-fulfilling prophecy with expectancy motivation theory uses the following logic. Teachers perceive the probabilities of either expectancy or instrumentality as varying with different groups of students. In other words, teachers with high forces of motivation may initiate new techniques, organizational configurations, and curricula based on the expectation that high effort levels and new technologies will improve student performance and attitudes. If the outcomes are positive and the teachers are rewarded, high effort levels should continue. However, if either the outcomes or rewards vary by student groups, effort levels will decline or become more focused. For instance, students with learning disabilities may not perform as well as expected, even when high teacher effort is made. The result is a loss of motivational force by teachers toward this group of children. Depending upon the characteristics of the student groups, teachers also may be rewarded differentially. Parents of higher social status may provide greater recognition of the teachers' efforts and, thus, increase the instrumentality for the teachers who work harder with their children than with those from a lower social status. Therefore, expectancy motivation theory explains the self-fulfilling prophecy by resource denial (Wilkins, 1976) and resource supplements.

7

In sum, expectancy motivation of teachers defines a force to behave for individuals. Aggregating expectancy motivation of the individuals to the school level defines a normative mechanism to guide behavior in social situations. Specifically, teacher expectations about intrinsic rewards and student learning and behavior are postulated to be important factors in determining how teachers and students behave and the effectiveness levels of schools.

## Posited Relationships

Evidence exists to support the general proposition that independent variables of structural linkages and expectancy climate are systematically related to indicators of organizational effectiveness of schools. Extrapolating the current knowledge to the present study allows for the development of theoretical rationales and hypotheses for the variables.

Adaptability. Of all the criteria for organizational effectiveness, Steers (1977) found that adaptability and the closely related concepts of flexibility and innovation are used most frequently by researchers as effectiveness measures. Generally, adaptability ties the capacity of organizations to modify their operating procedures with internal and external forces that induce change. In schools, adaptiveness can be defined as the abilities of professional educators to initiate new policies and practices to meet emergent demands.

Innovation represents a major problem for professional bureaucracies such as schools, because major innovation requires efforts to cooperate and communicate across disciplines within the operating core and across other parts of the schools (Mintzberg, 1979). Therefore, schools that exhibit high levels of adaptability must also have employees who exert high effort levels. Teachers who believe that they can effect changes in schools and receive rewards for innovations are likely to attempt modifications. Conversely, efforts will not be made unless there is an expectation that some rewards will be forthcoming.

8

Similarly, Pierce and Delbecq (1977) proposed that intrinsic motivation relates positively to organizational innovation or adaptability. They believe that employees will choose to be innovative in situations where job involvement and intrinsic work factors are high. Moreover, employee commitment was positively related to organizational adaptability (Angle & Perry, 1981).

Miskel's findings (1977) indicated that schools described as using administrative planning, research and evaluation procedures; having free and open communication; and making decisions participatively also initiated or maintained a high level of innovativeness. Moreover, effective communication is particularly important for the effective functioning of organizations that face changing environments (Steers, 1977). Similarly, Baldridge and Burnham (1975) found that communication linkages in schools were positively related to adoption of innovations. This rationale provides conceptual and empirical evidence to support the following hypothesis.

Hypothesis 1: Structural linkages and expectancy climate will be significant predictors of the perceived adaptability of schools.

Perceived goal achievement. Educators produce a number of products and services that represent goal attainments. For example, student learning, instruction, new curricula, athletic achievements, art and music programs, and teacher-parent meetings are produced in schools. Hence, the effectiveness levels of schools vary not only in quantity and quality of their products and services, but also in the efficiency of production. Mott (1972) concluded that employees' perceptions accurately portray levels of organizational goal attainment.

Using concepts closely related to structural linkages and expectancy climate, Mott concluded that organizations are perceived as effective if communication and coordination are solved promptly and well and if normative clarity is main-

9

tained. The findings of O'Reilly and Roberts (1977) that accuracy and openness of communication were related to perceived organizational effectiveness also support Mott's conclusion. Similarly, formalization, specialization among educators, and climates characterized by open communication, participation, and high motivation were conducive to teachers perceiving the school as effective (Miskel, Fevurly, & Stewart, 1979). Moreover, numerous studies have found significant positive relationships between organizational climate and a number of indicators of effectiveness (Hellriegel & Slocum, 1974). Based on this evidence, the following hypothesis was drawn.

Hypothesis 2: Structural linkages and expectancy climate will be significant predictors of the perceived goal achievement of schools.

Job satisfaction. As an affective state that results when educators evaluate their work roles, job satisfaction represents a key indicator of integration. Work system interdependence is positively related to group cohesion and negatively related to teacher absenteeism (Bridges & Hallinan, 1978). Greater participation in planning and decision making, especially concerning instructional methods, yields enhanced teacher job satisfaction (Belasco & Alutto, 1972; Mohrman, Cooke, & Mohrman, 1978). Both the downward and lateral directionality of communication are significantly correlated with job satisfaction, with the downward direction being positively related to and the lateral direction being negatively related to job satisfaction (Muchinsky, 1977). Employees who are dissatisfied with their jobs may restrict their communication primarily to co-workers. In contrast, the findings of Forsyth and Hoy (1978) revealed that educators isolated from friends and co-workers exhibited high levels of alienation.

Expectancy motivation is logically connected to job satisfaction. The anticipation of producing outcomes, such as achievement or personal rewards on

10

the job, positively affects employee satisfaction (Vroom, 1964). A number of studies have found a strong positive relationship between individual expectancy motivation and job satisfaction (Mitchell, 1974). Teachers with a high force of motivation also have indicated a high level of job satisfaction (Miskel, DeFrain, & Wilcox, 1980). In addition, job satisfaction often varies according to the individual's perception of organizational climate (Hellriegel & Slocum, 1974). As a climate concept, similar relationships should hold between expectancy motivation and job satisfaction. Therefore, the literature supports the statement of the following hypothesis.

Hypothesis 3: Structural linkages and expectancy climate will be significant predictors of teacher job satisfaction.

Student attitudes. How students describe the learning environment represents the school's effectiveness in meeting the latency needs of social systems. Grandjean and Vaughn (1981) demonstrated that several factors explained variations in students' attitudes toward schools. Positive views tend to be held by students who take classes in the noncollege track, are socially active, receive high grades, or feel that students have appropriate influence on school policies. The investigators speculated that mechanisms explaining the differences could be social-psychological, structural, or both. It seems reasonable to expect that these factors would include teacher linkages within school that could facilitate student activity and participation. Teachers who plan and communicate more frequently with other educators should be able to offer students more opportunities to excel than less interactive teachers.

Student attitudes toward school also should be closely tied to the expectancy climate created by teachers. Brookover, Schweitzer, Schneider, and Wisenbaker (1970) demonstrated that teacher expectations, as a climate variable, clearly affect academic achievement. An explanation for the relationship is

11

that teacher expectations about student success play an important role in how teachers reinforce student behavior. For example, studies of learned helplessness suggest that many students learn over a series of trials that they cannot control the outcomes of educational events and the processes that dispense rewards. Therefore, they start to believe that success is unlikely (Thomas, 1979). Repeated exposure to failure causes students to be deficient in activities they could once accomplish. The students fail continually, receive few positive rewards, and their attitudes become increasingly negative. Teachers often react to this failure by expecting more failure. That is, expectancy levels or the effort-performance probabilities approach zero. The students have little chance to improve, especially when teachers reward the higher-achieving students with more attention. In turn, teachers receive from the higher-achieving students more rewards than from the lower-achieving students. Both teachers and students have modified their instrumentality levels and thus their forces of motivation. The result should be an impact of expectancy climate on student attitudes toward school. Therefore, support exists for the following statement.

