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ABSTRACT

This study investigated the relationship of the learning climate of pupils to Individually Guided Education (IGE) with its Multiunit Elementary Schools (MUS-E) organizational structure. IGE/MUS-E was developed by the Wisconsin Research and Development Center for Cognitive Learning and is a comprehensive educational system incorporating several innovative educational development. The study examined five attitudinal variables concerned with learning. These were pupil attitude toward (1) himself as a learner, (2) other pupils, (3) teachers, (4) instruction, and (5) school. There was also an analysis of pupil attitude toward the school plant, the school administration, and the community. Data on attendance and tardiness were also collected. A sample of 566 pupils in 13 Wisconsin IGE/MUS-E elementary schools was compared with a control group of 410 pupils in 12 traditionally oriented Wisconsin elementary schools with regard to their attitudes toward their learning environment. The School Morale Scale and the Semantic Differential of Self-Concept as a Learner were employed to collect data on pupil attitude. Based on the findings, it was concluded that the pupils in the IGE/MUS-E organizational structure generally have the same learning climate as pupils in traditionally organized schools. (Appended are (1) a letter to school districts, (2) the instruments and forms used to gather data, (3) item statistics, (4) means and standard deviations for all schools.) (RC)

Technical Report No. 213

LEARNING CLIMATE IN IGE/MUS-E SCHOOLS

Revised Edition

by

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and Thomas J. Fischbach

Report from Program 3:
Facilitative Environments

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WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING

MISSION

The mission of the Wisconsin Research and Development Center for Cognitive Learning is to help learners develop as rapidly and effectively as possible their potential as human beings and as contributing members of society. The R&D Center is striving to fulfill this goal by

- conducting research to discover more about how children learn
- developing improved instructional strategies, processes and materials for school administrators, teachers, and children, and
- offering assistance to educators and citizens which will help transfer the outcomes of research and development into practice

PROGRAM

The activities of the Wisconsin R&D Center are organized around one unifying theme, Individually Guided Education.

FUNDING

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INTRODUCTION

The purpose of this study was to investigate the relationship of Individually Guided Education and the Multiunit Elementary School (IGE/MUS-E) (Klausmeier, Quilling, Sorenson, Way, & Glasrud, 1971) to the learning climate of pupils. Using established self-report instruments, pupils in multiunit schools receiving individually guided education were compared with pupils in self-contained classrooms on several nonacademic dependent variables: self-concept as learners, attitude toward their present instructional program, attitude toward their teachers, and attitude toward school in general. This chapter includes the background of the study, a delineation of the major hypotheses tested, and a discussion of the significance and limitations of the study.

BACKGROUND OF THE STUDY

The background of the study is concerned with three major theoretical constructs. They are: IGE/MUS-E theory, social system theory, and instructional theory as it relates to learning climate and self-concept. That part of each body of theory which relates specifically to this study will be presented with a review of appropriately related research.

Individually Guided Education and the Multiunit School

Individually Guided Education (IGE), with its organizational-administrative component called the Multiunit School-Elementary (MUS-E), has been described as:

> . . . the first alternative to the age-graded, self-contained elementary school in this century. It is a comprehensive system designed to produce higher educational achievement through providing effectively for differences among students in rate of learning, learning styles, and level of motivation. . . . The multiunit school may be thought of as an invention of organizational arrangements that have emerged since 1965 from a synthesis of theory and practice regarding instructional programing for individual students, horizontal and vertical organization for instruction, role differentiation, shared decision making, open communication and administrative and instructional accountability [Klausmeier, 1971, pp. 12-14].

Figure 1 shows the prototypic organization of an MUS-E of 600 pupils.

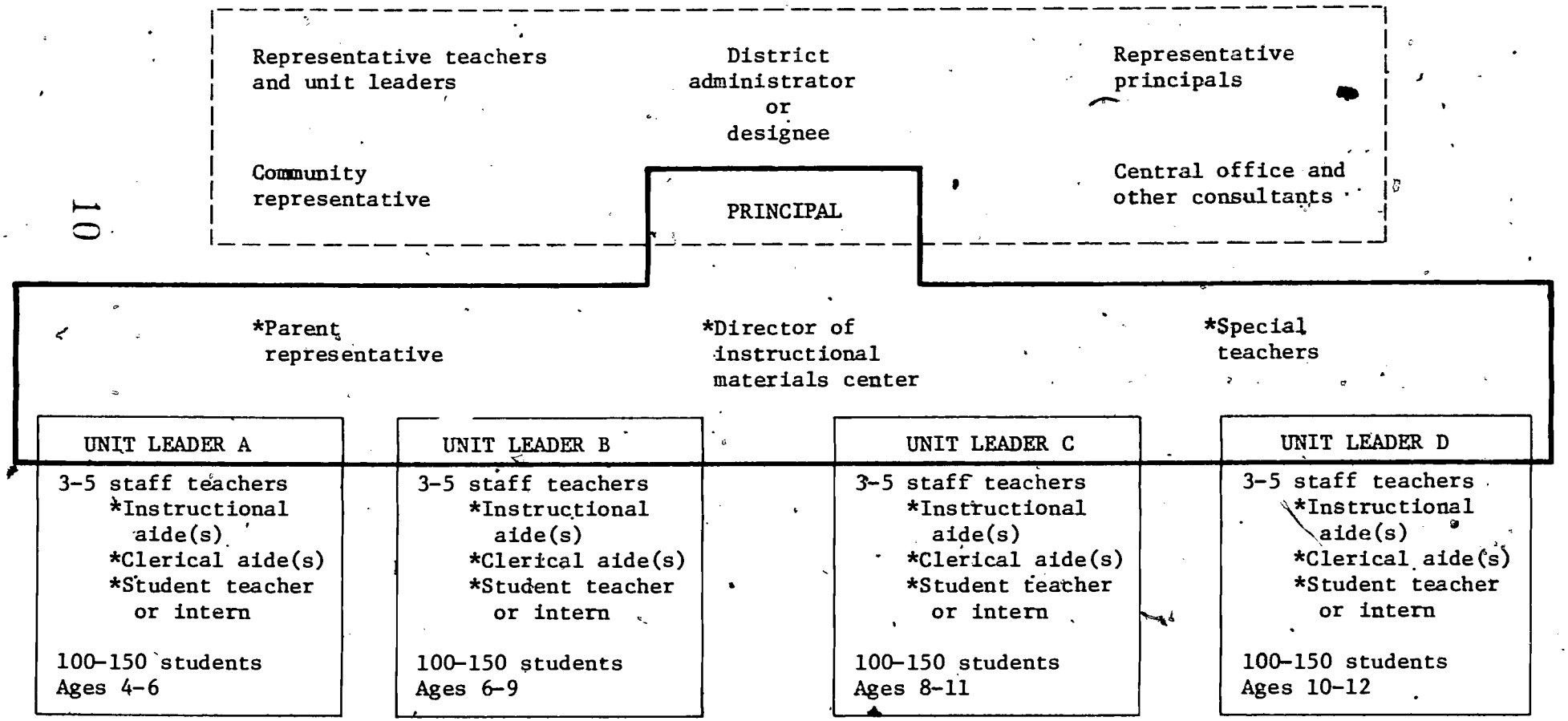

Figure 1. Organizational chart of a multiunit school of 600 students.

This figure was taken from Klausmeier et al. (1971), p. 21.

The concept of individualization is not new. In 1802 the Swiss educator Pestalozzi wrote: "Thus to instruct men is nothing more than to help human nature to develop in its own way, and the art of instruction depends primarily on harmonizing our messages and the demands we make upon the child with his powers of the moment [Green, 1916, p. 37]."

