



EFFECTS OF STRUCTURAL COUPLING AND EXPECTANCY
CLIMATE ON THE EFFECTIVENESS OF LEARNING
STRATEGIES INTERVENTION: A PILOT STUDY TO
ESTABLISH RELIABILITY AND VALIDITY ESTIMATES

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The cooperation of teachers and administrators in Blue Valley USD No. 229, Stanely, Kansas, and Turner USD No. 202, Kansas City, Kansas, is greatly appreciated.

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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 Miede 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

Successful implementation of the learning strategies model proposed by Alley and Deshler (1979) depends on high levels of interactive planning and effort by learning disabilities teachers, regular classroom teachers and administrators. In this context, structural coupling and expectancy climate become important intervening variables by defining mechanisms and norms that influence how individuals interact and the level of effort expended. The purpose of this pilot study was to establish structural coupling and expectancy climate levels with interview and assessment instruments. Over 155 educators drawn from several schools participated in the study. Results of the study showed that these assessment instruments demonstrated high reliability and adequate validity levels.

The Research and Development Plan for the University of Kansas Learning Disabilities Institute (KU-IRLD) (Deshler, Schumaker, Warner, & Alley, 1978) endorsed the generalization that environmental factors must be combined with individual attributes to enable a more complete understanding of the learning disabled (LD) adolescent and young adult. Lewin's (1935, 1936, 1938) early formulation of human behavior is basic to this line of research ($B = f(PE)$, where B = behavior, P = person, and E = environment). In addition, two environmental concepts, coupling and climate, define mechanisms and norms within schools that strongly influence how individuals interact. These variables are important because the effectiveness of existing and proposed programs for learning disabled adolescents depends on cooperative efforts of teachers and administrators. For instance, the formulation and implementation of individualized educational programs for LD adolescents require high levels of cooperation by all teachers involved. An even more tenuous set of interactions occurs when students advance from a middle or junior-high school to high school. Cooperative planning between school levels must be extensive to prevent disruption of student progress. Interventions such as the learning strategies model (Deshler, Schumaker, Warner, Alley, & Moran, 1979) create uncertainty for staff members while at the same time relying on cooperative planning for successful implementation.

Structural coupling and expectancy climate, therefore, are important factors in the successful implementation of special programs such as the learning strategies model because of their effect on the levels of cooperative planning and efforts required to carry out these programs. The general purpose of this line of investigation is to determine the intervening effects of structural coupling and expectancy climate on the success levels of the learning strategies interventions and on the levels of cooperative planning for LD

students. Specifically, the objectives of this pilot study were to establish the reliability and validity levels of a set of instruments and assessment procedures designed to measure these variables.

Structural Coupling of School Activities

The dominant school form in the United States today consists of large-scale units organized as bureaucracies and managed by political systems (Meyer & Rowan, 1978). As the scale of the organization expands higher levels of coordination and integration are required and bureaucratic controls emerge for the purpose of structuring efficiently the activities. This traditional, theoretical explanation of organizational control has been assumed to hold for school systems based on the premise that multitiered organizations are necessary to communicate accurately the school system's objectives from top to bottom, to monitor actions and outcomes and, if necessary, to order corrective actions (Ouchi, 1978).

However, using the above conceptualization, Dornbusch and Scott (1975) discovered no evidence of effective evaluation or control in school systems. In general, support is mounting for the proposition that schools lack close internal coordination, especially for instructional content and methods. Similarly, Meyer and Rowan concluded that instruction tends to be removed from the control of the organization structure, in both its bureaucratic and collegial aspects. Such findings and observations have led to a variety of speculations, including those of March and Olsen (1976) and Weick (1976, 1980), concerning the loose coupling in most schools.

Loose Coupling

Weick (1976) illustrated the concept of loose coupling by stating that while the parts of a school are responsive to each other, each preserves its own identity and physical or logical separateness. As a result, the activities

of one part have less impact on others than commonly assumed. This changed perspective of educational organizations suggests that some school functions are less interdependent than would otherwise be predicted based on traditional bureaucratic theory.

Weick (1980) discussed four nuances of loose coupling: stability, multiple realities, minimal social ties, and spontaneous self-organization. In terms of stability, Weick considered schools, as organizations, to be stable--not because of their bureaucratic nature--but because of the absence of dense, complex, self-correcting sets of linkages among variables. In schools, linkages are subtle and give the system stability without overburdening other parts when responding to change. For example, one school within a district may implement a new intervention program for LD students, independently of other schools in the district.

The second nuance relates to multiple realities. Loosely coupled schools are often characterized by low agreement among different groups of educators and hence emerge as plural improvisations by leaders who agree on ways in which to behave or activities to be carried out. That is, people reach agreement on an item but avoid examining why they agree. Various activities emerge as the groups move from a condition they find undesirable. The emphasis on means and a concomitant inattention to goals reduce the coupling of behavior and outcomes. Individuals agree on a course of action such as a new curriculum because they perceive a problem in a manner that fits their view of reality. However, this does not mean that they will have the same reality or agree on what the outcomes should be. An illustration of the multiple-realities nuance is that some schools may implement the learning strategies intervention without the staff agreeing on what is to be accomplished by the program.

The third nuance employs the concept of minimal social ties. The need in schools for chronic, intense, mutual attention and sharing among educators tends to be overemphasized. The perspective of loose coupling balances this overemphasis by suggesting that staff members can be effective with minimal social ties within the school. Teachers may have little need to be tied to the administrative structure, for example, and may be effective with only minimal ties to the school's structure. This situation is further illustrated by the pockets-of-autonomy concept (Hanson & Brown, 1977) according to which certain decisions are made by administrators, while others are reserved for teachers, who often act independently of the administration. Teacher autonomy usually relates to the school's teaching-learning process.

The last nuance, spontaneous self-organization, also relates to the concept of minimal social ties. When individuals discover minimal linkages, they build bonds with a few other individuals to a small, self-sustaining group that is independent of the formal control of the school. In discussing structural change and coupling, Hernes (1976) observed that while groups in a school may be independent, they often cooperate to achieve a common purpose. However, this coupling may have little impact on the remainder of the school. In fact, some groups may be independently involved with many other groups and produce few repercussions in the total system. Due to timing, such coupling may remain undetected. In other words, the groups may be coupled as long as the alliance remains mutually beneficial. Similarly, over a period of time or at different times, groups may be tightly or loosely coupled without changing the school's overall organizational structure. Change or intervention, therefore, will be successful in those schools where the groups perceive mutual benefit. Unless some enduring advantage is present, the coupling or cooperative planning and intervention may be short lived and thus result in few long-term or permanent changes.

Using the above nuances to explain the development of special education programs, Weick suggested that stability is present, for example, when parents request designation of new categories of students (such as learning disabilities) for special treatment. The school responds by designating specialists or by announcing a plan to incorporate the new categories. It persists by being aware of these needs and incorporating them swiftly. Such a response, however, may simply serve to make the school independent of environmental change; there is no need for tight monitoring, feedback, or adjustment because creation of the new categories reduces environmental pressure.

In addition to the nuances just discussed, Weick identified four conditions that produce loosely coupled systems: constant variables, neutralized feedback, prior socialization, and cryptic surveillance. To the extent a school is characterized by these conditions, it is likely to be loosely coupled.

Constant variables serve to decouple a system because the groups independently can predict their roles and their responses to the demands of the system. Administrators who are aware of the constant variables often are reluctant to initiate change for fear of eliciting negative reactions, "The curriculum is already overburdened with frills so we can't do anything in career education. . . . People are reluctant to advance and refuse to accept innovations that cut across existing lines of specialization" (McCleary, 1979, p. 52).

It may be difficult to convince administrators holding such views to implement changes such as the learning strategies model because it would redefine the constant variables of the schools. Pfeffer (1978) noted that organizations are loosely coupled, in part, because few participants are constantly involved or care about every aspect of the organization.

Neutralized feedback, the second characteristic of a loosely coupled system, results from delayed or ambiguous communication. Delays make the feedback less effective and may result in missing or vague data on which to base decisions. Schools operating on limited information are characterized by loose coupling results.