Hypothesis 4: Structural linkages and expectancy climate will be significant predictors of student attitudes toward school.

## Method

### Sampling

The sample for the study included 89 public elementary and secondary schools. Although procedures were not used to insure a random sample, care was taken to select urban, suburban, and rural schools from diverse geographic areas of a midwestern state. Schools from the largest districts were included as well as schools from districts with less than 500 students. Of the 92 schools selected, 89 (97%) agreed to participate in the study.

While the unit of analysis was the school, most of the data were collected from teachers and students. Within each school, three groups of teachers were chosen from faculty rosters using a table of random numbers. When the school was large enough, eight teachers were chosen for each group or a total of 24 teachers. If a school had less than 24 teachers, the number for each group was reduced proportionately and all of the teachers were asked to participate. A total of 1,988 teachers were included in the sample. Using an original and two followup mailings, 1,697 (85%) teachers returned the measures in the fall of 1980. In the spring of 1981, the 1,697 teachers that had participated in the fall were sent the same measure they had completed earlier. A total of 41 teachers were no longer in the schools. Of the 1,658 that remained, 1,442 (87%) returned the instruments. The overall participation level was 73% of the initial sample.

Ten students from each school or 890 students were asked to complete a student attitude measure. Personnel within each school selected the students. In secondary schools, language arts teachers made the selections. In elementary schools, a fifth-grade teacher selected the students. The teachers were requested to distribute the measures to a randomly-selected group of students in a class of their choice. A total of 880 (99%) students participated in each round.

Instrumentation for the Dependent Variables

Adaptation. Perceived adaptability of schools was assessed with a perceptual measure using five items from Mott's (1972) questionnaire. Miskel et al. (1979) modified the items for school settings. Example items were: "People in this school do a good job anticipating problems"; "What proportion of the people in your school readily accept and adjust to the changes?" Each item had a five-category extent scale that was scored from 1 to 5. The possible

13

range of total scores was 5 (low adaptability) to 25 (high adaptability). As estimates of reliability (internal consistency), the alpha coefficients were .80 for the first sample set and .86 for the second.

Perceived goal achievement. Three items adapted from Mott's instrument by Miskel et al. were employed to measure perceived goal achievement. This self-report questionnaire asked teachers to specify their perceptions of the quantity of products and services, the quality of products and services, and how efficiently the resouces were used. Each item had a five-category extent scale that was scored from 1 to 5. The possible range of total scores was 3 (low goal achievement) to 15 (high goal achievement). The alpha coefficients as estimates of internal consistency were .77 for the first data set and .85 for the second.

Job satisfaction. A seven-item measure was used to operationalize this concept (Hoy & Miskel, 1982). The scale indirectly probed various indicators of job satisfaction. Example items were: "I often think of changing jobs"; "Most other educators are more satisfied with their jobs than I am." The teachers responded using a set of five categories from strongly disagree to strongly agree. The categories were assigned values of 1 to 5, and the possible range of total scores was from 7 (dissatified) to 35 (satisfied). The alpha coefficient was .81 (Miskel, Bloom, & McDonald, 1982). For the current samples, the alphas equaled .80 and .86, respectively. The measure has high face validity.

Student attitudes. The perceptions of the school by students were assessed with a measure composed of nine descriptive items. Example items were: "Teachers in this school are friendly"; "Teachers in this school are helpful"; "Learning is enjoyable"; "When I have a problem, teachers in this school listen to me"; "My teachers want me to do a good job in my school work";

14

"Students in this school are cooperative"; "The principal in this school is friendly"; and "I like school." The students responded using a set of five categories from strongly disagree to strongly agree. The categories were assigned values of 1 to 5, and the potential range of total scores was from 9 (negative) to 45 (positive). The alpha coefficents were .77 for the responses in round one and .79 in round two.

Instrumentation for the Independent Variables

Structural linkages. Seven short instruments were used to measure structural linkages (Miskel et al., 1982). The first instrument used for measuring linkages within the operating core is called the Intensity of Work System Interdependence Among Teachers Scale. This scale, developed by Bridges and Hallinan (1978), defines intensity of work system interdependence as the sum of scores for 13 different activities of the staffing pattern inventory. The items deal with interdependencies among teachers in the instructional process. The measure lists 13 activities, such as lesson preparation and use of instructional materials, and asks how frequently teachers jointly work together on these items. The response categories ranged from 0 to 5 or more times per month and were scored 0 to 5. The frequencies were summed to produce a possible range of 0-65, with a higher score indicating greater interdependence. The developers reported an alpha coefficient as an estimate of reliability of .95 and presented positive indicators of validity. Miskel et al. (1982) found an alpha coefficient of .91 and a test-retest coefficient after four weeks of .74. Alpha coefficients for the current samples were .92 and .90. In addition, evidence was strong for construct, convergent, and predictive validity (Miskel et al., 1982).

Ten items from the Intensity of Work System Interdependence Among Teachers Scale were adapted to form a measure called the Intensity of Work System Inter-

15

dependence Between Teachers and LD Specialists Scale (Miskel et al., 1982). The new measure was designed to assess linkages between the operating core and the technostructure. The directions for the original measure were rewritten as follows: "How often on the average do you _jointly_ engage in each of the following activities with a learning disabilities specialist?" Example items were: select instructional materials; select topics to be taught. The 10 activities were listed, and the teachers responded by writing a number from 0 to 5+ times per month. The responses were added to produce a score that could range from a low of 0 to a high of 50. The alpha coefficient was .93 for both data sets. The validity of the measure for cooperative or joint planning between the operating core and technostructure was supported by the strong indicators of validity for the original instrument.

Linkages were also measured by three versions of a communication measure refined by Bridges and Hallinan (1978) and pilot tested by Miskel et al., (1982). For each of seven topics (five task-relevant and two task-irrelevant), teachers checked the frequency with which they talk with other teachers: daily, several days a week, once a week, once or twice a month, once or twice a semester, and never. The weights assigned to these six frequency categories approximate the absolute magnitude of differences among the categories: daily (5.0), several days a week (2.5), once a week (1.0), once or twice a month (.5), once or twice a semester (.25), and never (0). The communication score is determined by summing the weights of the seven items. The theoretical range of total scores across the seven items was 0 (low) to 35 (high communication frequency). An alpha coefficient of .88 was reported by Bridges and Hallinan (1978). In addition to the original scale, two other measures were formed by rewriting the directions to ask for the frequency with which teachers talk with the principal and with a learning disabilities specialist. Therefore, three measures of

16

linkages through communication were: (a) teachers with teachers, (b) teachers with principal(s), and (c) regular classroom teachers with learning disabilities specialists. The measures assessed the linkages within the operating core, between the operating core and the middle line, and between the operating core and the technostructure, respectively. In a pilot study, the estimates of reliability for the first two measures (alpha coefficients) were .79 and .87, respectively. The test-retest coefficients after four weeks were .73 and .55. In the present samples, the alphas ranged from .80 to .83. Moreover, the findings indicated construct, concurrent, and predictive validity for the two measures (Miskel et al., 1982). The communication measure for learning disabilities specialists had alpha coefficients for the current samples of .91 and .97.