More recently, educators and psychologists have expressed the need to design educational systems attuned to the unique nature of each learner. "It is my prediction," said R. Louis Bright, former Associate Commissioner for Research, United States Office of Education, "that within another ten years almost the entire academic portion of instruction will be on an individual basis in most schools [Esbensen, 1968, p. 17]." In 1971, the noted educator John W. Gardner stated, "We must redouble our efforts to create an educational system that will provide the maximum individual fulfillment for each American [Weisgerber, 1971, p. 7]."

From 1965 to 1971 several programs of individualization have been developed to meet this challenge. The major programs--such as Individually Prescribed Instruction (IPI), the Program for Learning in Accordance with Needs (PLAN), Individualized Mathematics System (IMS), Programed Logic for Automated Teaching Operations (PLATO), the Duluth Plan for Individualization, Personalized Learning (Miami Springs), and the Independent Study Program (Hawaii)--are of four general types:

1. Individually diagnosed and prescribed instruction where the school selects the materials and determines the learning objectives but allows the child to work at his own pace.
2. Self-directed instruction where the child chooses the materials and determines how to proceed but the school determines the learning objectives.
3. Personalized instruction where the pupil sets his learning goals after which the pupil is required to follow a program established by the teacher using specific materials selected by the school.
4. Independent study programs where the learner is permitted to determine his own learning objectives and achievement methods ["Individualization in Schools," 1971].

Most individualized programs emphasize a single approach to individualization such as computer assistance or programed learning packages. The IGE/MUS-E system is more comprehensive in that it provides an instructional programing model (see Figure 2), organizational components, provisions for shared decision making, differential staffing, and alternate grouping patterns. It is theorized by IGE developers that setting and attaining goals require learning tasks at an appropriate difficulty level; feelings of success on current learning tasks heighten motivation for subsequent tasks; feelings of failure lower motivation for subsequent tasks (Sorenson, Schwenn, & Klausmeier, 1969). Several research studies related to IGE/MUS-E have been conducted by the Wisconsin Research and Development Center for Cognitive Learning and by independent sources.

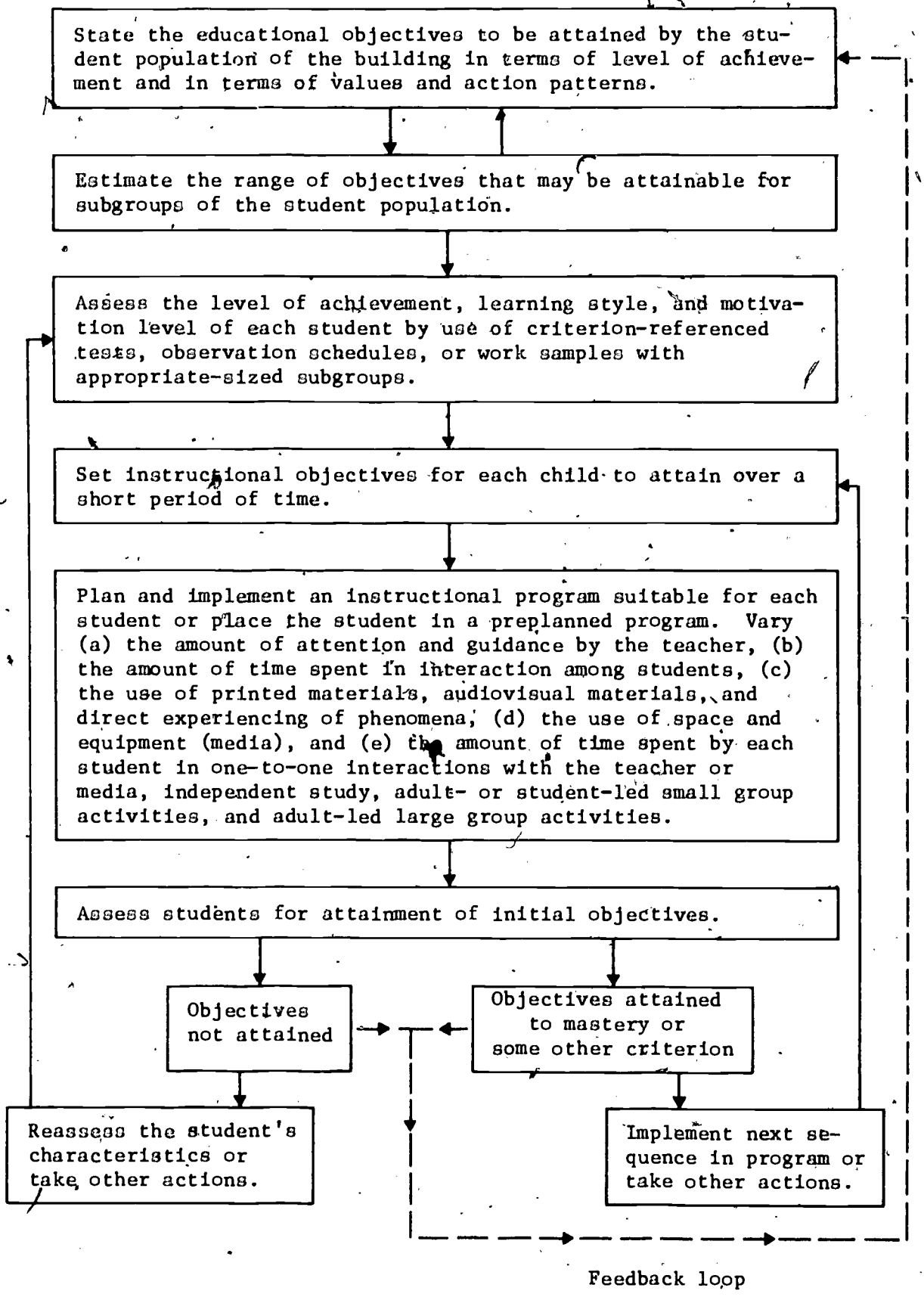

Figure 2. Instructional Programing Model in IGE.

This figure was taken from Klausmeier et al. (1971), p. 19.

The Center for the Advanced Study of Educational Administration (now renamed the Center for Educational Policy and Management) at the University of Oregon began a longitudinal study in 1967-68 in which data were collected in an MUS-E school and a control school in each of three Wisconsin school districts. Results indicated that MUS-E teachers spent more time planning for instruction and diagnosing individual children's needs and that job satisfaction and teacher morale were higher (Pellegrin, 1970).

Essig (1971) found that teachers in multiunit schools not only verbalized the importance of individual attention to students, but they demonstrated the belief through instructional activities provided for students. The numerous instructional changes illustrated that perhaps teachers were actually concerned with and committed to giving more individual attention to students.

Vogel and Bowers (1970) sought to determine the effects of the multiage, nongraded school on pupil attitude, achievement, conceptual maturity, and classroom behavior. From the results of a study involving 707 pupils, they concluded that nongradedness appears to encourage pupils in conceptual maturity and group participation. They also reported that teachers in nongraded classes were more accepting of disorderly pupil behavior.

Attitudinal studies conducted by the Wisconsin Research and Development Center for Cognitive Learning have been few and only ancillary to studies of achievement. The conclusions drawn from these studies are generally reflected in the following Center technical report statement regarding attitude: "There is insufficient evidence to conclude that there were or were not significant differences in experimental and control students' attitudes toward school [Morrow, Quilling, & Fox, 1969]." Graper, principal of the Wilson School in Janesville, Wisconsin (the prototypic school used in the Center's studies), reported significantly fewer incidences of vandalism and less absenteeism after changing to the multiunit school mode ("Individually Guided Education," 1971).

Social System Theory and the Learning Environment

Individually Guided Education, which accommodates the need disposition of the learner through the organizational structure known as the multiunit school, can be viewed in the framework of social system theory.