The next condition producing loosely coupled systems is prior socialization. Individuals often come into a group with a network of relationships that serve as a support system. Such networks lessen the need for the formal organization and strengthen the role of the group. People new to the school may need to develop small-group affiliations rather than support and direction of the formal organization. Groups within such a structure maintain weak linkages with the overall organization and, as a result, the school remains loosely coupled.

The last condition deals with cryptic surveillance. As new school programs are developed and implemented, additional inspection, monitoring, and feedback become necessary. The individuals who are responsible for such surveillance must have a strong commitment to their role to prevent loose coupling. Typically, administrators are given the job of monitoring new programs. Since many administrators feel they are already overworked and do not have the time for additional responsibilities, a new program may develop a separate support system with weak linkage to the total organization. For example, if a principal responsible for monitoring a learning strategies intervention is not strongly committed to the program it becomes loosely attached and atrophies.

Oldham and Brass (1979) found that change within a newspaper office from a closed-space to an opened-space office concept resulted in movement from a loosely coupled to a tightly coupled system. Simultaneously, morale and productivity declined as predicted by traditional bureaucratic theory. According

to Bidwell (1965), similar changes would occur with school settings, which tend to be characterized by structural looseness for such instructionally related activities as curriculum and technology, evaluation or surveillance, and direct authority over instruction. The classic illustration is that teachers close the doors and conduct their classes independently of others. Except in special circumstances, only the students observe the instructional processes. Administrators and colleagues, therefore, have limited direct influence on actual classrooms instruction. If a school is loosely coupled, a teacher has a great deal of freedom to act independently of colleagues and administrators. A move to tight coupling would lead to reduced morale and productivity.

This conclusion is generally supported by the findings of Meyer, Scott, Cole, and Intili (1978) who listed that, within a given school, teachers exhibit little agreement when describing school and classroom practices. The exceptions are situations in which teachers are interdependent through team or group activities such as writing and evaluating IEP's.

If teachers continue to demand more professional status, teacher autonomy may be further entrenched in the structure of schools. Bidwell (1965) argued that in order to deal with the variability of students on a daily basis, teachers need professional autonomy. Schools currently are structured to allow this type of organization in the areas of instruction and planning. Therefore, teacher militancy and the resulting increases in autonomy may have little impact on school structure, but may reinforce the status quo and may promote loose coupling. Katz (1968) supported this contention when he suggested that the rules allowing teacher autonomy are as much a part of the formal structure of the organization as are the rules requiring teacher compliance. Professional autonomy includes the right of the teachers to plan and instruct

as they see fit. In other words, teachers in loosely coupled schools independently select their collegial associations, teaching styles, and instructional strategies.

Team or group activities represent exceptions to the loose coupling of a school's technical core and present important areas of study for interactive interventions such as the learning-strategies model. Other organizational configurations and group practices, however, promote coupling. For example, teachers and other personnel within and across subject areas and special services may assume, formally or informally, shared responsibility for accomplishing a set of educational objectives. The teachers hereby become responsive to each other, and if one changes his/her content or process, others are impacted. The foregoing generalizations provide support for the following hypothesis: structural coupling is related positively to the levels of cooperative planning that occur within and between school units for learning disabled students.

Expectancy Climate

An early example of expectancy effects in schools is provided by Foley (1965). Many teachers' low expectations of minority group or learning disabled youngsters become self-fulfilling prophecies. The students sense the negative teacher judgments, are not motivated to excel or exert themselves and, thus, teacher expectations are confirmed. This basic idea has intuitive appeal.

Expectancy, as a determinant of educational outcomes, was popularized with the publication of the Rosenthal and Jacobson studies (1966, 1968a, 1968b). These investigations have been criticized severely because they failed to identify the teacher behaviors that produce achievement (Thorndike, 1968) and to use correct methodologies, appropriate statistical analyses, and interpretation techniques (Cronbach, 1970; Elashoff & Snow, 1971). Other

investigators have not been able to replicate Rosenthal and Jacobson's findings (Claiborn, 1969; Fleming & Anttonen, 1971; Jose & Cody, 1971).

These early investigations are marred by two fundamental problems. The first involves the artificial and weak manipulation of teacher expectancy. The studies employed designs that attempted to create expectancy discrepancies through simplified or fabricated information. Expectancy effects have been found to exert positive influences in studies using field-study approaches (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1977; Michenbaum, Bowers, & Ross, 1969; Rothbart, Dalfen, & Barrett, 1971). The second problem relates to their atheoretical orientation. The basic assumption that "what you expect is what you get" fails to elucidate how behavior is generated. Expectancy has long been incorporated into cognitive approaches to motivation that explain the emergence of both teacher and student behavior.

According to Rosenthal (1974) teachers create a warmer socio-emotional atmosphere for brighter students, allow brighter students more opportunities to learn, persist more in interchanges with brighter students, and interact more often with the brighter students. More recent reexaminations of the Pygmalion effect reveal patterns of differential teacher behavior toward high- and low-expectation students (Cooper, 1979). In his review of recent literature on teacher expectations, Cooper concluded that teachers frequently give feedback according to effort expenditures of high expectation students, while using affective feedback as an interaction control for low-expectation students. Cooper's model of the expectation process--both communication and resulting behavior change--included as inputs: student abilities and backgrounds, teacher expectations for students, and teacher perceptions of control over student performance. The interaction process occurs and the teacher gives feedback to students through praise, criticism, and socio-emotional atmosphere. Since

brighter students initiate interaction more often, the process is intensified for them. The more praise--even mere attention--they receive, the better chance they have of performing and thereby meeting teacher expectations. The teacher, in turn, exerts added control over student outcomes through extended interaction time.

While acknowledging the effect of other factors on student performance, Cooper suggested that teacher expectations are important in maintaining students at preexisting levels of achievements. Teacher expectations may even allow latent student differences to appear; however, they severely bias outcomes.

Brophy and Good's (1974) findings concurred with those of Cooper by demonstrating that expectancy effects depend on teacher style. Other studies have shown that teacher-formed expectations relate to student achievement (Dusek & O'Connell, 1973; O'Connell, Dusek & Wheeler, 1974). In response to the question, "how does this relationship occur?", West and Anderson (1976) suggested that student performance may influence teacher expectations as easily as teacher expectations appear to influence student performance. These authors identified several competing linkages between expectancy and variables such as intelligence, achievement, and behavior in addition to various situation variables.

Based on the ideas of Tolman (1932, 1959) and Lewin (1936, 1951), Vroom (1964) formulated the first explicit expectancy theory applied to organizational behavior. Although variations exist, most conceptualizations of the model employ the concepts of expectancy (E), valence (V) and instrumentality (I).

Expectancy (E) is the subjective probability that there is a relationship between behavior and performance levels. Expectancy is high, for instance, if an educator believes that high effort will yield outcomes such as high student achievement and positive attitudes. Valence (V) describes the attractiveness

or desirability of a reward for an individual. Rewards whose valences are high constitute goals that the individual actively seeks or strongly desires. For example, some people are motivated by money and care little about prestige or recognition. For them, money is a high-valence outcome. Student esteem usually holds high valence for teachers. Applied to expectancy theory, Instrumentality (I), is the belief that a given performance will lead to rewards or outcomes. The individual knows that a specific performance level is acceptable and feels confident that behaving in the prescribed manner will bring about the desired reward (Vroom, 1964). The basic postulate is that the force of motivation (FM) is the product of expectancy times the sum of valence and instrumentality ($FM = E (\sum IV)$). A high force to behave exists when the expectancies, valences, and instrumentalities are high.

Learned helplessness is a recently formulated concept that complements expectancy motivation. In contrast to instrumentality, this phenomenon occurs when an individual learns over a series of trials that she/he has no control over the outcome of events. Thomas (1979) noted that LD students come to believe that they can no longer learn. In other words, they have failed to control the results of their efforts to such a degree that they see little sense in expending effort. Results of other studies (Thornton & Jacobs, 1971) demonstrated that repeated exposure to failure causes students to be deficient in activities they could once accomplish. When people see events beyond their control, regardless of their persistence declines and passivity and anxiety increase (Klein & Seligman, 1976; Roth & Bootgen, 1974; Thornton & Jacobs, 1971). Benson and Kennelly (1976) found that learned helplessness results from experience with failure. Learned helplessness, then, is related more to a loss of control over the process that delegates rewards, than the reward itself (Thomas, 1979).