The sixth linkage measure, discipline procedures, asked the teachers to describe the student control processes used in the school. Six items determined the level of linkage between the teachers in the operating core and the principal in the middle line for managing student behavior. An example item was: Teachers consult with the principal or assistant principal(s) about student discipline and control. Five extent categories (always, frequently, often, occasionally, never) were used for each item and were scaled from 4 to 0 with a possible range of scores from 0 (low linkages) to 24 (high linkages). The alpha coefficients were .86 for the first set of responses and .87 for the second.

The final structural linkage measure was a single item for teacher isolation: "Of the total hours that you spend in school each week, how many hours do you work in isolation of other teachers?" In contrast to the other more specific measures of structural linkages, this one indicates the general level of linkages for the operating core.

17

Expectancy climate. Using the outcomes identified as desirable from interviews with teachers, instruments were developed to measure expectancy, valence, and instrumentality. The expectancy measure was comprised of three items that asked about the relationship between effort expenditure and success (Miskel et al., 1982). A sample item was, "High expenditure of effort equals high performance." The five categories of response ranged from never to almost always. The categories were assigned values of 1 to 5. The alpha coefficient was .75. The item content was identical in the valence and instrumentality scales, but the items were presented as importance and probability statements, respectively. Eight items were used for each. Four of the items involved students (i.e., keeping student frustration at a low level), and four dealt with intrinsic aspects of the job (i.e., the chance to learn new things). The alpha coefficients were .79 for valence and .83 for instrumentality, while the test-retest coefficients were .41 and .44, respectively (Miskel et al., 1982). In the present samples, the alpha coefficients were .76 and .77 for valence, and .83 and .86 for instrumentality for the first and second response sets, respectively. To calculate the force of motivation, the expectancy score was multiplied by the sum of the crossproducts for the instrumentality and valence items. The potential range of scores was from a low of 24 to a high of 3,000.

Demographic variables. To control for potential indigenous contextual effects, five demographic variables were included. Educational level of the teachers was scaled 1, 2 or 3 for a bachelor's, master's, or doctoral degree, respectively. The experience levels of the teachers was measured by the number of years the teacher had worked in the present position. Sex or the female-male composition of staff was determined by scaling female as a 1 and male as a 2. The level of the school was scaled 1 to 4 for elementary, middle, junior high, and senior high, respectively. Size of the school was defined as the number of students enrolled in the school.

## Data Collection Procedures

To reduce the probability of a response set across different perceptual instruments, the first group of teachers responded to six of the seven measures of structural linkages and the second group to the scales comprising expectancy climate. The third group responded to an indicator of structural linkages (work system interdependence of teachers with learning disabilities specialists) and the criterion variables of job satisfaction, perceived adaptability, and perceived organizational effectiveness. Demographic data for education, experience, and gender were provided by each teacher respondent. Level and size of school were taken from existing records.

Since the school was the unit of analysis, data were aggregated by averaging the teacher and student responses within each school. This produced scores for 17 variables for each school: 7 structural linkages, 1 expectancy climate, 5 demographic, and 4 dependent.

The data were collected through mail survey procedures. In most cases, employees within the districts coordinated data collection efforts. They used the district mail system for sending and returning the measures to the research assistant in the district. In a few instances, the federal mail system was used, and the measures were returned directly to the principal investigator.

## Results

The four hypotheses were tested using a multiple stepwise regression analysis procedure. The findings from the descriptive statistics and correlation coefficients are discussed first, followed by the results of the formal tests of the four hypotheses.

## Means and Standard Deviations

The means and standard deviations for the 17 variables from both data collections are given in Table 1. In most cases, six structural linkages vari-

19

ables exhibit scores that indicate low levels of interdependence and communication. For example, the scores for work system interdependence among teachers have means of 20.08 and 17.53 for the first and second data collections, respectively. The means are even lower for the work system interdependence between teachers and learning disabilities specialists. The means of 6.92 and 6.71 indicate that cooperative planning for each item of the work system interdependence between teachers and LD specialists items averages less than once a semester. However, the standard deviations are quite large and suggest a wide variation among schools. The averages for the three communication scales also show dramatic differences from each other. The means range from a low of 3.17 for communication of regular classroom teachers with learning disabilities specialists in the spring semester to a high of 11.27 for communication among classroom teachers in the fall semester. In other words, teachers reported that they communicate on each item with other teachers several times a week, with the principal about once a month, and with learning disabilities specialists about once a month. In contrast, the scale measuring discipline procedures for student control has means of 15.38 for the first data set and 13.86 for the second. Teachers believe that discipline procedures for student control are often monitored by teachers and administrators. The seventh indicator of structural linkage reveals that teachers spend 26 hours out of a total of 42 hours in school each week in isolation from other teachers.

As a group the change in means from the fall to the spring suggests that strength of the linkages tends to decrease somewhat as the school year progresses. With the exception of discipline procedures, these descriptive statistics imply relatively loose linkages among the components of the school organization. The strongest linkages appear within the operating core. Communication and cooperative planning are highest among the regular teachers. The linkages

20

between the operating core and the middle line vary according to the topic. Evidently, the linkages for teachers and principals are relatively strong for issues involving student discipline but somewhat weak for communication about instruction and for social discourse. The low mean values of variables connecting the operating core to the technostructure suggest that these parts are weakly linked.

The means for expectancy climate are 1,617.98 in the fall and 1,537.24 in the spring. These means are comparable in magnitude to those found for a similar sample of educators by Miskel et al. (1980).

Since the same individuals and schools participated in the first and second data collections, the items for the demographic factors are the same for both data sets. The schools can be described as follows: teachers primarily held bachelor's and master's degrees ($\underline{M}$ = 1.46) and averaged 6 to 7 years experience ($\underline{M}$ = 6.58 years); the teaching staffs were composed of more females than males ($\underline{M}$ = 1.34); a similar number of elementary and secondary schools comprised the sample ($\underline{M}$ = 2.58); and the average size of school was about 606 students.

Perceived adaptability of the schools had means in the fall of 17.87 and in the spring of 17.31. Teachers view their schools as being relatively adaptive. Perceived goal achievement had means of 11.41 and 11.24 in the fall and spring, respectively. Teachers view their schools as efficiently producing moderate to high quantities of fair to good quality outcomes. Teachers describe themselves as being neutral to satisfied with their jobs, with means of 23.96 (fall) and 23.44 (spring). Student attitudes toward the school were positive, with greater variation in the responses for the data set collected in the spring semester ($\underline{M}$ = 34.23, $\underline{sd}$ = 2.45) than in the fall semester ($\underline{M}$ = 32.72, $\underline{sd}$ = 5.63).

21

## Correlation Coefficients

To determine the relationship between each pair of variables, simple correlation coefficients were calculated. The correlation matrices for the 17 variables in both data sets are shown in Table 2. The upper portion of the table contains the coefficients for the data collected in the fall semester, and the lower portion reports the coefficients for the data collected in the spring semester. For one-tailed tests of significance, the critical values of $r$ with 87 degrees of freedom are .17 and .24 at the .05 and .01 probability levels, respectively.

The 21 correlation coefficients between the seven structural linkage variables for each data collection show similar and supportive results. The variables tend to be correlated significantly among themselves. With the exception of the coefficient for work system interdependence among teachers (Variable 1) and communication among teachers (Variable 2) ($r$ = .68 for the first collection and $r$ = .63 for the second), the magnitudes are not large. The directions of the coefficients also are consistent with the measurement model. All tend to be positively correlated except for teacher isolation (Variable 7), which tends, as expected, to be related negatively to the other linkage variables.