The classroom may be viewed as a social system where both the socialization of personality and the personalization of roles is taken into account. Parsons (1959), in an essay on the school class as a social system, stated, "While it is important that the school class is normally part of the larger organization of school, the class, rather than the whole school, is recognized by the school system and by the individual pupil as the place where the 'business' of formal education actually takes place [p. 297]."

According to the Getzels-Thelen model (1960) of the classroom as a social system (see Figure 3), the processes in the learning environment may be seen as the dynamic transaction between roles and personalities. "In working out a balance between the institution and the individual, the group develops a *climate*, which may be analyzed into the constituent *intentions* of the group, and, in effect, the group climate represents

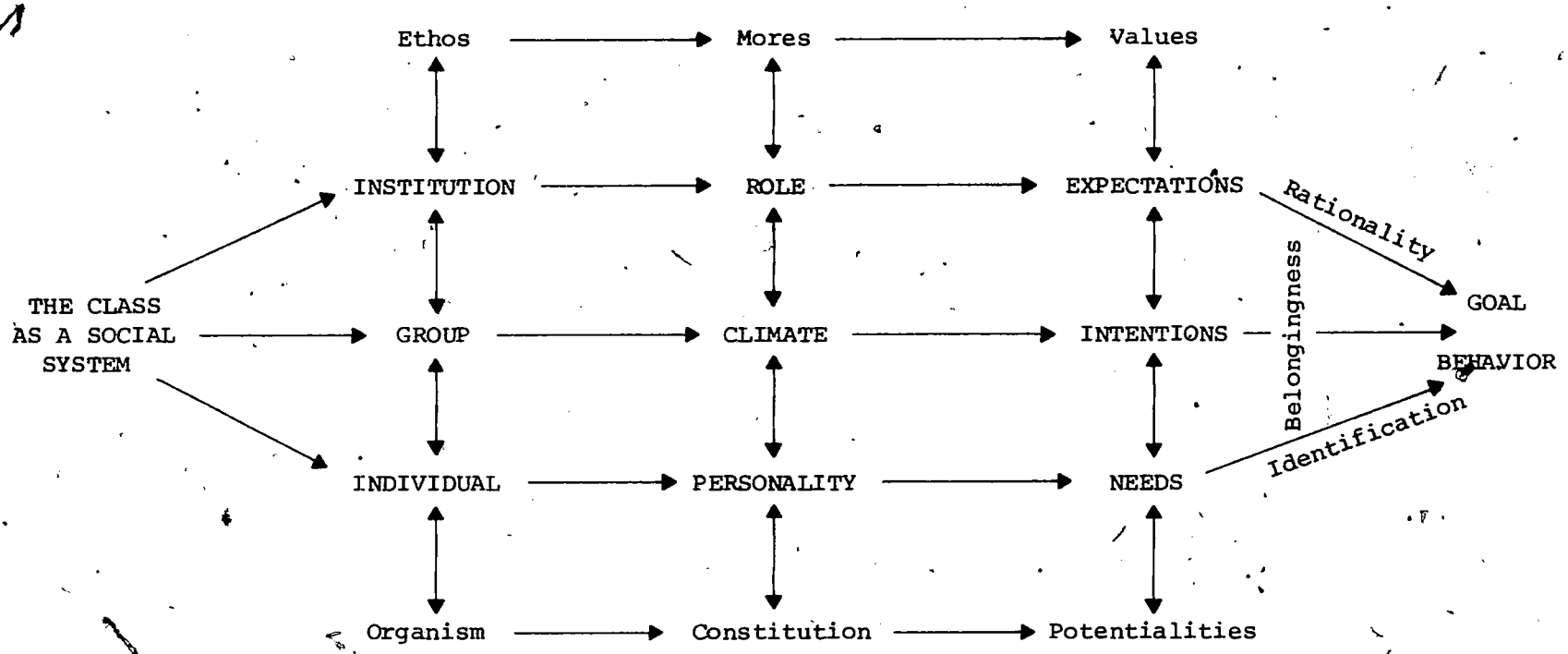

Figure 3. Model of the class as a social system.

This figure was taken from Getzels & Thelen (1960), p. 80.

another general dimension of the class as a social system [pp. 53-82]." Within this framework, the following might be conceived as the ideal model of the classroom as a social system: "(a) Each individual identifies with the goals of the system so that they become part of his own needs. (b) Each individual believes that the expectations held for him are rational if the goals are to be achieved. (c) He feels that he *belongs* to a group with similar emotional identifications and rational beliefs [pp. 79-80]."

IGE/MUS-E is designed to reconcile individual differences in motivation, personality, and learning style with the educational objectives of the school (Klausmeier, 1971). According to both social system theory and IGE/MUS-E practice, there is a link between the fulfillment of individual needs and of institutional goals. Social system theory maintains that when the needs of the individual and the goals of the system are congruent, there is a feeling of *identification* with the system. When the needs of the individual and the expectations of the role-set are congruent, there is a feeling of satisfaction and *belongingness* in the system. When the expectations of the roles and goals of the system are congruent, there is a feeling of *rationality* regarding the system. These constructs together are the dimensions of morale (Getzels, Lipham, & Campbell, 1968, p. 131).

Empirical studies establishing the relationship between individual need fulfillment and institutional goals have traditionally been found in organization and management research. The famous Hawthorne studies (Roethlisberger & Dickson, 1939) initiated a line of research that indicates that a variety of factors influence an individual's response to organizational goals. Factors such as value systems (Whyte, 1955), role expectations (Baumgartel, 1956; and Jacobson, Kahn, Mann, & Morse, 1951), superordinate behavior (Katz, Maccoby, & Morse, 1950), and type of work (Likert, 1961, pp. 92-93) have been related to morale and production. The extent to which the logic of organization-management studies can be applied to the pupil-classroom situation is not fully established and perhaps may best be viewed through that part of instructional theory which is concerned with learning climate and self-concept.

Instructional Theory: Learning Climate and Self-Concept

Instructional theorists have recognized the need for individualization in a supportive learning environment. In his notes on a theory of instruction, Bruner (1966) stated:

> If a curriculum is to be effective in the classroom it must contain different ways of activating children, different ways of presenting sequences, different opportunities for some children to skip parts while others work their way through, different ways of putting things. A curriculum, in short, must contain many tracks leading to the same general goal [p. 71].

In examining the sociopsychological processes in the classroom, Gibb (1960) found:

> There is some evidence that a supportive climate maximizes the learning in the classroom. Certain kinds of behavior on the part of the teacher and of the students in a classroom tend to produce supportiveness. . . . Behaviors that produce this supportive climate are a shared problem solving attitude, feelings of acceptance, empathy toward other group members, and listening to the remarks of others [pp. 121-122].

Citing the research of Withall (1949), Searles (1968) claims, "The social-emotional climate of the classroom is conducive to learning. . . . The teacher operates through the affective domain to get at the cognitive domain of his instruction [pp. 124-125]." With regard to the affective domain, Krathwohl, Bloom, and Masia (1964, p. 85), in their taxonomy of educational objectives, also recognized that human behavior can rarely be compartmentalized in terms of cognition and affect. They cited a body of research which demonstrates that cognition and affect can never be completely separated.

Although the developers of IGE/MUS-E were primarily concerned with the cognitive or academic growth of pupils, many practitioners in multiunit schools claim that there exist real differences in the affective learning climate of their pupils. For the purpose of this study, learning climate is defined as those behavioral and attitudinal variables which together affect learning. They include the pupil's morale as indicated by his attitude toward his learning environment and his self-concept as a learner.