Learned helplessness has double implications for teachers. The difficulty of working with LD students who repeatedly fail is increased when teachers are affected by a similar phenomenon. They give up on nonachieving students, see no connection between effort and reward with them and find other students more appealing. Ultimately the students' learned helplessness reinforces teacher expectations and causes teachers to react in kind. The student has failed in the past; she/he fails again; the teacher sees it; the teacher reacts in a less than supportive manner; the student behavior recurs. This cycle may result in pervasive and negative attitudes in a school, that is, in a climate characterized by expectancy of failure.

Expectancy motivation as a climate concept. The concept of climate refers to these internal characteristics of a school or organization that define the culture for students, teachers, and administrators. School, classroom or group climate encompasses a number of variables broadly conceived as norms and expectations held for various members (Brookover & Erickson, 1975). Members of the group perceive these factors and communicate them to each other to shape behavior. Individual expectancy motivation aggregated to the appropriate level (group, classroom, school) defines the individuals' force to behave in the social situation.

Brookover and his colleagues (1977) demonstrated that, as a climate variable, student and teacher expectations clearly affect academic achievement. The environment in which high performance occurs clearly delineates how a person is to be rewarded, that is, students, teachers, and administrators can determine the instrumentality for a given action. Extrapolating this contention to the proposed investigation suggests that climate, as the aggregate expectancy motivation of a group, classroom, or school, promises to help explain the level of cooperative planning. When the expectations and instrumentalities

are low, the force of motivation will not be sufficient for teachers to engage in high levels of cooperative planning for successfully integrating and maintaining LD adolescents in the regular classroom, for example. It is hypothesized, therefore, that expectancy climate is positively related to the level of cooperative planning for learning disability students.

Before this hypothesis can be tested, valid and reliable measures of the structural coupling and expectancy climate must be developed. Therefore, the following research questions guided the present study.

1. What are the content, construct, convergent, and predictive validity levels of the structural coupling assessment measures?
2. What are the content, construct, convergent, and predictive validity levels of the expectancy motivation assessment measures?
3. What are the test-retest and internal consistency reliability levels of the structural coupling measures?
4. What are the test-retest and internal consistency reliability levels of the expectancy motivation assessment measures?

METHODOLOGY

Subjects

Separate samples of teachers and administrators were drawn for each component of the measurement system. Two LD classes were selected for observation--one from a high school, the other from a junior-high school. In the same two schools, the teachers of the two LD classes, the two principals, and three randomly selected regular teachers were interviewed.

Finally, 145 teachers and administrators enrolled in graduate courses during a university summer school session completed the assessment instruments. A response rate of 58% was achieved for the 250 instruments distributed. The 145 respondents represent a diverse population of educators in terms of subject field, years of teaching experience, and sex.

Settings

The observation and interview measures were administered at two secondary schools--a senior high school and a junior high school--in the same suburban school district. The senior-high school had an enrollment of 1,125 students with a staff of 63 professionals. The junior-high school had 557 students and 32 professional staff members.

The educators who completed the assessment instruments represented 67 schools in 48 districts mostly located in the northeastern quadrant of Kansas. The districts and individual schools represented diverse sizes as well as different socio-economic and geographic conditions.

Measurement Systems and Procedures

The measurement systems used in the present study included multiple indicators for each variable in addition to three methods of data collection--participant-observer, interviews, and assessment instruments. Consequently, the reliability and validity estimates were established in a fashion approximating the multitrait-multimethod technique proposed by Campbell and Fiske (1959).

Participant-Observer Method

In his/her role as participant-observer (ethnographical or anthropological approach) the researcher is known and is present in the school as a scientific observer. In other words, the investigator participates by being present and is usually allowed to do what observers do rather than being expected to behave as others behave. Since the field settings of schools are extremely complex, it was essential in the present study to clearly determine what was to be observed, where observations were to take place, and a means of accurately and systematically recording the data. The theoretical models involving structural coupling and expectancy motivation served as general guides for selecting and classifying the observations.

Prior to the observation phase of the research, the three investigators studied and carefully defined the concepts of coupling, expectancy, and effort as well as the methods of ethnography and observation. Observation techniques were field tested in the LD classroom of a middle school in a suburban school district. During the observations researchers recorded all relevant activities using paper and pencil. After each observation period, the observers compared notes to ensure consistency. Comparisons demonstrated a high degree of consistency.

The researchers then obtained permission to observe LD classes at a high school and a junior-high school in a neighboring suburban school district. At both schools, the researchers met with the principal and the LD teacher to explain the nature of the project. Observation schedules were designed so that each researcher would observe both LD classrooms at various times during the school day. During the first two visits, the two researchers attended both the junior and senior-high school LD classes together to be able to compare field notes. An additional two visits were made by one researcher to the junior-high and three visits by the other researcher to the high school. For most of the remaining observations, one researcher concentrated on the junior-high, the other on the senior-high class. A total of nine observations were made. After the observations were completed, the paper and pencil notes were typed. Each observation item was coded according to the concept it exemplified and was assigned a number within its conceptual category. See Appendix A for the categories and example observations within each.

Personal Interview Method

Interview schedules were comprised of items based on theoretical foundations and employed a variety of question types (i.e., leading, critical incident, and comparative items). For instance, teachers were asked to describe verbally

the instructional methods used in a class with high achievers as opposed to a class with a large number of LD students. Content-analysis categories with detailed descriptors were derived from the theories. Differences in instructional methods and probabilities of attaining desired outcomes (instrumentalities) served as the basis for the content-analysis categories. The content-analysis categories are presented in Appendix A.

This phase of the research involved interviewing teachers and administrators from the two schools in which the participant observations had been conducted. Based on the LD teachers' recommendations, five teachers from each building were contacted. The principal from each building also was asked for an interview. All agreed to participate and signed informed consent statements; interviews were tape recorded to facilitate transcription. Interviews included 27 structured, open-ended questions to allow the respondent to elaborate on the issues as desired. A total of nine interviews took place. In the junior-high school four people were interviewed--the principal, the LD teacher, and two classroom teachers. In the high school, staff members were interviewed--the principal, the LD teacher, and three classroom teachers. Once the interviews had been completed and transcribed, they were combined or grouped with the observation field notes and prepared for content analysis.

Content analysis. The field notes were first content analyzed based on definitions of coupling, expectancy, and effort (see Appendix A for categories, definitions, and sample statements). The original definitions of the three concepts were enhanced to include five degrees of each. Coupling was defined as (a) loosely coupled, (b) moderately loosely coupled, (c) coupled, (d) moderately tightly coupled, and (e) tightly coupled in two areas--teacher-to-teacher coupling and administrator-to-teacher coupling. Expectancy and effort were measured in five degrees from low to high. Fifty items were chosen

randomly from the expectancy and coupling statements whereas all effort observations were included in the analysis. Researchers categorized and rated the items twice with a two-week interval between ratings. Intercoder reliability was estimated using a one-way ANOVA (Winer, 1971).

Reliability estimates for the observation records of the first and second content-analysis rating sessions were as follows: .87 and .90 for expectancy, .77 and .74 for administrator-teacher coupling, .80 and .80 for teacher-teacher coupling, and .72 and .80 for effort. These estimates exceeded the previously set criterion of .70, thus indicating that the categories were efficacious.

Assessment-Instrument Method

This system which used paper-and-pencil scales to measure structural coupling and expectancy climate, is by far the most common method of observation and data collection in the behavioral sciences (Kerlinger, 1973). The scales are more objective and less inferential than the other two measurement techniques applied in this study. In general, these instruments asked administrators and teachers to describe the school situation. Descriptions of each scale grouped under the structural coupling or expectancy motivation climate follow.

Structural coupling. Three short instruments (see Appendix B) were used to measure this variable. The Intensity of Work System Interdependence (IWSI) scale, developed by Bridges and Hallinan (1978), lists 13 activities. Essentially it asks how many times per month the respondent engages in each activity with members of the faculty. Response categories ranged from 0 to 5+ and were scored 0 to 5. The frequencies are summed, resulting in a score which ranges from 0 to 65. The higher the score, the tighter the coupling. An alpha coefficient (as an estimate of reliability) of .95 ($N=165$) was reported (Bridges & Hallinan, 1978). Validity data also are provided. Teacher scores correlate at .56 with principal scores and at $-.60$ with the variable percent of time that teachers work in isolation.