Expectancy climate (Variable 8) correlates significantly with 7 of the other 16 variables in the first data set. Only 2 of the 7 correlations with the structural linkage variables (Variables 1-7) exhibit a significant relationship. However, in the second data set, it is significantly correlated with 10 other variables, including 5 of the 7 structural linkage variables.

The 10 correlation coefficients describing the relationships among the 5 demographic variables (Variables 9-13) are all significant and in the expected directions. For instance, more experienced teachers have attained higher levels of education; elementary school staffs have a larger proportion of women than

22

secondary school faculties; and secondary schools are larger than elementary schools.

Within the four effectiveness criteria, (Variables 14-17) significant positive coefficients characterize the relationships. Five of six in the fall and six of six in the spring are significant. The coefficients are also larger in the second data set. Therefore, schools judged effective on one dimension tend to be high on the others.

In general, the independent variables comprising structural linkages (Variables 1-7) and expectancy climate (Variable 8) are positively related to the effectiveness criteria (Variables 14-17). The statistically significant coefficients between the demographic and criterion variables are negative. Moreover, significant relationships between variables in each type of independent variable--structural linkages, expectancy climate, and demographic-- and one or more dependent variables are shown in Table 2.

Marked and interesting differences occur in the relationships between the independent and dependent variables for the first and second data collection sets. In particular, 25 of 28 (89%) coefficients describing the relationships between the structural linkage and effectiveness variables are significant for the spring data as compared to 14 of 28 (50%) for the fall data. For expectancy climate, all four in the fall and spring are significant. In the second data set, the magnitudes of the correlation coefficients for linkage and climate variables with the dependent variables are much larger than the first. In contrast, the number declines from 10 of 20 (50%) to 3 of 20 (15%) for the demographic and criterion variable relationships. Time of the year may have important implications for research and for administrators and will be discussed in detail later in this paper.

<u>Tests of the Hypotheses</u>

Multiple stepwise regression analysis was used to test the four hypotheses. Two regression equations--one for the fall data set and one for the spring data set--were calculated for each hypothesis. To determine the stability of the regression equations, results from the first and second data collections are compared and contrasted.

<u>Hypothesis One</u>. The findings from the statistical tests are summarized in Table 3 for the hypothesis that the structural linkage, expectancy climate, and demographic variables are significant predictors of perceived adaptability. The regression equation using the fall semester data set is significant ($\underline{F}$ = 9.3; $\underline{df}$ = 3,86, $\underline{p} < .01$), and the explained variance is 25%. Three variables are significant predictors. Level of school ($\underline{r}$ = -.36; beta = -.28) is negatively related to perceived adaptability. That is, elementary schools are thought by teachers to be more adaptable than secondary schools. The discipline procedures scale ($\underline{r}$ = .24; beta = .28) as an indicator of cooperative control of student behavior is a positive predictor of perceived adaptability. Finally, work system interdependence between teachers and learning disabilities specialists ($\underline{r}$ = .31; beta = .25) is also a positive predictor of perceived adaptability.

The regression equation for the spring semester data is significant ($\underline{F}$ = 18.2; $\underline{df}$ = 5,83; $\underline{p} < .01$), and the explained variance is 52%. Five variables form the equation. Expectancy climate ($\underline{r}$ = .48; beta = .26), work system interdependence of teachers and learning disabilities specialists ($\underline{r}$ = .43; beta = .41), discipline procedures ($\underline{r}$ = .43; beta = .25), teacher isolation ($\underline{r}$ = .23; beta = .29), and communication of the teachers with the principal ($\underline{r}$ = .29; beta = .28) are positive predictors of perceived adaptability. Schools with high expectancy climates, high levels of cooperation between teachers and LD

24

specialists, relatively tight linkages between the teachers and principal for student discipline, and yet where teachers work alone in their classrooms are believed by teachers to be highly adaptable.

Hypothesis One is partially supported by results from both data sets. Two variables, discipline procedures and work system interdependence between teachers and LD specialists, are significant predictors for both the fall and spring semesters. The level of explained variance was higher in spring (52%) than it was in the fall (25%). In the spring data set, it is interesting that three variables indicating a tendency toward tight linkages and one, isolation, suggesting looseness in the operating core are all positively related to perceived adaptability. Explanations for these findings could be that being interdependent and linked to a modest extent provide new ideas and expectations for change and that teachers working alone can be more flexible in their methods than when working in groups.

Hypothesis Two. The statistical tests for the prediction of perceived goal achievement are summarized in Table 4. For the data set collected during the fall semester, the regression equation is significant ($\underline{F}$ = 10.9; $\underline{df}$ = 4,84; $\underline{p}$ < .01), and the level of explained variance is 34%. Work system interdependence between teachers and LD specialists ($\underline{r}$ = .40; beta = .33), discipline procedures ($\underline{r}$ = .26; beta = .28), sex ($\underline{r}$ = -.31; beta = -.22), and expectancy climate ($\underline{r}$ = .33; beta = .21) are significant predictors of the dependent variable. Schools characterized by linkages to the technostructure and middle line, a larger proportion of female faculty, and positive expectancy climates are described by teachers early in the school year as being high on goal achievement.

For the data collected during the spring semester, the regression equation also is significant ($\underline{F}$ = 21.5; $\underline{df}$ = 5,83; $\underline{p}$ < .01), and 56% of the variance in

goal achievement is explained. Moreover, five variables comprise the equation: expectancy climate ($r$ = .55; beta = .32), discipline procedures ($r$ = .46; beta = .21), work system interdependence between teachers and LD specialists ($r$ = .38; beta = .26), teacher isolation ($r$ = .26; beta = .32), and work system interdependence among teachers ($r$ = .42; beta = .30). While work system interdependence between teachers and LD specialists, expectancy climate, and discipline proceduces entered the equations for both semesters, sex did not enter the regression equation for the second data set. But two other variables did become significant predictors. On the surface, two of the new predictors--work system interdependence among teachers and teacher isolation--may seem to form inconsistent relationships. The two variables are negatively correlated ($r$ = -.25; $p$ <.01) with each other. Yet both are positive predictors of perceived goal achievement. While isolation suggests that few opportunities exist to form linkages in the operating core, the other predictor indicates a tendency toward tighter linkages among teachers. An explanation lies in the use of time within the schools. Since time and energy are scarce resources, interdependent relationships must be carried out efficiently and with minimal time usage. This efficiency allows teachers to spend a large segment of their time working alone with students.

Hypothesis Two was partially supported by both data sets. The relationships were much stronger in the spring data set with more variables constituting the equation and a larger percentage of the variance in goal achievement being explained. In both instances, linkages to middle line and technostructure were positively related to perceived effectiveness.

Hypothesis Three. The statistical summaries for testing the hypothesis that the linkages and climate will be significant predictors of teacher job satisfaction are also given in Table 5. For the fall semester data, the regres-

26

sion equation is significant ($F$ = 5.6; $df$ = 1,87; $p < .05$).  With only one
independent variable comprising the equation, expectancy climate ($r$ = .25;
beta = .25), and the explained variance only 6%, support for the hypothesis is
minimal.