The inclusion of self-concept as a variable affecting learning climate is based on instructional theory which conceptualizes a relationship between achievement and self-concept. In 1938, Lecky (1945) presented his theory of self-consistency to the New York Society for the Experimental Study of Education. He wrote:

> The center or nucleus of the mind is the individual's idea or conception of himself. If a new idea seems to be consistent with the ideas already present in the system, and particularly with the individual's conception of himself, it is accepted and assimilated easily. . . .
>
> Thus the acceptability of an idea to any particular pupil is determined by his needs as an individual. . . .
>
> From this standpoint, learning cannot be understood as a process of forming separate habits, but only in terms of the development of the entire personality. It follows that no type of subject matter is interesting merely for its own sake. It is interesting only when an individual happens to be interested in it, because of the way he interprets it in relation to his problem [pp. 119-120].

More recently, Jersild (1952) defined self-concept as "a composite of thoughts and feelings which constitute a person's awareness of his individual existence, his conception of who and what he is [p. 9]."

It is believed that the way a person thinks of himself determines the general intent and direction of his behavior. In other words, a person who thinks negatively of himself will behave in self-defeating ways, and one who thinks positively of himself will behave in self-fulfilling ways (Graham, unpublished, p. 1).

The IGE/MUS-E system provides the student with realistic performance objectives. The learner is placed in a unit not on the basis of age or grade but according to his learning needs. The student therefore experiences fewer failures due to inappropriate learning materials and thus acquires a more positive sense of self-worth as a learner.

There is much empirical support for the theoretical constructs of Lecky and Jersild. Lecky's own research (1945, p. 121) using high school spelling students indicated a relationship between attitude toward self and performance. In 1952, Jersild analyzed 2,893 student reports entitled "What I Dislike About Myself," and found a high percentage of dissatisfaction with their self-concept of ability concerning school work (p. 89).

The early work of these self-concept theorists and the growth of the so-called "humanistic psychology" was followed in the fifties and sixties by a body of research replete with self-concept studies.

Several of these studies support the hypothesis that a relationship exists between self-concept and achievement. Kubiniec (1970, p. 321) compared scores on a semantic differential of self-concept with grade point averages of 200 female and 268 male students and found that self-concept measures predicted academic success for the males but not for the females. Anderson and Johnson (1971, p. 285), employing a self-report questionnaire, found a positive relationship between a favorable self-image and success in mathematics and English among 263 Mexican-American pupils. Reeder (1964) found a relationship between low self-concept and low achievement level in elementary school children by comparing student self-rating scores and teacher-rating scores. Stevens (1956), in a study comparing college achievement with three dimensions of self-concept, concluded that self-insight and self-acceptance are related to achievement. Denham (1966), in a study employing biographical data and self-rating forms, found that self-concept predicted academic success in 139 freshmen at the University of Arkansas.

There is also research to support the hypothesis that no relationship exists between self-concept and academic achievement. Borislow (1962) found self-evaluation measures ineffective in predicting academic success in college students. Buchin (1965), comparing scores on the Second-Jourard Self-Concept Test with academic records of college freshmen and seniors, concluded that no direct relationship exists between potential, achievement, anxiety, and self-concept. Cook (1959) compared grade point averages with scores on a semantic differential of self-concept as a student among 194 students and found no significant correlation. Conflicting results in establishing the relationship between self-concept and academic achievement may be due to conflicting operational

definitions of self-concept, the vague conceptualization of the dimensions of self-concept, methodological weaknesses including inconsistencies in criteria for school success, and the insensitivity of the instrumentation used.

HYPOTHESES TO BE TESTED

The purpose of this study was to seek an answer to the following global question: *Is the IGE/MUS-E organizational structure characterized by a different learning climate than the traditional self-contained organizational structure?* To answer this question, the following null hypotheses were tested:

Hypothesis 1: *No difference exists between IGE/MUS-E schools and traditional schools with regard to learning climate.*

Hypothesis 2: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their self-concept as learners.*

Hypothesis 3: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward their fellow pupils.*

Hypothesis 4: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward teachers.*

Hypothesis 5: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward instruction.*

Hypothesis 6: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward school in general.*

The instruments and unobstrusive measures employed in the study also permitted analysis of the following ancillary hypotheses:

Ancillary Hypothesis 1: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school plant.*

Ancillary Hypothesis 2: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school administration.*

Ancillary Hypothesis 3: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the community.*

Ancillary Hypothesis 4: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their record of tardiness and attendance.*

LIMITATIONS OF THE STUDY

Truthfulness of response is a problem common to all self-report instruments. The problem exists as a limitation of this study and could only be partially compensated for by observational measures. A comparison study does not permit causal statements nor does the study permit answers concerning which specific components of IGE/MUS-E might account for any differences which may be found.

The study is limited to pupils in a specific age range and in a limited geographic area.

The definition of learning climate assumes that learning is truly affected by the facilitative environment described. Although there is much practitioner support for this view, as yet there is little evidence from empirical research to support this view.

SIGNIFICANCE OF THE STUDY

The USOE's national effort to install multiunit schools makes the global question--that of whether the IGE/MUS-E school is characterized by a different learning climate than the traditional school--one of significance for school administrators. There is much research that indicates that a positive relationship exists between self-concept and achievement. Although this study does not test this relationship, it does have implications for those who accept this theoretical construct. Many educators have placed great emphasis on the development of a positive self-concept on the part of pupils in their schools.

II

DESIGN AND METHODOLOGY

To investigate the relationship of Individually Guided Education and the Multiunit School to the learning climate of pupils, a comparison design utilizing traditional self-contained schools as controls was employed. Kerlinger (1964, p. 315) termed this a compromise experimental group-control group design, since pretesting and random assignments of subjects to groups is impossible. Such a design is valid to the extent that the researcher is able to establish equivalence by other means. An effort was made to establish this equivalency by matching the experimental and control groups on key variables.

This chapter will include a discussion of the sample, the instrumentation employed in the study, and the procedures for the collection and analysis of data.

THE SAMPLE

The sample of schools selected for inclusion in this study was drawn from a larger population of IGE/MUS-E and traditional schools on the basis of the following criteria:

IGE/MUS-E schools (experimental group):

1. The school must be a fully functioning multiunit school; i.e., it must have those organizational and instructional components, with the exception of the systemwide policy committee, that are described as essential by IGE/MUS-E developers.

2. The school must be in at least its second year of operation.

3. The school must contain a sufficient number of pupils in the 9-12 age range (upper unit) who have had at least one full year of instruction in this system.

Traditional school (control group):

1. The school must be traditionally organized, i.e., it must have self-contained, age-graded classrooms.

2. The school must be in at least its second year of operation.

3. The school must contain fifth-grade pupils who have had at least one full year of instruction in that school.

Pupils from upper units or fifth grades, rather than primary units or lower grades, were chosen to represent the selected schools because of their longer exposure to the treatment variable (IGE/MUS-E) and

because of their superior skill in responding to verbal self-report instruments. The entire school population was used, however, in testing the hypothesis concerning attendance and tardiness.

A list of school superintendents in districts containing eligible IGE/MUS-E schools in Wisconsin was compiled from the 1971-72 Directory of Multiunit Schools (Wisconsin R & D Center, 1971). These superintendents were contacted by letter (see Appendix A) and by telephone and requested to participate in the study. Their cooperation was asked in helping to select an IGE/MUS-E school in their district and a comparable traditional school, matched on socioeconomic and size variables. Of the 18 superintendents contacted, 13 agreed to participate; 3 did not feel their schools met the criteria for inclusion; and 2 were excluded because of their geographic locations. (It had been predetermined that practical considerations would limit the study to about 20 schools. By excluding the 2 geographically distant school districts, this limit was raised to 25.)

Data concerning schools included in the sample study are summarized in Table 1. The sample included 976 pupils: 566 pupils from 13 IGE/MUS-E schools, and 410 pupils from 12 traditional schools (one district could not supply a control school). The sample contained urban, suburban, and rural schools representing a wide range of size, location, and socioeconomic variables in both the control and experimental schools. Although age of school building was not specifically controlled in this study, both groups included some very new and some very old school buildings.