Coupling was also measured by a communication measure refined by Bridges and Hallinan. Teachers checked the frequency with which they talk with other teachers about each of seven topics (five task-relevant and two task-irrelevant): (a) curriculum plans, (b) student reactions, (c) scheduling teaching activities, (d) obtaining resources or supplies, (e) individual student needs, (f) personal concerns about work, and (g) matters unrelated to school. The weight assigned to the six frequency categories approximates 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 seven items. The theoretical range of scores is 0-35; the alpha coefficient as an estimate of reliability for the seven items in the communication index is .88 (N=193). Content validity was established for these scales. In addition, the directions were rewritten to ask for frequency with which teachers talk with the principal. Therefore, the two measures represent a coupling of communication among teachers and between teachers and the principal. The items for each scale are presented in Appendix B.

Expectancy-motivation climate. The scales used in this area were designed and modeled after measures developed by Lawler and Suttle (1973). Expectancy theory requires that the prediction equation be obtained from the subjects whose behavior is to be predicted (Hackman & Porter, 1968; Matsui & Ikeda, 1976; Sheridan & Slocum, 1975). Based on the outcomes identified in the interviews as desirable, an instrument was developed to measure expectancy, valence, and instrumentality. The pilot instrument consists of two Likert-type scales, a "Motivation and Reward" scale with eight items for each, and an "Expectations" scale consisting of seven items. Subjects responded to each item in terms of "Importance of Reward" (valence) and "Likelihood of Getting

the Reward" (instrumentality). Response categories on the five-point scale range from "very unlikely" to "very likely" for the instrumentality scale. The "Expectations" survey also is a five-point scale, ranging from "strongly agree" to "strongly disagree." The items for each scale are given in Appendix B.

In addition to the previously described measures that were in the process of being pilot tested, two measures of structural coupling (curriculum and discipline) (Hoy, 1979) and two measures of expectancy climate (Brookover et al., 1977) were used. The purpose of these additional measures was to assist the validity assessment of pilot measures (a copy of the measures is available upon request from the first author).

The measures were divided into three sets for distribution. The first set contained both the coupling measures and the expectancy measures. The second and third sets contained either the coupling or the expectancy measures. Each set of measures contained the same demographic information section including name, school district, building, level, position, highest degree earned, years of experience in education, and number of years in the present position.

RESULTS

To establish the reliability and validity estimates, two procedures were used. First, item and scale means, standard deviations, item correlations with the scale, and Cronbach's (1959) alpha coefficient were calculated. Second, product-moment correlation coefficients were calculated to assess the relationships between scales.

The findings from the data analysis procedures are presented serially for each of the four research questions.

Research Question 1: What Are the Content, Construct, Convergent, and Predictive Validity Levels of the Structural Coupling Assessment Measures?

Content and construct validity. A panel and statistical techniques were used to determine content and construct validity. The panel consisted of three members--a professor, a public school teacher, and an administrator. Panelists judged the adequacy of the items comprising each structural coupling measure to sample the relevant theoretical constructs. The structural coupling items were considered representative of the content of the theoretical definitions of the concepts thereby establishing content validity.

Item-analysis procedures were applied to the pilot data to determine if the items in each structural coupling measure correlated with the overall structural coupling constructs represented by the scales. High positive correlations provide support for construct validity. Tables 1 and 2 summarize results of the item analysis.

Generally, the means and standard deviations demonstrate adequate variability although some items approach the end of the scale. The correlation coefficients are high and positive, indicating similarity of the items in the scale. Combined with Bridges and Hallinan's (1978) earlier validity estimates the present results lend support to the assertion that the structural coupling measures have construct validity.

Convergent validity. The scores of the structural coupling instruments were correlated with those from the participant-observer and the interview-measurement methods to establish convergent validity. In addition, the two general measures of structural coupling, (Hoy, 1979) were also used. Hoy's instruments measure the coupling of student discipline and coupling of the instructional program. The reliability estimates for these measures are approximately .85. The correlation coefficients for this portion of the study are presented in Table 3.

The structural coupling measures (Scales 1, 2 and 3 in Table 3) correlate significantly with Hoy's instruments (Scales 4 and 5). The coefficients range from .22 to .53, with five of the six being significant beyond the .01 level. These results support the convergent validity of the IWSI and the two communication measures. The correlations between interview and assessment instrument methods, however, do not add to the evidence for validity. With one exception, none of the coefficients is significant. The limited sample size may be partly responsible for these results. In summary, convergent validity was established for the two sets of structural coupling measures.

Predictive validity. Scores on the coupling and expectancy climate indicators should predict which schools, groups, and teachers will most successfully implement the learning strategies intervention model as well as the highest levels of cooperative planning between LD teachers, regular classroom teachers, and administrators. Predictive validity will continue to be determined as part of KU-IRLD activities.

Variables normally predicted by school structure were included in the present study as a preliminary check of predictive validity. Bridges found that the IWSI correlated negatively at the $-.60$ level with the variable percent of time that teachers work in isolation. Other studies consistently have found a positive correlation between school structure or coupling and teacher job satisfaction and perceived organizational effectiveness. These three criterion variables were included to make a preliminary estimate of the predictive validity (the satisfaction and effectiveness measures are available on request from the first author).

Table 3 contains the correlation coefficients for the predictive validity estimates. Intensity of work-system interdependence was found to correlate with teacher isolation at $-.21$, with perceived school effectiveness at $.32$,

and job satisfaction at .34. Communication level among teachers was correlated with the same three variables at -.16, .27, and .24, respectively. Similarly, communication level between teachers and principal correlated with the criterion variables at -.07, .33, and .19. With the exception of the -.07 correlation coefficient, all are significantly different from zero. Therefore, results of the present study demonstrate preliminary evidence of some degree of predictive validity for the structural coupling measures.

Research Question 2: What Are the Content, Construct, Convergent, and Predictive Validity Levels of the Expectancy Motivation Assessment Measures?

Content and construct validity. Panel and statistical techniques similar to these applied to structural coupling were used to establish content and construct validity. Items were drawn primarily from the transcripts of teacher and administrator, interviews from other measures of expectancy motivation, and from theoretical models. The panel concluded that the expectancy, instrumentality, and valence items were representative of the content of the conceptual definitions hereby establishing content validity.

Item-analysis procedures were used to determine the magnitude of the item correlations of the overall constructs represented by the scales. Tables 4 and 5 contain summaries of the item-analysis procedures.

Overall, the means and standard deviations exhibit adequate variability. Only a few items approach the top of the scale. The correlation coefficients are high and positive, indicating overlap between the items and the scale. Therefore, the sources of the items and their correlations with the scales are considered to demonstrate construct validity.

Convergent validity. The scores were correlated with those on the expectancy climate assessment instruments from the participant-observer and interview measurement methods to establish convergent validity of the expectancy measures.

Moreover, two general measures of expectancy developed by Brookover et al. (1977) were also used to evaluate the convergent validity of the three components and the combined motivation force model. The Brookover instruments measure expectancy to succeed and commitment to improve. The reliability estimates, as reported by the authors, are high (approximately .85). The correlation coefficients testing the strength of the convergent validity are presented in Table 6.

The specific expectancy measures based on Vroom's model (1964) are represented by Scales 1 to 4 in Table 6, while Scales 5 and 6 represent the general expectancy measures developed by Brookover and his colleagues. The lowest validity estimates were found between valence (Scale 3) and expectancy for success (Scale 5) at .06, and commitment to improve (Scale 6) at .26. The parallel coefficients for expectancy (Scale 1) also are very marginal at .12 and .19, respectively. The validity estimates for instrumentality (Scale 2) are the highest at .22 and .28, while the estimates for the overall expectancy force model (Scale 4) are significant at .17 and .31. Although somewhat smaller, even though the coefficients are significant, the measures share only a small amount of variance. The validity estimates across methods are not significant. It was concluded that the expectancy measures show marginal but adequate convergent validity levels.