The regression equation for job satisfaction during the spring semester
shows much greater support for the hypothesis.  The equation is significant ($F$
= 12.6; $df$ = 3,85; $p < .01$), and 31% of the variance is explained.  In addition,
three linkages variables are positive predictors of teacher job satisfaction:
discipline procedures ($r$ = .36; beta = .24), teacher isolation ($r$ = .32; beta
= .40), and work system interdependence among teachers ($r$ = .30; beta = .30).
Schools in which teachers and principals act together to control student beha-
vior problems and in which teachers plan together exhibit high levels of job
satisfaction.  The three linkage predictors at first seem contradictory, and
in fact, isolation is negatively correlated with the other two.  However, all
three are positive correlates and predictors of teacher job satisfaction.
Schools in which teachers spend more time in isolation from other teachers and
yet are more interdependent with the middle-line administrator and with other
teachers in the operating core are more satisfied than teachers who are less
isolated and less interdependent.

While marginal support for Hypothesis Three appeared in the fall semester,
stronger support emerged in the spring.  A change in the type of variable com-
prising the equation is also evident.  In the fall expectancy climate is the
only predictor, but in the spring three variables are predictors.

Hypothesis Four.  The tests for Hypothesis Four that the variance in student
attitudes can be explained by the independent variables are shown in Table 6.
For the fall data set, the equation is significant ($F$ = 43.5; $df$ = 1,87; $p < .001$),
and the explained variance level is 33%.  Only one demographic variable, level

27

of school ($r$ = -.58; beta = -.58), entered the equation. Student attitudes of elementary students early in the year are more positive than those of secondary students.

For the spring semester, however, a different group of variables formed a significant regression equation ($F$ = 14.8; $df$ = 3,85; $p$ < .01) that explained 34% of the variance in the student attitudes variable. Expectancy climate ($r$ = .45; beta = .35) and the two structural linkage variables of teacher isolation ($r$ = .33; beta = .31) and discipline procedures ($r$ = .35; beta = .24) entered the equation. Toward the end of the school year, three variables relating directly to student and teacher interactions predicted student attitudes. Schools in which teachers have positive expectancies for students and work in isolation with them and in which teachers and principal cooperate in handling discipline procedures have students with more positive attitudes toward school.

Although the level of explained variance does not differ between the fall ($R^2$=.33) and the spring ($R^2$=.34) data sets, the type of variables entering the equation are different. Moreover, the results using the spring data provide insights into factors that affect the orientation of students--teacher expectations and time in the classroom and a linkage of the operating core to the middle line.

## Discussion

Structural linkages and expectancy climate were hypothesized to be significant predictors of four school effectiveness indicators representing the critical functions of social systems. Partial support was found for each hypothesis across both data collections, although the relationships tended to be stronger with the data collected later in the school year. The dependent variables for Hypothesis One, perceived adaptability, and Hypothesis Two, perceived goal achievement, were highly correlated. Therefore, it is not surprising

28

that the predictor variables were similar for perceived adaptability and perceived goal attainment of schools. The two variables that were the most consistent and strongest predictors of both criteria were discipline procedures and work system interdependence between teachers and LD specialists. These variables represent linkages with the middle line to maintain appropriate student behavior and with the technostructure to plan appropriate activities for students with learning disabilities. The relationships for Hypothesis Three, predicting job satisfaction, changed from the single predictor of expectancy climate in the fall to three indicators of structural linkage in the spring. Moreover, the amount of explained variances for Hypotheses One, Two, and Three increased dramatically from the fall to spring data sets. While the amount of explained variance did not increase across time for the equation testing Hypothesis Four, the type and variables predicting student attitudes did change. In the fall, only the level of school as a demographic variable entered the regression equation. In contrast, a combination of two structural linkage and expectancy climate variables were significant predictors of the student attitudes during the spring.

Four of the independent variables entered four or more of the eight regression equations. The linkage variable of discipline procedures was a significant predictor for six analyses--for two hypotheses in the fall data set and for all four in the spring data set. Two other linkage variables--work system interdependence with LD specialists and teacher isolation--entered four equations. In the case of teacher isolation, all four were for the spring data. As the year progresses, teachers and students evidently equate time in classroom with positive school outcomes. Expectancy climate entered five of the eight equations. A combination of variable types comprised five of the eight regression equations. Both linkage and expectancy climate variables composed the equations

29

for the tests of Hypotheses One, Two, and Four for the spring data set. In sum, substantial support was found for the general proposition that structural linkages and expectancy climate are significant predictors of school effectiveness.

## Demographic Variables

The five demographic variables exhibited few significant relationships with the criterion variables, expecially in the spring data set. While 10 of the 20 correlation coefficients between the demographic and dependent variables were significant in the first data set, only three entered the regression equations. The regression equations for the fall data set revealed that elementary schools were perceived as being more adaptable and having more positive student attitudes than secondary schools. Schools with a larger proportion of female teachers were perceived as having higher levels of goal achievement than schools with a larger percentage of male teachers. In the spring data set, only 3 of the 20 correlation coefficients were significant, and no demographic variable entered the regression equations testing the four hypotheses. Three of the five demographic variables--education, experience level of teachers, and size of school--did not enter a single regression equation for either data set. In the present study, the demographic variables were relatively weak predictors of the effectiveness criteria.

## Structural Linkages

Based on the present data, schools are described by teachers as having relatively weak linkages. The mean scores for the structural linkage variables are for the most part low. Cooperative planning and communication events tend to be infrequent, especially involving regular teachers and LD specialists or principals. In addition, teachers indicate that about 25 to 26 hours per week are spent in isolation from other adults. However, the linkage between teachers

30

and principals on matters of student discipline appears to be relatively strong.

Another important observation is that, with the exception of teacher isolation, six structural linkage variables are positively related to the criterion variables. More tightly linked schools tend to be more effective. This finding is probably explained by the relatively modest levels of linkages in school organizations. The limited linkages found in the present study are viewed as facilitating the effectiveness of schools, but dramatic increases in their strength would probably produce curvilinear relationships.

As a group, the structural linkage variables were consistent predictors of the criterion variables, especially later in the school year. For example, discipline procedures and teacher isolation entered all four regression equations in the spring data set. These two variables suggest different levels and types of linkages. In other words, modest levels of discipline procedures, i.e., a linkage between the operating core and middle line, are associated with positive school outcomes. Yet, as the number of hours per week teachers spend away from other adults increases, so do the values of the effectiveness criteria. Thus, teacher isolation in the operating core which allows teachers added time to work alone with students is associated with organizational effectiveness.

These findings for structural linkages are highly supportive of Mintzberg's (1979) conception of professional bureaucracies. Discipline procedures represents a linkage of teachers in the operating core to the principal staff in the middle line. The function of the linkage is to negotiate and handle disturbances in student behavior, an especially important role for the middle line. Similarly, the relationships for teacher isolation support Mintzberg's contention that teachers as professionals in the operating core control their own classrooms, act relatively independently of their colleagues, and work closely with their

31

students. The conclusion that teachers work alone in their classrooms is further reinforced by the failure of the communication-among-teachers variable to enter any of the equations.

There is also support for Mintzberg's model in the relationships of work system interdependence between teachers and LD specialists to perceived adaptablility and goal achievement. Mintzberg noted that a major problem for professional bureaucracies is innovation. New programs cut across existing specialities and call for interdisciplinary efforts. Linkages between the operating core and the technostructure allow teachers to expand their working repertoire of standard programs or set of skills. In other words, cooperative planning with LD specialists allows teachers to categorize students' needs in terms of a standard program of instruction and to apply that program in their classrooms (Mintzberg, 1979). Consequently, teachers associate linkages with LD specialists to school adaptability and goal achievement.