INSTRUMENTATION

The assessment of learning climate, as defined in this study, required the collection of attitudinal data on five areas of a pupil's immediate learning environment. These were attitudes held by the pupil toward: himself as a learner, his teacher, his instruction, his fellow pupils, and his school. The study also required the collection of data concerning attendance and tardiness of pupils.

After an extensive review of existing instrumentation in these areas, it was determined that there existed no one instrument that would be appropriate to the sample and that would provide measures of all requisite variables. However, two instruments were found that, when combined, could be administered within a reasonable period of time and satisfied the basic data requirements of the study. The instruments selected were the School Morale Scale (Wrightsman, Nelson, & Taranto, 1968; and Wrightsman & Nelson, undated) and the Semantic Differential for the Measurement of Global and Specific Self-Concept (Stillwell, unpublished). See Appendix B for the adaptations of these instruments that were used.

The School Morale Scale

The School Morale or SM Scale is an 84-item, Likert-type attitudinal scale which, according to its authors, measures seven factors of a pupil's

TABLE 1

SUMMARY OF PARTICIPATING SCHOOL DISTRICTS AND THEIR CONTRIBUTIONS TO THE SAMPLE

School Districts	Contribution to Sample				
	Schools	MUS-E Pupils	Control Pupils	Total Pupils	Percent of Sample
Population[a] Under 10,000					
District 1	2	56	23	79	8
District 2	2	26	22	48	5
District 3	2	20	23	43	4
District 4	1	65	0	65	7
Population Between 10,000 and 50,000					
District 5	2	30	31	61	6
District 6	2	26	28	54	6
District 7	2	64	54	118	12
District 8	2	36	27	63	6
Population Over 50,000					
District 9	2	36	22	58	6
District 10	2	31	30	61	6
District 11	2	48	27	75	8
District 12	2	32	26	58	6
District 13	2	96	97	193	20
	25	566	410	976	100

[a]Population figures represent the total population of the largest community within the school district based on the 1970 U.S. Census.

morale about school. These seven subscales concern pupil attitude toward: school plant, instruction, administration and staff, community, other pupils, student-teacher relationships, and general attitude toward school. The sum of the scores on these subscales produces the measures termed school morale.

Although the SM Scale was administered in total, only those subscales relating to learning climate were used to test the study's main hypotheses and the global question. Data available from the other subscales provided the opportunity to test some interesting, ancillary hypotheses.

Item statistics and coefficient alpha reliabilities are reported by the authors and are summarized in Appendix C. Briefly, the developers of the SM Scale reported homogeneity estimates of reliability for three samples for each of the seven subscales.

For each item, a mean (1 = agree, 0 = disagree), standard deviation, correlation with the subscale score, and a reliability index are provided. The correlation between the item and the subscale score is a point-biserial correlation which is inflated because it is a part-whole correlation. The reliability index is the squared product of the point biserial correlation (between the item and the total test score) and the standard deviation of the item.

The alpha reliability estimates provided are similar to Kuder-Richardson coefficients (KR-20), and are conservative estimates of scale homogeneity. A reliability of at least .50 is generally required for adequate group comparisons. Of the 21 reliability estimates (3 groups X 7 subscales), 18 exceed + .50 and 15 exceed + .60. Each subscale appears to have an adequate degree of item homogeneity (Wrightsman et al., 1968, p. 2).

The authors of the SM Scale also claim construct validity in their administration of the scale to comparison schools where other indicators of morale (teacher opinion, innovativeness) were in evidence.

The Semantic Differential of Self-Concept as a Learner

Because the SM does not attempt to measure the pupil's attitude toward himself as a learner, a second instrument was utilized in the determination of the school's learning climate. This was the Semantic Differential of Self-Concept as a Learner, a version of the Semantic Differential for Measurement of Global and Specific Self-Concept (see Appendix B). This was originally developed to compare achievement and student self-concept. It is a derivation of the technique described by Osgood, Suci, and Tannenbaum in The Measurement of Meaning (1957). The underlying assumptions (Osgood & Suci, 1955) of the semantic differential technique are:

1. The process of description or judgment can be conceived as the allocation of a concept to an experimental continuum definable by a pair of polar items.
2. Many different experiential continua, or ways in which meanings can vary, are essentially equivalent and hence may be replaced by a single dimension.

3. A limited number of such continua can be used to define a semantic space within which the meaning of any concept can be specified [p. 325].

Kerlinger (1964, p. 315), in evaluating the semantic differential in behavioral research, concludes that the semantic differential can be applied to a variety of research problems. It has been shown to be sufficiently reliable and valid for many research purposes.

Stillwell (unpublished), using an approximation of the Kuder-Richardson formula, obtained test-retest reliability values ranging from .47 to .92 for girls and from .57 to .71 for boys. The values derived using the method of rational equivalence ranged from .55 to .90 for girls and from .63 to .85 for boys. These values are comparable to the figures reported on personality tests now in wide use. It is felt that, for purposes of distinguishing between groups, this reliability was sufficient, although this writer would not recommend attempting to use this instrument to differentiate among individuals within the groups.

The validity of instruments assessing psychological constructs such as self-concept cannot be ascertained directly. However, construct validity can be established if two separate measuring devices purporting to measure the same construct are found to correlate to a reasonable degree. Since no known devices were available which attempted to assess specific self-concept as a student, validity of the instrument was assumed.

Because the Semantic Differential may be administered with relative ease, it was attached to the SM Scale in order that all data relative to learning climate could be collected at the same time.

PILOT TEST

Since school officials advised that the collection of data be done in late January for practical considerations, the pilot test was conducted in December of 1971. The pilot, using the SM Scale combined with the Semantic Differential of Self-Concept as a Learner, was conducted in two Wisconsin schools (one multiunit, one control) using 58 subjects. The purpose of the pilot test was to determine the appropriateness of the instruments to the sample of pupils utilized in this study and to determine whether a fatigue factor existed. As a part of the testing procedure, intercorrelations of subscales were also computed and are reported in Table 2 as further evidence of internal consistency.

The pilot test also revealed useful information which affected the final administration of the combined instruments. Item no. 24, "The guidance counselor here is helpful," and item no. 80, "The assistant principal knows the names of most of the students," were deemed inappropriate to upper units or fifth graders in Wisconsin schools as these positions are uncommon. Because a blank response produces a negative scoring effect, and because the subscale on administration and staff from which these items came also includes items concerning support staff such as the school janitor, it was judged that "school secretary" could replace the nonexistent roles of assistant principal and guidance counselor. The elementary school secretary, in practice, seems to have

TABLE 2

INTERCORRELATIONS OF SUBSCALES

	School Plant	Instruction	Administration	Community	Students	Teachers	General Morale
School Plant	1.000						
Instruction	.570	1.000					
Administration	.570	.617	1.000				
Community	.481	.460	.457	1.000			
Students	.599	.623	.548	.487	1.000		
Teachers	.574	.671	.623	.443	.585	1.000	
General Morale	.730	.652	.631	.507	.607	.661	1.000

as much or more contact with the pupils than the janitor and therefore seemed a logical substitute. (See Appendix B.)

It was also determined that the administration time for the sample subjects was approximately 30 minutes and that a fatigue factor did not exist. The vocabulary was judged not too difficult for this age group when read aloud. These determinations were made by the researcher on the basis of observations in the pilot classrooms and informal questioning of the subjects subsequent to the administration of the instruments.