Predictive validity. As described earlier in Research Question 1, predictive validity will be established over the duration of the LD Institute. As an intermediate step, however, variables normally predicted by expectancy motivation were included in the pilot study as a preliminary check of their predictive validity. The criterion variables are hours of effort put forth by employees, job satisfaction, and perceived organizational effectiveness. All relationships should be positively correlated.

Table 6 is composed of correlation coefficients for the predictive validity estimates. The four correlation coefficients for the expectancy climate components and the effort levels are significant. Only instrumentality and the overall force model were correlated significantly with job satisfaction. The values of r are .25 and .30, respectively. Therefore, only limited evidence was found for the preliminary calculation of predictive validity for the expectancy measures.

Research Question 3: What Are the Test-Retest and Internal Consistency Reliability Levels of the Structural Coupling Measures?

Internal consistency reliability. Alpha coefficients (Cronbach, 1959) were calculated to estimate the reliability levels of the structural coupling assessment instruments. Alpha coefficients are a variation of the split-half technique used to estimate the correlations between two random samples from a universe of items similar to those in a given scale. The coefficients for the structural coupling measures as well as the means and standard deviations of the total scales are presented in Table 7. The alpha coefficients are high-- .91, .79, and .87, respectively. The results support the conclusions that the internal consistency levels of the three scales are high, and that the scales have the characteristics of excellent measures.

Test-retest reliability. The instruments were completed by the same subjects twice--in early June, 1980 and in late July or August, 1980. Of the original 99 participants, 32 completed the three structural coupling scales six to eight weeks after the original administration. Results are summarized in Table 8. The correlations between the scores are .74 for cooperative planning, .73 for communication among teachers, and .55 for communication with the principal.

Research Question 4: What Are the Test-Retest and Internal Consistency Reliability Levels of the Expectancy Motivation Assessment Measures?

Internal consistency reliability. Alpha coefficients were calculated for the three components of the expectancy motivation force (See Table 7). The reliability estimates for instrumentality and valence are high--.83 and .79 respectively. Although lower, .71 alpha for expectancy exceeds the criterion level of .70. Therefore, the internal consistency estimates indicate that the reliability levels are high enough to warrant further use.

Test-retest reliability. The instruments were completed by the same subjects twice--in early June, 1980 and in late July or August, 1980. The results are summarized in Table 8. The test-retest reliability estimates are .48, .44, and .41 for expectancy, instrumentability, and valence, respectively. In addition, the two criterion measures also demonstrated positive psychometric properties with estimates of .48 for perceived organizational effectiveness and .81 for job satisfaction.

DISCUSSION

The purposes of this study were to establish the validity and reliability levels of the scales comprising the measurement systems for structural coupling and expectancy climate. Specifically, content, construct, convergent, and predictive validity levels, and test-retest and internal consistency reliability levels were of interest. In general, results showed that the validity and reliability levels of the measurement systems are adequate for use in future studies of structural coupling and expectancy climate.

The structural coupling measures demonstrated excellent psychometric characteristics. With a few exceptions, the correlation coefficients for the construct and convergent validity estimates were high. The predictive validity estimates add to the evidence that the measures are efficacious. In addition,

the internal consistency values exceeded the criterion of .70 with alpha levels ranging from .79 to .91. Finally, the measures displayed characteristics similar to those found in the earlier study by Bridges and Hallinan (1978).

Apparently the expectancy measures are less powerful than the coupling scales. The evidence for content and construct validity, however, is excellent. While item correlation coefficients with the appropriate scale were variable, they were in the predicted direction. Moreover, the coefficient alpha values of .71, .79, and .83, respectively, for the components of the expectancy force levels are positive indicators for a measurement system. The weaknesses appear in the convergent and predictive validity characteristics. Although the correlation coefficients for the overall force model and the general expectancy measures are significant, they share little variance. Similar relationships exist for the predictive validity estimates, that is, significant coefficients but minimal overlap of variance. The results are somewhat mixed but the balance favors the conclusion that the expectancy climate measures are adequate for continued use.

The final issue to be considered relates to the lack of relationships between the results of the interview and assessment instrument techniques. The most obvious reason is the small sample size. The intensity of the interview and content-analysis procedure requires so many resources that only a limited number of subjects could be included. Therefore, the sample size mitigated against finding support across methods. Hernes (1976) suggested another reason since coupling and expectancy produce subtle effects requiring very sensitive detection devices, the researchers may have eliminated the systematic relationships as they processed the interview data through the content-analysis procedure.

Finally, the results support the contention that the measures have adequate validity and reliability levels for use in further research efforts. Therefore, continued research at the KU-IRLD will focus on testing the hypotheses drawn earlier in this paper: (a) structural coupling is positively related to the levels of cooperative planning for learning disabled students that occur within and between school units; and (b) expectancy climate is positively related to the level of cooperative planning for learning disabled students that occur within and between school units.

References

- Alley, G., & Deshler, D. Teaching the learning disabled adolescent: Strategies and methods. Denver: Love, 1979.
- Benson, J. S., & Kennelly, K. J. Learned helplessness: The results of uncontrolled reinforcements or uncontrolled aversive stimuli. Journal of Personality and Social Psychology, 1976, 34, 138-145.
- Bidwell, C. The school as a formal organization. In J.G. March (Ed.), Handbook of organizations. Chicago: Rand McNally, 1965.
- Bridges, E. M., & Hallinan, M. T. Subunit size, work system interdependence, and employee absenteeism. Educational Administration Quarterly, 1978, 14, 24-42.
- Brookover, W. B., & Erickson, E. Sociology of education. Homewood, Ill.: Dorsey, 1975.
- Brookover, W., Beady, C., Flood, P., Schweitzer, J., & Wisenbaker, J. Schools can make a difference. East Lansing: Michigan State University, 1977.
- Brophy, J., & Good, T. Teacher-student relationships: Causes and consequences. New York: Holt, Rinehart, & Winston, 1974.
- Campbell, D. T., & Fiske, D. W. Convergent and discriminant validation by the multitrait-multimethod matrix. Psychological Bulletin, 1959, 56, 81-105.
- Claiborn, W. L. Expectancy effects in the classroom: A failure to replicate. Journal of Educational Psychology, 1969, 60, 377-383.
- Cooper, H. M. Pygmalion grows up: A model for teacher expectation, communication and performance influence. Review of Educational Research, 1979, 49, 389-410.
- Cronbach, L. J. Essentials of psychological testing. New York: Harper & Row, 1959.
- Cronbach, L. J. Essentials of psychological testing (3rd ed.). New York: Harper & Row, 1970.
- Deshler, D. D., Schumaker, J. B., Warner, M. M., & Alley, G. R. Research and development plan for the University of Kansas Institute for Research in Learning Disabilities (BEH Contract No. 300-77-0494), 1978.
- Deshler, D. D., Schumaker, J. G., Warner, M. M., Alley, G. R., & Moran, M. R. Learning strategies for learning disabled adolescents: Acquisition and generalization. A research proposal funded by the University of Kansas Institute for Research in Learning Disabilities (BEH Contract No. 300-77-0494), 1979.