## Expectancy Climate

Based on a cognitive approach to motivation, expectancy climate entered five of the eight regression equations, two in the fall and three in the spring. However, it was significantly correlated with all four effectiveness criteria in both data sets. For the second data set, in particular, the magnitudes of the correlation coefficients are high, with a range of .30 to .55. These findings are supportive of those reported for educators by Miskel et al. (1980) and in the general literature by Mitchell (1974).

The use of expectancy climate based on cognitive approaches to motivation offers significant potential for understanding the self-fulfilling prophecy in schools. Further work is needed, however, to specify how expectancy climate influences the behavior of teachers and students. Resource denial (Wilkins, 1976) and supplements in conjunction with the components of expectancy, instru-

32

mentality, and valence provide relatively clear concepts and processes that should be examined more fully with a combination of research methods. Further efficacy can be provided to expectancy as a self-fulfilling prophecy by placing it into a sequential model such as Cooper's (1979) or Braun's (1976).

Furthermore, expectancy climate is an important concept in understanding schools as social organizations. Lincoln, Hanada, and Olson (1981) have maintained that organizational structures tend to be compatible with the values and beliefs of their members. They believe that organizational phenomena are shaped by cultural values, beliefs, and expectations, as well as the institutional arrangements in which they are embedded. Therefore, the structure of schools may appear to be loosely linked to the criteria of organizational effectiveness. But school outcomes may be tied to the structure through cultural and social orientations such as the expectancy climate.

## Change in Relationships

The magnitude of the variable means, strength of association, and type of independent variables relating to the school effectiveness criteria exhibited a tendency to change over the course of the year. The means suggest that the strength of six linkage and expectancy climate factors show slight declines and teacher isolation a slight increase. In contrast, the correlation coefficients among the linkage and climate, and organizational effectiveness variables increased, while those for the demographic and outcome variables decreased.

Do the variable relationships exist early in the year but are simply not recognized by students and teachers? Or, do structural linkages and climates start anew each year and evolve into significant relationships by the end of the school year? While activities and positions may be loosely linked together and while problems, solutions, and actors seem to make little structural sense, stability must be acknowledged (Ranson, Hinings, & Greenwood, 1980). Similarly,

33

communication patterns in organizations have a continuity through time (Porter & Roberts, 1976). This stability critically affects communication patterns, content, and frequency, because it gives individuals an awareness that their activities and interactions are likely to be repeated. However, explanations of different empirical results for fall and spring data sets must accommodate existing and emerging patterns of interaction within the school. In most cases, new members join the faculty and new students enroll in the school during the fall semester. These new actors not only must learn the work system interdependencies, communication patterns, expectations, and appropriate educational outcomes, they will to some extent disrupt the continuity of patterns for the returning educators and students. Another factor affecting the stability of relationships is that certain times of the year, such as the opening of school and preparing for fall activities, hold high potential for crises, disruption of the system, and reduced goal attainment. As Burlingame (1979) observed, a rhythm of seasons characterizes a school year.

Based on this background, the response to the two questions must include a combination of the linkages evolving and becoming known. Some stability exists among variables from one school year to the next. Most of the educators and students return and reactivate many relationships from the previous year. However, new students and educators do not know the linkages and expectancies, and the ones returning from the previous year may suffer from uncertainty because of the new actors and opening school activities. One result is that associations among the linkage, climate, and outcome variables are unclear. Another result is that research conducted early in the school year may record this uncertainty as a lack of relationship between the independent and dependent variables. But by the spring semester the linkages and expectancies have evolved and have been learned, and the relationships with the school effective-

ness criteria are described with high degrees of association. Since time of
year can influence the relationships among variables in schools, investigators
should specify systematically in their reports when data were collected.

## Implications and Conclusions

Several important relationships have been described that suggest direc-
tions for future research efforts. In agreement with Ranson and his collea-
gues (1980), interpenetration of structure, linkages, and climate offers a
fruitful perspective for future research. A useful approach to examine struc-
tural configurations of schools has been developed by Sousa and Hoy (1981).
They have successfully combined objective and perceptual measures for a number
of structural factors in schools such as centralization, formalization, stand-
ardization, autonomy, and technical competence. Employing both types of mea-
sures, in combination with those in the present study, would allow an investi-
gator to describe the influences of structural and process constraints upon
organizational outcomes.

Using sociometric methods could add richness to our understanding of the
interdependencies and communication linkages among the parts of the school.
These procedures could not only reveal patterns of interaction, but increase
the confidence that the groups studied are, in fact, interacting task groups
(O'Reilly & Roberts, 1977). A need also exists to compare the characteristics
of the communication process from two independent sources with multiple methods
of data collection (Porter & Roberts, 1976).

While this study did not address how special efforts to link school parts
together actually work, additional studies are needed to assess the effects of
attempts to increase the linkages among organizational parts. In some situa-
tions, teachers, principals, and LD specialists are interdependent through
team or group activities, periodic inservice training programs, faculty meetings,

35

and committee assignments. Cohen, Meyer, Scott, and Deal (1979) found that complexity of organizational structure at an earlier time, complexity of technology, and the extent to which classes are taught in open space schools affect the levels of teacher collaboration. Similarly, Bredo's (1977) data indicated that open space and team policies are predictors of collegial influence. While these studies have focused on the operating core, the present investigation indicates that other arrangements or initiatives from the technostructure and the middle line also affect the level of interaction among teachers and should be included in future investigations. To increase their impact, special educators must create new modes of structure, planning, and communication with the regular classroom teachers. They can not depend upon administrators to pave the road to intervention effectiveness.

Additional theoretical and empirical work is needed on the concept of organizational effectiveness of schools. Too often, school effectiveness is defined narrowly as scores of academic ability on cognitive tests. The present study has used one approach that worked adequately, but additional variables, such as academic achievement, would have strengthened the organizational effectiveness model. Moreover, student attitudes should be used in effectiveness models for schools. As an important indicator of quality, student attitudes are affected by both structural linkages and expectancy climate of schools and also affect the views that their parents hold of the school (Grandjean & Vaughn, 1981).

Finally, the present study has provided insights about the relationships of structural linkages, expectancy climate, and organizational effectiveness of schools. Much work remains, but fruitful avenues to further our explanations of important mechanisms and norms in schools have been reviewed and revealed.

## References

Angle, H. L., & Perry, J. L.  An empirical assessment of organizational commitment and organizational effectiveness.  Administrative Science Quarterly, 1981, 26, 1-14.

Baldridge, J. V., & Burnham, R. A.  Organizational innovation: Individual, organizational, and environmental impacts.  Administrative Science Quarterly, 1975, 20, 165-176.

Belasco, J. A., & Alutto, J. A.  Decisional participation and teacher satisfaction.  Educational Administration Quarterly, 1972, 8, 44-58.

Bidwell, C.  The school as a formal organization.  In J. G. March (Ed.), Handbook of organizations.  Chicago:  Rand McNally, 1965.

Braun, C.  Teacher expectation: Sociopsychological dynamics.  Review of Educational Research, 1976, 46, 185-213.

Bredo, E.  Collaborative relations among elementary school teachers.  Sociology of Education, 1977, 50, 300-309.

Bridges, E. M., & Hallinan, M. T.  Subunit size, work system interdependence, and employee absenteeism.  Educational Administration Quarterly, 1978, 14, 24-42.