DATA COLLECTION

The data for the study were collected by two trained test administrators and the researcher in late January and early February of 1972. The directions for administering the instrument were as follows:

1. Encourage the regular teacher to leave the testing situation.

2. Read the following test directions aloud to the pupils: "This is not a test. It is a list of sentences about your school. Read each one silently as I read it aloud and decide whether you agree or disagree with the statement. If you agree, put a capital A in front of the statement. If you disagree, put a capital D in front of the statement. This is a part of a project being done at many different schools all over Wisconsin. No one at your school will see your answers. They will be collected and taken away right away. So answer as honestly as you can. You will probably find that you agree with some of them and disagree with others."

3. Instruct the students to respond to every item, even if they must guess. [It was reasoned that even though a pupil may not know how to respond to an item, e.g., "18. Teachers in my school get paid more than do teachers in nearby cities and counties," his guessed response would still be an indication of his attitude toward his learning environment.]

4. On the final page of the instrument [the Semantic Differential], repeat the lead sentence, "Circle the term which best describes you as a learner," for each item.

Data on attendance and tardiness were collected on the same date for all participating schools in order to control for high illness periods and storms. The date--March 15, 1972--was arbitrarily chosen, and a response form (see Appendix D) was mailed to participating building principals. They were asked to provide their enrollment, attendance, and tardiness figures for March 15, 1972.

TREATMENT OF THE DATA

Scores were recorded on the SM Score Sheet (see Appendix E). The space termed "other" was used to record the Semantic Differential scores.

The Semantic Differential was scored by assigning scale values of 5, 4, 3, 2, and 1 to correspond with the verbal statements "very . . . somewhat . . . average . . . somewhat . . . very" on the pupil report form (item 5 was reversed). Scores could range from a low of 9 (a very poor self-concept as a learner) to a high of 45 (a very positive self-concept as a learner). The Semantic Differential and the SM subscores relating to the question of learning climate were analyzed using a multivariate F test (generalized Hotelling T^2) to test for a significant difference ($p < .05$) between the experimental and control groups. Univariate F's were also computed for all subscales and for the Semantic Differential to test the individual hypotheses.

The model for analysis followed a simple block design, with two levels of one factor (treatment and control) blocked by school district. The block by treatment interaction was used for error. The analyses were performed using Jeremy D. Finn's Multivariance program (1968) at the Madison Academic Computing Center. A separate analysis of the attendance and tardiness data was made using a t test of the difference between the means of both groups.

III

ANALYSIS OF THE DATA

The primary purpose of this study was to investigate the learning climate experienced by pupils in IGE/MUS-E schools and the learning climate experienced by pupils in traditional self-contained classrooms. To determine the relationship between learning climate and the organization for instruction, a global question and several other hypotheses were formulated. Analysis of data related to these concerns is presented in this chapter. Narrative and tabular presentations are included in the following sections:

1. Analysis of data related to the learning climate--a multivariate analysis of variance of five key variables and univariate tests of individual hypotheses;

2. Analysis of data related to the ancillary hypotheses--univariate and *t* tests of selected subscale scores and attendance/tardiness data;

3. Descriptive statistics for total sample are listed in Appendix F.

The probability level for all tests of statistical significance between the experimental and control groups was established at .05. A probability level of .10 was considered to indicate a moderate difference. Scale and subscale means and standard deviations for the total sample of school districts are reported in Appendix F. The means for IGE/MUS-E school pupils are higher, disregarding significance, on all attitudinal measures except the subscale "teachers." Differences between IGE/MUS-E and traditional school pupils are ranked by district in Table 3.

THE MAJOR HYPOTHESES

A multivariate analysis of variance was utilized to answer the major hypothesis concerning learning climate. Learning climate was defined in this study as a combination of those factors in a pupil's immediate learning environment which facilitate or detract from a positive attitude toward school. These factors include the pupil's attitude toward himself as a learner, his fellow pupils, his teachers, his instruction, and his general feelings about school (school morale). Data on these variables were collected using the School Morale Scale and the Semantic Differential of Self-Concept as a Learner. Scores on those scales and subscales relating only to learning climate were analyzed together to answer the following global question: *Is the IGE/MUS-E organizational structure characterized by a different learning climate than the traditional self-contained organizational structure?*

Null hypothesis one stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to learning climate.* Results of this analysis are found in Table 4.

TABLE 3

LEARNING CLIMATE COMPONENT MEANS BY DISTRICT AND SCHOOL ORGANIZATION

District	School Organization	Learning Climate Component Variables: Self-Concept	Other Pupils	Teachers	Instruction	General Morale[a]	School Morale[b]
1	IGE/MUS-E	32.07	8.18	9.45	8.38	7.82	58.70
	Traditional	30.48	9.43	9.70	8.91	8.04	62.83
	Difference	+ 1.59	- 1.25	- .25	- .53	- .22	- 4.13
	(Rank)[c]	(7)	(12)	(8)	(8)	(7)	(9)
2	IGE/MUS-E	32.81	6.27	7.42	6.58	5.92	49.19
	Traditional	29.86	6.73	7.36	7.50	6.91	53.36
	Difference	+ 2.95	- .46	+ .06	- .92	- .99	- 4.17
	(Rank)	(3)	(9)	(7)	(10)	(8)	(10)
3	IGE/MUS-E	36.90	9.30	9.40	8.90	8.55	64.25
	Traditional	33.04	7.61	8.70	6.96	6.13	55.00
	Difference	+ 3.86	+ 1.69	+ .70	+ 1.94	+ 2.42	+ 9.25
	(Rank)	(2)	(4)	(3)	(1)	(1)	(4)
4	IGE/MUS-E	32.19	7.25	8.17	7.18	7.03	52.23
	Traditional	--	--	--	--	--	--
	Difference	--	--	--	--	--	--
	(Rank)	--	--	--	--	--	--
5	IGE/MUS-E	32.60	6.63	6.13	7.87	4.37	43.90
	Traditional	31.68	5.55	7.03	6.77	5.94	43.87
	Difference	+ .92	+ 1.08	- .90	+ 1.10	- 1.57	+ .03
	(Rank)	(9)	(7)	(10)	(4)	(12)	(7)
6	IGE/MUS-E	35.23	8.27	8.31	7.69	6.12	54.69
	Traditional	33.54	7.89	8.57	8.57	7.14	57.46
	Difference	+ 1.69	+ .38	- .26	- .88	- 1.02	- 2.77
	(Rank)	(6)	(8)	(9)	(9)	(9)	(8)
7	IGE/MUS-E	33.70	8.86	8.97	8.77	8.25	62.20
	Traditional	32.67	7.48	8.06	7.67	6.43	52.87
	Difference	+ 1.03	+ 1.38	+ .91	+ 1.10	+ 1.82	+ 9.33
	(Rank)	(8)	(6)	(2)	(4)	(3)	(3)
8	IGE/MUS-E	37.25	9.22	8.56	8.19	7.31	60.36
	Traditional	31.63	7.67	8.48	8.15	6.19	52.96
	Difference	+ 5.62	+ 1.55	+ .08	+ .04	+ 1.12	+ 7.40
	(Rank)	(1)	(5)	(6)	(7)	(6)	(5)
9	IGE/MUS-E	37.00	8.33	9.11	8.89	8.28	60.53
	Traditional	34.14	6.00	8.50	8.05	7.14	53.14
	Difference	+ 2.86	+ 2.33	+ .61	+ .84	+ 1.14	+ 7.39
	(Rank)	(4)	(1)	(4)	(6)	(5)	(6)

TABLE 3 (Cont.)