- Dornbusch, S. M., & Scott, W. R. Evaluation and the exercise of authority: A theory of control applied to diverse organizations. San Francisco: Jossey-Bass, 1975.
- Dusek, J., & O'Connell, E. Teacher expectancy effects on the achievement test performance of elementary school children. Journal of Educational Psychology, 1973, 65, 371-377.
- Elashoff, J. D., & Snow, R. E. Pygmalion reconsidered. Worthington, Ohio: Charles A. Jones, 1971.
- Fleming, E. S., & Anttonen, R.G. Teacher expectancy or My Fair Lady. American Educational Research Journal, 1971, 8, 241-252.
- Foley, W. Teaching disadvantaged pupils. In J. Beck & R. Saxe (Eds.), Teaching the culturally deprived pupil. Springfield, Ill.: Charles C. Thomas, 1965.
- Hackman, J., & Porter, L. Expectancy theory as a predictor of work effectiveness. Organizational Behavior and Human Performance, 1968, 3, 417-426.
- Hanson, E. M., & Brown, M. E. A contingency view of problem solving in schools: A case analysis. Educational Administration Quarterly, 1977, 8(2), 71-91.
- Hernes, G. Structural change in social processes. American Journal of Sociology, 1976, 82, 513-547.
- Hoy, W. New measures of structural coupling: A working paper. Rutgers University, 1979.
- Jose, J., & Cody, J. J. Teacher-pupil interaction as it relates to attempted changes in teacher expectancy of academic ability and achievement. American Educational Research Journal, 1971, 8, 39-50.
- Katz, F. E. Autonomy and organization. New York: Random House 1968.
- Kerlinger, F. Foundations of behavioral research. New York: Holt, Rinehart, & Winston, 1973.
- Klein, D. C., & Seligman, M. E. Reversals of performance deficits and perceptual deficits in learned helplessness and depression. Journal of Abnormal Psychology, 1976, 85, 11-26.
- Lawler, E., & Suttle, J. Expectancy theory and job behavior. Organizational Behavior and Human Performance, 1973, 9, 482-503.
- Lewin, K. The conceptual representation and measurement of psychological forces. Durham, N.C.: University Press, 1938.
- Lewin, K. A dynamic theory of personality: Selected papers. (D. K. Adams & K. E. Zener, Eds.). New York: McGraw-Hill, 1935.

- Lewin, K. Field theory in social science. New York: Harper, 1951.
- Lewin, K. Principles of topological psychology. New York: McGraw-Hill, 1936.
- McCleary, M. Stranger in paradise: Process and product of a district office. Unpublished manuscript, National Institute of Education, June, 1979.
- March, J. G., & Olsen, J. P. Ambiguity and choice in organizations. Bergen, Norway: Universitetsforlaget, 1976.
- Matsui, T., & Ikeda, H. Effectiveness of self-generated outcomes for improving prediction in expectancy theory research. Organizational Behavior and Human Performance, 1976, 17, 289-298.
- Meyer, J. W., & Rowan, B. The structure of educational organizations. In M. W. Meyer (Ed.), Environments and organizations. San Francisco, Jossey-Bass, 1978.
- Meyer, J. W., Scott, W. R., Cole, S., & Intili, J. Instructional dissensus and institutional consensus in schools. In M. W. Meyer (Ed.), Environments and organizations. San Francisco: Jossey-Bass, 1978.
- Michenbaum, D. H., Bowers, K. S., & Ross, R. R. A behavioral analysis of teacher expectancy effect. Journal of Personality and Social Psychology, 1969, 13, 306-317.
- O'Connell, E. J., Dusek, J. B., & Wheeler, R. J. A follow-up study of teacher expectancy effects. Journal of Educational Psychology, 1974, 66, 325-328.
- Oldham, G. R., & Brass, D. J. Employee reaction to an open plan office, a naturally occurring quasi-experiment. Administrative Science Quarterly, 1979, 24, 267-284.
- Ouchi, W. G. Coupled versus uncoupled control in organizational hierarchies. In M. W. Meyer (Ed.), Environments and organizations. San Francisco: Jossey-Bass, 1978.
- Pfeffer, J. The micropolitics of organizations. In M. W. Meyer (Ed.), Environments and organizations. San Francisco: Jossey-Bass, 1978.
- Rosenthal, R. On the social psychology of the self-fulfilling prophecy: Further evidence for Pygmalion effects and their mediating mechanisms. New York: MSS Modular Publications, 1974.
- Rosenthal, R., & Jacobson, L. Teacher expectancies: Determinants of pupil I.Q. gains. Psychological Reports, 1966, 19, 115-118.
- Rosenthal, R., & Jacobson, L. Pygmalion in the classroom. New York: Holt, Rinehart, & Winston, 1968. (a)

- Rosenthal, R., & Jacobson, L. Teacher expectations for the disadvantaged. Scientific American, 1968, 218, 19-23. (b)
- Roth, S., & Bootgen, R. R. Effects of experimentally induced expectancies of external control: An investigation of "learned helplessness." Journal of Personality and Social Psychology, 1974, 29, 253-264.
- Rothbart, M., Dalfen, S., & Barrett, R. Effects of teacher's expectancy or student-teacher interaction. Journal of Educational Psychology, 1971, 62, 49-54.
- Sheridan, J., & Slocum, J., Jr. Motivational determinants of job performance. Journal of Applied Psychology, 1975, 60(1), 119-121.
- Thomas, A. Learned helplessness and expectancy factors: Implications for research in learning disabilities. Review of Educational Research, 1979, 49, 308-221.
- Thorndike, R. L. Review of Robert Rosenthal and Lenore Jacobson, Pygmalion in the Classroom. American Educational Research Journal, 1968, 5, 708-711.
- Thornton, J. W., & Jacobs, P. D. Learned helplessness in human subjects. Journal of Experimental Psychology, 1971, 87, 367-372.
- Tolman, E. C. Purpose behavior in animals and man. New York: Century, 1932.
- Tolman, E. C. Principles of purposive behavior. In S. Koch (Ed.), Psychology: A study of a science (Vol. 11). New York: McGraw-Hill, 1959.
- Vroom, V. Work and motivation. New York: Wiley, 1964.
- Weick, K. E. Educational organizations as loosely coupled systems. Administrative Science Quarterly, 1976, 21, 1-19.
- Weick, K. E. Loosely coupled systems: Relaxed meanings and thick interpretations. Unpublished manuscript, Cornell University, 1980.
- West, C. K., & Anderson, T. H. The question of preponderant causation in teacher expectancy research. Review of Educational Research, 1976, 46, 613-630.
- Winer, B. J. Statistical principles in experimental design (2nd ed.). New York: McGraw-Hill, 1971.

Table 1

Summary of the Item-Analysis Procedures for the Intensity of Work System Interdependence Scale in the Structural Coupling Instrument

Item	Mean	Standard Deviation	Item Correlation with Scale
a	2.17	2.02	.51
b	2.24	1.95	.64
c	2.28	1.93	.61
d	1.84	1.98	.52
e	.97	1.57	.52
f	1.68	1.49	.73
g	1.48	1.61	.74
h	1.04	1.46	.66
i	.89	1.40	.67
j	.73	1.43	.65
k	.75	1.48	.62
l	1.26	1.75	.70
m	2.09	1.81	.55

Note 1. The items are provided in Appendix A.

Note 2. The range for the response scale is 0 to 5.

Note 3. The degrees of freedom equalled 97; and the critical values of r at the .05 and .01 levels are .16 and .23, respectively.

Table 2

Summary of the Item-Analysis Procedures for the Two Levels of
Communication Scales in the Structural-Coupling Instrument

Frequency of Discussion						
Teacher with Teacher				Teacher with the Principal		
Item	Mean	Standard Deviation	Item Correlation with Scale	Mean	Standard Deviation	Item Correlation with Scale
a	1.11	1.34	.53	.62	.97	.64
b	1.39	1.32	.65	.58	.88	.72
c	.97	1.30	.63	.65	1.06	.73
d	1.18	1.33	.48	.86	1.21	.74
e	1.77	1.73	.58	.97	1.28	.71
f	2.04	1.67	.46	.77	1.21	.54
g	3.64	1.83	.27	1.57	1.75	.40

Note 1. The items are provided in Appendix A.

Note 2. The range for the response scale is 0 to 5.

Note 3. The degrees of freedom equalled 97, the critical values of r at the .05 and .01 levels are .16 and .23, respectively.

Table 3

Summary of the Correlation Coefficients Indicating the Convergent and Predictive Validity Levels of the Structural Coupling Instrument

Scale	Method									
	Assessment Instruments								Interviews	
	1	2	3	4	5	6	7	8	9	10
1	-								-69*	-27
2	45	-							-22	-09
3	37	53	-						-49	-37
4	29	22	31	-					-48	-35
5	54	31	38	62	-				-28	-76*
6	-21	-16	-07	-09	-21	-				
7	32	27	33	36	51	-13	-			
8	34	24	19	28	48	00	23	-		

Note 1. 1 = Intensity of Work System Interdependence, 2 = Communication Level among Teachers, 3 = Communication Level between Teachers and Principal, 4 = Coupling of Discipline Procedures, 5 = Coupling of the Instructional Program, 6 = Isolation, 7 = Perceived School Effectiveness, 8 = Job Satisfaction, 9 = Administrator-Teacher Coupling, 10 = Teacher-Teacher Coupling.