Brookover, W. B., Schweitzer, J. H., Schneider, J. M., & Wisenbaker, J. M.  Elementary school social climate and school achievement.  American Educational Research Journal, 1970, 15, 301-318.

Burlingame, M.  Some neglected dimensions in the study of educational administration.  Educational Administration Quarterly, 1979, 15, 1-18.

Cohen, E. G., Meyer, J. W., Scott, W. R., & Deal, T. E.  Technology and teaming in the elementary school.  Sociology of Education, 1979, 52, 20-33.

Cooper, H. M.  Pygmalion grows up: A model for teacher expectation communication and performance influence.  Review of Educational Research, 1979, 49, 389-410.

Forsyth, P. B., & Hoy, W. K.  Isolation and alienation in educational organizations.  Educational Administration Quarterly, 1978, 14, 80-96.

Grandjean, B. D., & Vaughn, E. S., III.  Client perceptions of school effectiveness: A reciprocal causation model for students and their parents.  Sociology of Education, 1981, 54, 275-290.

Hall, D. T., & Fukami, C. U. Organization design and adult learning. Research in Organizational Behavior, 1979, 1, 125-167.

Hellriegel, D., & Slocum, J. W. Organizational climate: Measures, research and contingencies. Academy of Management Journal, 1974, 17, 255-280.

Hoy, W. K., & Miskel, C. G. Educational administration. New York: Random House, 1982.

Lincoln, J. R., Hanada, M., & Olson, J. Cultural orientations and individual reactions to organizations: A study of employees of Japanese-owned firms. Administrative Science Quarterly, 1981, 26, 93-115.

Meyer, J. W., & Rowan, B. The structure of educational organizations. In M. W. Meyer (Ed.), Environments and organizations. San Francisco: Jossey-Bass, 1978.

Mintzberg, H. The structuring of organizations. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Miskel, C. G. Principals' attitudes toward work and co-workers, situational factors, perceived effectiveness and innovation effort. Educational Administration Quarterly, 1977, 13, 51-70.

Miskel, C. G., Bloom, S., & McDonald, D. Effects of structural coupling and expectancy climate on the effectiveness of learning strategies intervention: A pilot study to establish reliability and validity estimates (Research Report No. 57). Lawrence, Kans.: University of Kansas Institute for Research in Learning Disabilities, 1982.

Miskel, C. G., DeFrain, J. A., & Wilcox, K. A test of expectancy motivation theory in educational organizations. Educational Administration Quarterly, 1980, 16, 70-92.

Miskel, C. G., Fevurly, R., & Stewart, J. Organizational structures and processes, perceived school effectiveness, loyalty, and job satisfaction. Educational Administration Quarterly, 1979, 15, 97-118.

Mitchell, T. R. Expectancy models of job satisfaction, occupational preference, and effort: A theoretical, methodological, and empirical appraisal. Psychological Bulletin, 1974, 81, 1053-1077.

Mohrman, A. M., Jr., Cooke, R. A., & Mohrman, S. A. Participation in decision making: A multidimensional perspective. Educational Administration Quarterly, 1978, 14, 13-29.

Mott, P. E. The characteristics of effective organizations. New York: Harper & Row, 1972.

Muchinsky, P. M. Organizational communication: Relationships to organizational climate and job satisfaction. Academy of Management Journal, 1977, 20, 592-607.

O'Reilly, C. A., & Roberts, K. H. Task group structure, communication, and effectiveness in three organizations. Journal of Applied Psychology, 1977, 62, 674-681.

Ouchi, W. G. Coupled versus uncoupled control in organizational hierarchies. In M. W. Meyer (Ed.), Environments and organizations. San Francisco: Jossey-Bass, 1978.

Parsons, T. Structure and process in modern societies. New York: Free Press, 1960.

Pierce, J. L., & Delbecq, R. Organizational structure, individual attitudes, and innovation. Academy of Management Review, 1977, 2, 27-37.

Porter, L. W., & Roberts, K. H. Communication in organizations. In M. D. Dunnette (Ed.), Handbook of industrial and organizational psychology. Chicago: Rand-McNally, 1976.

Ranson, S., Hinings, B., & Greenwood, R. The structuring of organizational structures. Administrative Science Quarterly, 1980, 25, 1-17.

Rosenthal, R., & Jacobson, L. Pygmalion in the classroom. New York: Holt, Rinehart, & Winston, 1968.

Sousa, D. A., & Hoy, W. K. Bureaucratic structure in schools: A refinement and synthesis in measurement. Educational Administration Quarterly, 1981, 17, 21-39.

Steers, R. M. Organizational effectiveness. Santa Monica, Calif.: Goodyear, 1977.

Thomas, A. Learned helplessness and expectancy factors: Implications for research in learning disabilities. Review of Educational Research, 1979, 49, 308-321.

Thompson, J. D. Organizations in action. New York: McGraw-Hill, 1967.

Vroom, V. Work and motivation. New York: Wiley, 1964.

Wilkins, W. E. The concept of a self-fulfilling prophecy. Sociology of Education, 1976, 49, 175-183.

Table 1
Means and Standard Deviations (SD) for Variables
in Both Data Collections

| Variables | First Collection | | Second Collection | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| **Structural Coupling** | | | | |
| 1. Work System Inter-dependence: Teachers | 20.08 | 8.41 | 17.53 | 8.05 |
| 2. Communication: Teachers with Teachers | 11.27 | 3.65 | 10.30 | 3.44 |
| 3. Communication: Teachers with Principal(s) | 3.82 | 1.57 | 3.74 | 1.53 |
| 4. Discipline Procedures | 15.38 | 2.82 | 13.86 | 3.68 |
| 5. Communication: Teachers with LD Specialists | 4.12 | 2.70 | 3.17 | 2.35 |
| 6. Work System Inter-dependence: Teachers and LD Specialists · | 6.92 | 6.06 | 6.71 | 6.89 |
| 7. Teacher Isolation (Hours) | 25.94 | 6.93 | 26.60 | 7.59 |
| **Expectancy Climate** | | | | |
| 8. Expectancy Climate | 1,617.98 | 278.52 | 1,537.24 | 335.47 |
| **Demographic** | | | | |
| 9. Education-Teachers | 1.46 | .23 | 1.46 | .23 |
| 10. Years Experience-Teachers | 6.58 | 2.87 | 6.58 | 2.87 |
| 11. Sex--Female = 1, Male = 2 | 1.34 | .26 | 1.34 | .26 |
| 12. Level of School | 2.58 | 1.28 | 2.58 | 1.28 |
| 13. Size--Number of Students | 606.18 | 409.96 | 606.18 | 409.96 |
| **Organizational Effectiveness** | | | | |
| 14. Perceived Adaptibility | 17.87 | 2.17 | 17.31 | 2.95 |
| 15. Perceived Goal Achievement | 11.41 | 1.00 | 11.24 | 1.52 |
| 16. Teacher Job Satisfaction | 23.96 | 2.78 | 23.44 | 3.77 |
| 17. Student Attitudes | 34.23 | 2.45 | 32.72 | 5.63 |

Table 2

Correlation Matrices for the Variables in Data Collections One and Two[a,b]