District	School Organization	Learning Climate Component Variables: Self-Concept	Other Pupils	Teachers	Instruction	General Morale[a]	School Morale[b]
10	IGE/MUS-E	31.77	7.81	7.97	7.74	6.42	52.06
	Traditional	32.97	5.50	5.43	6.07	4.97	38.97
	Difference	- 1.20	+ 2.31	+ 2.54	+ 1.67	+ 1.45	+13.09
	(Rank)	(11)	(2)	(1)	(3)	(4)	(1)
11	IGE/MUS-E	34.31	7.71	8.77	8.08	7.90	59.17
	Traditional	32.15	5.41	8.41	6.30	5.81	47.19
	Difference	+ 2.16	+ 2.30	+ .36	+ 1.78	+ 2.09	+11.98
	(Rank)	(5)	(3)	(5)	(2)	(2)	(2)
12	IGE/MUS-E	32.50	7.22	7.28	7.09	6.31	50.75
	Traditional	32.35	7.77	9.35	9.23	7.81	60.31
	Difference	+ .15	- .55	- 2.07	- 2.14	- 1.50	- 9.56
	(Rank)	(10)	(10)	(12)	(12)	(11)	(12)
13	IGE/MUS-E	32.31	5.55	6.72	6.21	5.11	42.56
	Traditional	35.14	6.46	8.61	7.40	6.54	50.06
	Difference	- 2.83	- .91	- 1.89	- 1.19	- 1.43	- 7.50
	(Rank)	(12)	(11)	(11)	(11)	(10)	(11)
Mean for all districts	IGE/MUS-E	33.90	7.74	8.17	7.81	6.88	54.66
	Traditional	32.47	6.96	8.18	7.63	6.59	52.33
	Difference	+ 1.43	+ .82	- .01	+ .23	+ .28	+ 2.53

[a] Not used independently in the analysis. Presented for illustration only.

[b] School Morale variable is a sum of the other five learning climate components, including General Morale.

[c] Differences are ranked by variable (see column heads).

Findings indicate that no difference exists between the IGE/MUS-E school pupils and the control school pupils. The direction of the raw score difference (see Table 3) indicated that IGE/MUS-E pupils scored higher on those attitudinal measures concerned with learning climate than did those pupils in traditionally organized schools, but this difference in scores was not significant ($p < .22$); see Table 4.

The next five major hypotheses of this study required individual analyses of variance of the five dependent variables contained in the first hypothesis. It is not the usual procedure to perform univariate tests after the multivariate test is rejected. However, in this case, the component variables were judged important enough to the researcher to be stated in separate null hypotheses. Results for these hypotheses are reported in Table 4.

TABLE 4

MULTIVARIATE ANALYSIS OF VARIANCE OF LEARNING CLIMATE

Source[a]	Results: Multivariate df Num.	Multivariate df Denom.	Multivariate F Ratio	Multivariate p level observed*	Univariate df	Univariate Components (p levels observed*): Self-Concept	Other Pupils	Teachers	Instruction	School Morale
Total					25					
Mean					1					
Between Schools					24					
Blocks (Districts)[b]	60	36.5565	1.30	.20	12	.27	.12	.13	.59	.17
Treatment	5	7	1.89	.22	1	.03	.056	.98	.56	.30
Block X Treatment (Error)					11					

[a] In order removed.

* Significant at .05 level.

Null hypothesis two stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their self-concept as learners.*

Scores on the Semantic Differential of Self-Concept as a Learner were used to test this hypothesis. The value of $p < .03$ indicates that the experimental (IGE/MUS-E) group scored significantly higher than the control (traditional) group on the variable termed self-concept as a learner. Thus, the null hypothesis is rejected.

Stated operationally, the analysis indicated: A difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their self-concept as learners, and the direction of the difference indicates that IGE/MUS-E pupils have the more favorable attitude.

Null hypothesis three stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward their fellow pupils.*

To test this hypothesis, data were collected on the subscale termed "other students" of the School Morale Scale. The intent of the authors of this subscale was to measure a pupil's relationship with other students--their friendliness toward him, their helpfulness, and his identification with them (Wrightsman et al., 1968, p. 13).

Typical items were:

Most of my friends go to the same school that I do.
I wish the other children at this school were friendlier to me.
There is a lot more "school spirit" here than at most schools.

Results indicate that a moderate (though not significant) difference does exist between the control and experimental groups. The direction of this difference indicates that IGE/MUS-E pupils scored moderately higher on measures of pupil attitude toward their fellow pupils than did the control pupils. Stated operationally, the analysis indicated: A moderate difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitudes toward their fellow pupils, and the direction of the difference indicates the IGE/MUS-E pupils have the slightly more favorable attitude.

Null hypothesis four stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward teachers.*

To test this hypothesis, data were collected on the subscale termed "teacher-student relationships." The intent of this scale was to assess pupil attitude concerning the relationship between the pupil and his teachers, beyond instructional matters (Wrightsman et al., 1968, p. 13).

Typical items were:

All my teachers know me by name.
Most teachers at this school don't have any "teacher's pets."
Most of my teachers laugh at my mistakes in class.

No significant differences were found between the experimental and control groups on this variable and, thus, the null hypothesis cannot be rejected.

Null hypothesis five stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward instruction.*

To test this hypothesis, analyses of variance for the subscale entitled "instruction" of the School Morale Scale were performed. The intent of this subscale was to measure pupil attitude about teacher competence, quality of instruction, and instructional materials (Wrightsman et al., 1968, p. 13).

Typical items were:

> There are many more audio-visual materials available at this school than at the average school.
>
> My teachers use a lot of books, references, and audio-visual materials to help me learn.
>
> Sometimes the assignments we are given are not very clear.

The results indicate no significant differences between the experimental and control groups on this variable. Thus, the null hypothesis is not rejected.

An inspection of the means in Table 4 indicates a slightly more favorable attitude toward instruction in the IGE/MUS-E schools. The means are 7.81 (experimental) and 7.63 (control), for a raw score difference of .23.

Null hypothesis six stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward school in general.*

The score termed "school morale," which is the sum of the seven subscales of the total School Morale Scale, was utilized to test this hypothesis. These subscales included attitudinal items concerning the school building, the administration and staff, the community, and general morale in addition to the subscales previously analyzed.

Using data from all districts, it was found that there is not a significant difference ($p < .30$) between the IGE/MUS-E pupils' scores and the control pupils' scores. Thus, the hypothesis is not rejected.

The direction of difference, however, indicates the IGE/MUS-E group scored somewhat higher on this measure than did the control group. The raw scores (in Table 3) were 54.66 (experimental) and 52.33 (control) for a raw score difference of 2.53.

ANCILLARY HYPOTHESES

The instruments and unobtrusive measures employed in this study also permitted the analysis of four ancillary hypotheses. The first ancillary hypothesis stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school plant.*

Data utilized for the testing of this hypothesis were collected on the subscale termed "school plant." The intent of the scale was to determine a pupil's attitude toward his school building.

Typical items were:

Compared to most school buildings I've seen, this building is nicer.

My school building is too large; it is too far to walk from one place to another.

This school building is old and run-down.

Analysis of variance of these data (presented in Table 5) did not permit the rejection of the null hypothesis ($p < .17$). Raw score means, listed in Table 6, were 8.62 for pupils in IGE/MUS-E schools and 8.00 for pupils in traditional schools, so the IGE/MUS-E pupils did have slightly more positive attitudes.

The second ancillary hypothesis stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school administration.*

TABLE 5

ANALYSIS OF VARIANCE FOR PUPIL ATTITUDE TOWARD SCHOOL PLANT

Source[a]	SS	*df*	MS	*F*	*p* level observed
Blocks (Districts)	26.4780	12	2.2065	1.95	.14
Treatment	2.5069	1	2.5069	2.21	.17
Block X Treatment (Error)	13.5621	11	1.2329		
Total	42.5470	24			

[a]In order removed.

The subscale termed "administration and staff" on the School Morale Scale was employed to test this hypothesis.

Typical items were:

The principal of this school is very fair.

The school's secretary here is helpful.