Note 2. For scales 1-8 the degrees of freedom equalled 97; the critical values of r at the .05 and the .01 levels are .16 and .23, respectively.

Note 3. For scales 9 and 10, the degrees of freedom equalled 5; the critical values of r at the .05 and .01 levels are .67 and .83, respectively.

Note 4. The correlation coefficients have been multiplied by 100.

Table 4

Summary of the Item Analysis Procedures for the Instrumentality and
Valence Scales in the Expectancy Climate Instrument

Item	Instrumentality			Valence		
	Mean	Standard Deviation	Item Correlation with Scale	Mean	Standard Deviation	Item Correlation with Scale
a	4.05	.69	.60	4.21	.75	.39
b	4.09	.64	.62	4.11	.79	.66
c	3.75	.67	.48	4.00	.75	.32
d	4.50	.64	.54	4.32	.68	.52
e	3.76	.80	.47	4.07	.78	.38
f	3.77	.69	.52	3.92	.81	.43
g	3.84	.76	.53	3.91	.83	.71
h	4.32	.74	.64	4.30	.78	.59

Note 1. The items are provided in Appendix A.

Note 2. The range for the response scale is 1 to 5.

Note 3. The degrees of freedom equalled 101; the critical values of r at the .05 and .01 levels are .16 and .23, respectively.

Table 5

Summary of the Item Analysis Procedures for the Expectancy
Scale in the Expectancy Climate Instrument

Item	Mean	Standard Deviation	Item Correlation with Scale
a	3.86	.85	.26
b	3.46	1.14	.31
c	3.06	1.11	.54
d	3.43	1.00	.47
e	3.60	.82	.52
f	3.37	.94	.55
g	4.12	.81	.30

Note 1. Items are provided in Appendix A.

Note 2. The range for the response scale is 1-5.

Note 3. The degrees of freedom equalled 101; the critical values of r at the .05 and .01 levels are .16 and .23, respectively.

Note 4. Items b and c are reverse scored.

Table 6

Summary of the Correlation Coefficients Indicating the Convergent
and Predictive Validity Levels of Expectancy Climate Instruments

Scale	Method								
	Assessment Instruments								Interviews
	1	2	3	4	5	6	7	8	9
1	-								-46
2	37	-							-10
3	16	46	-						-05
4	75	78	67	-					
5	12	22	06	17	-				31
6	19	28	26	31	40	-			11
7	22	25	14	30	14	15	-		-34
8	00	09	04	11	14	00	00	-	

Note 1. 1 = Expectancy, 2 = Instrumentality, 3 = Valence,
4 = Force of Motivation, 5 = Expectancy of Success,
6 = Commitment to Improve, 7 = Job Satisfaction,
8 = Effort, 9 = General Expectancy.

Note 2. For scales 1-8, the degrees of freedom equalled 101;
the critical values of r at .05 and .01 levels were
.16 and .23, respectively.

Note 3. For scale 9, the degrees of freedom equalled 6; the
critical values of r at the .05 and .01 levels are
.62 and .79, respectively.

Note 4. The correlation coefficients have been multiplied by 100.

Table 7

Summary of Means, Standard Deviations, and Alpha Coefficients as
Reliability Estimates for the Scales in the Structural
Coupling and Expectancy Climate Instruments

Scale	<u>N</u>	Number of Items	Mean	Standard Deviation	Alpha
Intensity of Work System Interdependence	99	13	19.40	15.07	.91
Level of Communication among Teachers	99	7	12.10	6.95	.79
Level of Communication with Principal	99	7	6.04	6.21	.87
Instrumentality	103	8	32.07	3.80	.83
Valence	103	8	32.85	3.97	.79
Expectancy	141	7	24.91	4.05	.71

Table 8

Summary of the Means, Standard Deviations, and Test-Retest
Reliability Estimates for the Scales in the Structural
Coupling Instruments

Scale	<u>N</u>	Pre Mean	Pre <u>SD</u>	Post Mean	Post <u>SD</u>	<u>r</u>
Intensity of Work System Interdependence	41	21.60	16.78	25.34	16.76	.74
Level of Communication among Teachers	41	11.76	5.95	12.42	6.62	.73
Level of Communication with Principal	41	8.43	5.92	8.00	6.03	.55
Expectancy	41	24.70	3.81	24.58	3.85	.48
Instrumentality	32	31.47	3.72	30.98	4.18	.44
Valence	32	32.91	3.84	33.05	3.71	.41
Perceived Organizational Effectiveness	41	25.77	4.90	26.02	4.55	.48
Job Satisfaction	41	25.51	4.90	25.17	4.68	.81

APPENDIX A

CONTENT ANALYSIS CATEGORIES FOR STRUCTURAL COUPLING AMONG TEACHERS

1. Loosely Coupled: Teachers work independently of each other. They have little or uncertain knowledge of each other. Control is left to the individual teacher.

Example Statements:

1. I assume s/he has channels to getting materials.
 2. I do not know how many pupils from my department are referred to the LD program.
 3. I would have to estimate the number of students the LD teachers sees daily.
 4. I do not know how grades are assigned to LD students in other classes.
 5. I (LD teacher) do not really go into the regular classroom.
 6. I never refer students to the LD program.
2. Moderately Loosely Coupled: Teachers work independently of each other but share some concerns and ideas. They consult each other occasionally about classroom problems and needs.

Example Statements:

1. I speak with the LD teacher three or four times a week, not necessarily about the LD program or the students.
 2. We have a building budget and s/he (LD teacher) probably has some sort of supplementary sums (s/he does).
 3. I would guess s/he grades on a point basis.
 4. Teachers may reach agreement without carrying it out.
3. Coupled: Teachers work independently but also share concerns, ideas, techniques, and knowledge about students. They meet occasionally to make joint decisions about curriculum or policy. They meet randomly.

Example Statements:

1. Classes (LD) are a lot less structured than mine.
 2. Teacher pointed out to one student that he could bring work from another class to do in the LD room.
 3. The librarian has given us encyclopedias.
 4. Teachers encourage each other.
 5. Teachers are aware of activities in other departments.
 6. Teachers occasionally refer students to LD program.
4. Moderately Tightly Coupled: Teachers discuss concerns, even work for students, though they implement the work separately. They may plan lessons together or utilize the same resource. Teachers have planned meetings.

Example Statements:

1. If they were in my class half the time and in his/hers (LD) the other half, we would average the two groups.
 2. S/he (LD teacher) keeps us up to date; if we have a particular question about a student, we check with her/him.
 3. She keeps us well informed.
 4. The LD aide helped a girl with her Driver's Ed homework.
 5. Teachers compliment and praise each other.
5. Tightly Coupled: Teachers work closely together to develop and implement a program. They meet frequently to make decisions about program, students, materials. They prepare and sometimes teach lessons together.

Example Statements:

1. Teachers are extremely cooperative and work well with me (LD teacher).
2. Student works with the LD teacher and the regular teacher on a need basis.
3. Everyone's staying in the social studies class and the teacher and I (LD teacher) are modifying their programs.
4. I am not reluctant to refer students to the LD program.

CONTENT ANALYSIS CATEGORIES FOR
TEACHER AND ADMINISTRATOR COUPLING

1. Loosely Coupled: The teacher works independently of the administration. The teacher makes decisions. Teachers and administrators have little or uncertain knowledge about each other.

Example Statements:

1. How many students does the LD teacher see a day? Forty some, I think (principal).
 2. What are some of the successes of the LD program? I would not have any idea of individual students (principal).
 3. I don't really know which department refers the most students (principal).
2. Moderately Loosely Coupled: Teacher has independence but administrators show interest and awareness. Teachers may consult administrators occasionally.

Example Statements:

1. I stop in her classroom every once in a while. As a rule, I kind of stay out of the way there (principal).
2. It (support from the administrator) would have to be at my initiation (principal).
3. We don't make announcements on the P.A. system on a routine basis (principal).