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | 68* | 34* | 30* | 18* | 32* | -42* | 05 | -14 | -37* | -30* | -42* | -27* | 32* | 28* | 12 | 15 |
| 2 | 63* | - | 48* | 17* | 32* | 29* | -37* | 19* | 01 | -17* | -28* | -29* | -11 | 24* | 24* | 10 | 14 |
| 3 | 41* | 45* | - | 26* | 37* | 00 | -04 | 13 | -07 | -31* | -03 | -16 | -38* | 20* | 16 | -03 | -02 |
| 4 | 42* | 35* | 38* | - | 07 | -13 | -29* | 13 | 09 | -23* | 07 | 02 | -18* | 24* | 26* | 07 | -08 |
| 5 | 18* | 31* | 25* | 06 | - | 35* | -11 | 12 | -02 | -32* | -35* | -28* | -28* | 20* | 32* | -05 | 19* |
| 6 | 38* | 26* | -07 | 08 | 28* | - | -16 | 20* | 05 | -06 | -28* | -33* | -06 | 31* | 40* | 22* | 29* |
| 7 | -25* | -08 | 01 | -02 | 01 | -17* | - | 03 | 00 | 01 | 06 | -01 | -18* | -02 | -15 | 08 | -12 |
| 8 | 29* | 18* | 15 | 36* | 22* | 22* | 05 | - | 07 | 03 | -05 | -18* | -01 | 29* | 33* | 25* | 18* |
| 9 | 10 | 10 | 00 | 22* | -02 | 03 | 04 | 10 | - | 21* | 21* | 28* | 33* | -08 | 00 | -01 | -16 |
| 10 | -26* | -21* | -27* | -14 | -27* | 09 | -08 | -08 | 21* | - | 38* | 35* | 41* | -31* | -27* | -04 | -13 |
| 11 | -26* | -30* | -11 | 03 | -44* | -37* | 14 | 00 | 21* | 38* | - | 74* | 30* | -35* | -31* | -02 | -49* |
| 12 | -40* | -30* | -14 | 06 | -33* | -39* | 00 | -23* | 28* | 35* | 74* | - | 51* | -36* | -33* | -09 | -58* |
| 13 | -23* | -18* | -19* | -03 | -17* | -14 | -09 | -13 | 33* | 41* | 30* | 51* | - | -24* | -05 | 00 | -19* |
| 14 | 41* | 26* | 29* | 43* | 27* | 43* | 23* | 48* | 00 | -24* | -16 | -23* | -17* | - | 79* | 26* | 29* |
| 15 | 42* | 35* | 21* | 46* | 24* | 37* | 26* | 55* | 12 | -14 | -09 | -13 | -03 | 81* | - | 23* | 31* |
| 16 | 30* | 27* | 23* | 36* | 14 | 17* | 32* | 30* | -06 | -04 | 01 | 05 | 02 | 60* | 67* | - | 10 |
| 17 | 19* | 24* | 22* | 35* | 07 | 00 | 33* | 45* | 04 | -04 | -01 | -01 | 04 | 44* | 53* | 48* | - |

[a]The correlation matrix for first data collection comprises the top half of the table and the correlation matrix for the second data collection forms the bottom half. The names for variables 1-17 are given in Table 1.
[b]The coefficients have been multiplied by 100.
*Significant at or beyond the .05 level with 87 degrees of freedom.

Table 3

Multiple Stepwise Regression Analysis Summaries
for Testing Hypothesis One for Perceived Adaptability[a]

| Independent Variables | $r$ | beta | $F$ | $df$ | $R^2$ |
|---|---|---|---|---|---|
| Fall Semester--First Data Collection | | | | | |
| Level of School | -.36 | -.28 | 8.2 | 1,87 | .13 |
| Discipline Procedures | .24 | .28 | 8.6 | 1,87 | .19 |
| Work System Inter.: Tchr-LD Spec | .31 | .25 | 6.3 | 1,87 | .25 |
| Equation | | | 9.3 | 3,85 | .25 |
| Spring Semester--Second Data Collection | | | | | |
| Expectancy Climate | .48 | .26 | 9.7 | 1,87 | .23 |
| Work System Inter.: Tchr-LD Spec | .43 | .41 | 26.5 | 1,87 | .34 |
| Discipline Procedures | .43 | .25 | 8.1 | 1,87 | .41 |
| Teacher Isolation | .23 | .29 | 13.8 | 1,87 | .50 |
| Communication: Tchrs-Prin | .29 | .18 | 4.8 | 1,87 | .52 |
| Equation | | | 18.2 | 5,83 | .52 |

[a]Only relationships significant beyond the .05 level are given.

Table 4

Multiple Stepwise Regression Analysis Summaries
for Testing Hypothesis Two for Perceived Goal Achievement[a]

| Independent Variables | $r$ | beta | $F$ | df | $R^2$ |
|---|---|---|---|---|---|
| **Fall Semester--First Data Collection** | | | | | |
| Work System Inter.: Tchr-LD Spec | .40 | .33 | 12.2 | 1,87 | .16 |
| Discipline Procedures | .26 | .28 | 9.9 | 1,87 | .26 |
| Sex | -.31 | -.22 | 5.8 | 1,87 | .30 |
| Expectancy Climate | .33 | .21 | 5.3 | 1,87 | .34 |
| | | Equation | 10.9 | 4,84 | .34 |
| **Spring Semester -- Second Data Collection** | | | | | |
| Expectancy Climate | .55 | .32 | 16.7 | 1,87 | .30 |
| Discipline Procedures | .46 | .21 | 8.4 | 1,87 | .38 |
| Work System Inter.: Tchr-LD Spec | .37 | .26 | 10.7 | 1,87 | .45 |
| Teacher Isolation | .26 | .32 | 20.6 | 1,87 | .54 |
| Work System Inter.: Teachers | .42 | .30 | 5.3 | 1,87 | .56 |
| | | Equation | 21.5 | 5,83 | .56 |

[a]Only relationships significant beyond the .05 level are given.

Table 5

Multiple Stepwise Regression Analysis Summaries
for Testing Hypothesis Three for Teacher Job Satisfaction[a]

| Independent Variables | $r$ | beta | $F$ | df | $R^2$ |
|---|---|---|---|---|---|
| Fall Semester--First Data Collection | | | | | |
| Expectancy Climate | .25 | .25 | 5.6 | 1,87 | .06 |
| | | Equation | 5.6 | 1,87 | .06 |
| Spring Semester--Second Data Collection | | | | | |
| Discipline Procedures | .36 | .24 | 6.0 | 1,87 | .13 |
| Teacher Isolation | .32 | .40 | 18.2 | 1,87 | .24 |
| Work System Inter.: Teachers | .30 | .30 | 8.6 | 1,87 | .31 |
| | | Equation | 12.6 | 3,85 | .31 |

[a]Only relationships significant beyond the .05 level are given.

Table 6

Multiple Stepwise Regression Analysis Summaries[a]
for Testing Hypothesis Four for Student Attitudes[a]

| Independent Variables | $r$ | beta | $F$ | df | $R^2$ |
|---|---|---|---|---|---|
| Fall Semester--First Data Collection | | | | | |
| Level of School | -.58 | -.58 | 43.5 | 1,87 | .33 |
| | | Equation | 43.5 | 1,87 | .33 |
| Spring Semester--Second Data Collection | | | | | |
| Expectancy Climate | .45 | .35 | 13.6 | 1,87 | .20 |
| Teacher Isolation | .33 | .31 | 12.7 | 1,87 | .29 |
| Discipline Procedures | .35 | .24 | 6.4 | 1,87 | .34 |
| | | Equation | 14.8 | 3,85 | .34 |

[a] Only relationships significant beyond the .05 level are given.