3. Coupled: The teacher and administration share responsibilities. They make decisions together.

Example Statements:

1. The procedure for referring students to the LD program is initiated by the teacher and followed through by the counselors.
 2. I'm learning from the LD teacher how to be positive about his/her minimal gains with LD students (principal).
 3. If the teacher needs materials, the teacher suggests the materials and the principal supplies the funds.
 4. Administrators make resources available for teacher use.
 5. Mutual respect between teachers and administrators.
4. Moderately Tightly Coupled: The administration or school policy primarily determines the outcomes but with teacher inputs. Administrators consult teachers about their ideas. The central office approves programs.

Example Statements:

1. The aide puts the attendance report on the door.
 2. Mr. B. (V.P.) takes care of most of the discipline problems.
 3. If a teacher has a real discipline problem, s/he can have the kids come for detention or send them out of the room to the vice principal.
5. Tightly Coupled: The administration and/or school policy has complete control. The administrators make decisions.

Example Statements:

1. That's strictly the principal (who evaluates teachers).
2. (Curriculum changes) must be approved by next door's administration and the school board eventually; I know they're really very careful to keep the two junior highs together.
3. To initiate a change, the principal is the starting place.
4. Administrators set the policy.

CONTENT ANALYSIS CATEGORIES FOR EXPECTANCY

1. Low Expectancy: Teachers exhibiting low expectancy feel that students have below average ability, and that little can be done to help them. They express doubt as to the probability of such student finishing high school, and expect that they will always need help to get by.

Example Statements:

1. Learning disabled students are far below average and need lots of help.
2. We identified the students in junior high school and pre-enrolled them in the LD class.

3. This year I have so many hard-core kids that I know what's going to happen. When I test them, it's going to be like subskills but it's not going to be real big gains, I bet you, and I'll probably feel kind of depressed.
 4. You can't get these problems without help (instructions to student).
2. Moderate-Low Expectancy: Teachers feel that the students are a little below average ability; however, most will be able to finish high school. They feel the student will show slight improvement with a great deal of time and help.

Example Statements:

1. I was surprised that they like spelling.
 2. I think a lot of LD people have trouble with reading and, thus, cannot cope in regular classrooms.
 3. If they will stay in school and do their very best, they can graduate.
 4. Teacher underestimates student's capacity.
 5. Students require more individual attention.
 6. You will be able to solve some of these problems.
3. Neutral Expectancy: These teachers feel the students are of average ability and that they will not only finish high school but that some will try college. Such teachers also feel that the students will find jobs and function normally.

Example Statements:

1. Students will finish high school.
 2. I think they're treated as ordinary students, which I think is good because they are.
 3. Kids are the same no matter who they are.
 4. Students should do as much work as they can.
 5. Students can do the work presented.
4. Moderate-High Expectancy: Teachers in this category feel the students may be above average in ability. They feel the student will overcome their learning disability, and that they will make much progress in school.

Example Statements:

1. Many of the students leave the LD program and return to the regular classroom and get along fine.
2. In some ways, I think we expect kids to work harder when they become involved in the LD program because we think they can succeed at it.
3. One girl came in from math class because she was falling way behind. All she needed was a little self-confidence; she soon went back to class and is doing very well now.
4. Students can work these problems and get most of them correct.

5. High Expectancy: These teachers feel that the students may be well above average in ability and that they are likely to become community leaders--with a little help the students will go far in life.

Example Statements:

1. Some of them are probably pretty good, pretty intelligent kids.
2. Frustration is no excuse in the LD class.
3. There are some who should go to college, they are very bright.
4. The student completes assignments accurately.

CONTENT ANALYSIS CATEGORIES FOR EFFORT

1. Low Effort: The teacher shows little or no interest in helping students. This attitude includes not using available school resources, such as the library, or giving students or co-teachers extra help when asked.

Example Statements:

1. Teacher spends only minimal time with students.
 2. Teacher offers no help to other teachers.
 3. Teacher does not attend screenings.
2. Moderately Low Effort: The teacher does only what is required. The teacher makes no attempt to go beyond the school day or the established curriculum.

Example Statements:

1. Makes no effort to identify new students for the program.
 2. Only works with students or teachers when asked to do so.
 3. Makes no inquiries as to progress of students.
3. Moderate Effort: The teacher spends some time beyond the school day helping students or other teachers. Has spent some time improving the program.

Example Statements:

1. S/he gives some handouts once in a while to tell us how to work with LD kids.
2. I give lots of examples to the students who need help (LD teachers).
3. I will work with teachers who tell me they want help with a student.
4. The LD teacher has difficulty identifying students for programs.

4. Moderately High Effort: Frequently does more than what is required. The teacher usually spends extra time with students or staff. The teacher uses other school resources to improve her program.

Example Statements:

1. Most of my instruction is individualized (LD teacher).
 2. S/he is always giving us something that will help us with an LD kid.
 3. S/he went over a lot of things in a faculty meeting that have helped us work with kids.
 4. Teacher attempts to identify students for program.
5. High Effort: The teacher is always working with and for the students. The teacher involves himself/herself in outside school activities to work with the students and to get them involved. The teacher is always looking for new materials to help students.

Example Statements:

1. Right now I have three classes of individualized instruction.
2. I spend 45 min. to an hour writing student short-term goals.
3. I sponsored the drill team so some of my kids could get involved and get away from the LD stereotype.
4. Teacher always tries to place student in the most appropriate programs.

APPENDIX B: STRUCTURAL COUPLING AND EXPECTANCY MEASURES

Structural Coupling Measure #1: Intensity of Work System Interdependence

1. On the average, how often do you jointly engage in each of the following activities with members of the faculty? Circle the number which comes closest to describing how often you jointly engage in the activity each month. Please describe what actually occurs rather than what you believe should occur.

Response categories. Average Number of Times Per Month: 0, 1, 2, 3, 4, 5+.

Jointly schedule use of physical space
Jointly schedule use of instructional materials
Jointly schedule use of instructional equipment
Jointly schedule times for students to meet with particular teachers
in the work group
Jointly determine size of instructional groups
Jointly select instructional materials
Jointly select topics to be taught
Jointly decide the order in which topics will be taught
Jointly decide the methods to be used in teaching the topics
Jointly prepare lessons or units
Jointly teach lessons or units
Jointly evaluate the progress of students
Jointly decide how to handle student discipline problems

2. What are the total number of hours you spend each week in school? Please consider all time spent at school including lunch hours and planning periods. _____

Of this total, how many hours do you work in isolation of other teachers? _____

Structural Coupling Measure #2: Communication with Peers

By placing a check mark (✓) in the appropriate column, please indicate how often you talk with other teachers about:

Response Categories: Daily, Several Times a Week, Once a Week, Once or Twice a Month, Once or Twice a Semester, Never.

General curriculum plans for a class
Student reactions to a specific lesson
Scheduling teaching activities
Getting instructional resources or supplies
Learning needs of a particular student
Personal gripes or concerns about work
Matters unrelated to school and teaching

Structural Coupling Measure #3: Teacher Communication with Principals

By placing a check mark (✓) in the appropriate column, please indicate how often you talk with the principal, an associate or assistant principal about:

General curriculum plans for a class
Student reactions to a specific lesson
Scheduling teaching activities
Getting instructional resources or supplies
Learning needs of a particular student
Personal gripes or concerns about work
Matters unrelated to school and teaching

Expectancy Items

Response categories: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree.

High faculty initiative leads to the attainment of the desired educational objectives.
Energetic educators are not particularly successful teachers.
Expending high levels of energy does not lead to commensurate levels of student achievement.
Working as hard as I can results in goal accomplishment.
Putting forth a high degree of effort leads to a high level of of performance.
Intensive efforts by educators leads to high student achievement.
Good job performance by a teacher requires hard work.

Valence and Instrumentality Items

Response Categories for Items Used to Measure Instrumentality: Not at all likely, Somewhat unlikely, 50-50 chance, Quite likely, Extremely likely.

Response Categories for Items Used to Measure Valence: Less Important, Moderately Important, Important, Quite Important, Extremely Important.

Having positive relationships with students
The opportunity to develop your skills and abilities
Your students' behavior
Positive feelings about yourself as an educator
Keeping student frustration at a low level
Your students acquiring an interest in the subject matter
Your chances of learning new things
Your chances of accomplishing something worthwhile