There are too many rules and regulations at this school.

TABLE 6

ANCILLARY VARIABLE MEANS BY DISTRICT AND SCHOOL ORGANIZATION

District	School Organization	Ancillary Variables		
		Plant	Administration	Community
1	IGE/MUS-E	7.30	9.25	8.32
	Traditional	8.83	9.00	8.91
	Difference	- 1.53	.25	- .59
	(Rank)[a]	(12)	(7)	(10)
2	IGE/MUS-E	8.31	7.65	7.04
	Traditional	8.41	8.59	7.86
	Difference	- .10	- .94	- .82
	(Rank)	(7)	(9)	(11)
3	IGE/MUS-E	10.45	8.60	9.05
	Traditional	9.87	8.57	7.17
	Difference	.58	.03	1.88
	(Rank)	(6)	(8)	(1)
4	IGE/MUS-E	8.29	6.08	8.23
	Traditional	--	--	--
	Difference	--	--	--
	(Rank)	--	--	--
5	IGE/MUS-E	6.40	5.43	7.07
	Traditional	6.97	4.97	6.65
	Difference	- .57	.46	.42
	(Rank)	(10)	(5)	(7)
6	IGE/MUS-E	9.27	7.04	8.00
	Traditional	9.39	8.07	7.82
	Difference	- .12	- 1.03	.18
	(Rank)	(8)	(11)	(8)
7	IGE/MUS-E	10.23	8.91	8.22
	Traditional	7.31	8.52	7.41
	Difference	2.92	.39	.81
	(Rank)	(2)	(6)	(4)
8	IGE/MUS-E	9.69	8.47	8.92
	Traditional	8.19	6.41	7.89
	Difference	1.50	2.06	1.03
	(Rank)	(4)	(1)	(3)
9	IGE/MUS-E	9.17	8.39	8.36
	Traditional	8.18	7.55	7.73
	Difference	.99	.84	.63
	(Rank)	(5)	(4)	(6)

TABLE 6 (Cont.)

District	School Organization	Ancillary Variables		
		Plant	Administration	Community
10	IGE/MUS-E	8.71	6.94	6.48
	Traditional	5.30	6.00	5.70
	Difference	3.41	.94	.78
	(Rank)	(1)	(3)	(5)
11	IGE/MUS-E	9.50	8.48	8.73
	Traditional	7.78	6.52	6.96
	Difference	1.72	1.96	1.77
	(Rank)	(3)	(2)	(2)
12	IGE/MUS-E	8.56	6.91	7.38
	Traditional	9.00	8.69	8.46
	Difference	- .44	- 1.78	- 1.08
	(Rank)	(9)	(12)	(12)
13	IGE/MUS-E	6.19	5.70	7.08
	Traditional	6.80	6.65	7.60
	Difference	- .61	- .95	- .52
	(Rank)	(11)	(10)	(9)
Mean for all districts	IGE/MUS-E	8.62	7.53	7.91
	Traditional	8.00	7.46	7.51
	Difference	.64*	.18*	.37*

[a]For each variable, the district with the largest positive mean difference is assigned a rank of 1.

*Means and mean differences are computed from rounded figures and may reflect rounding error.

Results of the analysis of data related to the administration and staff are found in Table 7. Analysis revealed no significant difference between groups on this variable, thus failing to reject the null hypothesis. Again, although the difference was not significant, IGE/MUS-E pupils had slightly more positive attitudes toward the administration than their traditional counterparts. (See Table 6.)

The third ancillary hypothesis stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the community.*

The subscale termed "community" was employed to test this hypothesis. The intent of this subscale was to assess pupil attitude concerning community support of schools and parental involvement (Wrightsman et al., 1968, p. 11).

Typical items were:

The people in this community want the schools to try out new educational methods and materials.

My parents feel the community is spending too much for education.

The parents of most of the students here are not very interested in the school.

Results of this analysis using data from all districts are reported in Table 8. Analysis of these data indicated no significant difference

TABLE 7

ANALYSIS OF VARIANCE OF PUPIL ATTITUDE TOWARD ADMINISTRATION AND STAFF

Source[a]	SS	df	MS	F	p level observed
Blocks (Districts)	30.2172	12	2.5181	3.52	.02*
Treatment[b]	.2081	1	.2081	.29	.60
Block X Treatment (Error)	13.5621	11	1.2329		
Total	43.9874	24			

[a] In order removed.

* Significant at .05 level.

between the IGE/MUS-E school pupils and the control school pupils. The null hypothesis was not rejected ($p < .21$). The means in Table 6 indicate that experimental pupils (7.91) had slightly more favorable attitudes than control pupils (7.51) for a mean raw score difference of .37.

Ancillary hypothesis four stated: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their record of tardiness and attendance.*

To test this hypothesis, data were collected from a larger sample of traditional and multiunit school pupils (n = 6,754 for IGE/MUS-E, and 5,813 for control). This sample included all grades and units from the sample of 25 schools. All schools responded with attendance and tardiness reports for the date March 15, 1972. To assess differences between groups, t tests were employed. A comparison of both attendance and tardiness means indicated no significant difference between groups. Thus, the null hypothesis cannot be rejected. The value of t for attendance was .29, and for tardiness the value of t was 1.29. A summary of attendance and tardiness data is reported in Table 9.

TABLE 8

ANALYSIS OF VARIANCE OF PUPIL ATTITUDE TOWARD COMMUNITY

Squrce[a]	SS	*df*	MS	*F*	*p* level observed
Blocks (Districts)	10.7484	12	.8957	1.90	.15
Treatment	.8367	1	.8367	1.77	.21
Block X Treatment (Error)	13.5621	11	1.2329		
Total	25.1472	24			

[a]In order removed.

TABLE 9

SUMMARY OF ATTENDANCE AND TARDINESS DATA FOR IGE/MUS-E AND CONTROL SCHOOL DISTRICTS ON MARCH 15, 1972

School District	IGE/MUS-E					Control				
	Enrollment	Absent	Percent Absent	Tardy	Percent Tardy	Enrollment	Absent	Percent Absent	Tardy	Percent Tardy
1	398	42.5	10.67	1	00	152	9.0	5.92	2	1.31
2	241	5.0	2.07	1	.41	409	13.0	3.17	9	2.20
3	517	17.0	3.28	3	.58	424	35.0	8.25	1	.23
4	498	11.0	2.20	0	00		No Control School			
5	364	11.5	3.15	6	1.64	413	17.5	4.23	2	.48
6	481	21.0	4.46	0	00	499	16.0	3.20	2	.40
7	511	3.0	.58	1	.19	233	7.0	3.00	5	2.14
8	610	22.0	3.60	7	1.14	610	17.0	2.78	3	.49
9	532	35.0	6.57	4	.75	503	15.0	2.98	6	1.19
10	441	14.0	3.17	3	.68	624	26.0	4.16	3	.48
11	665	31.0	4.66	5	.75	616	17.0	2.75	12	1.94
12	787	28.0	3.55	18	2.28	754	34.0	4.50	9	1.19
13	709	53.0	7.47	1	00	576	18.5	3.21	1	.02

IV

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Presented in this chapter are a summary of this study and the conclusions and implications drawn from the results of the study. The summary includes a review of the rationale, background, and design employed in this study. The second section of the chapter presents the conclusions drawn as a result of the study and a discussion of the major findings. The chapter concludes with a section which identifies implications for practice and future research.

SUMMARY

Since 1965, the Wisconsin Research and Development Center for Cognitive Learning and several cooperating agencies have been developing and refining an alternative approach to traditional elementary education known as Individually Guided Education (IGE). Individually Guided Education, with its organizational-administrative component termed the multi-unit school-elementary (MUS-E), has been described by one of its originators as "the first alternative to the age-graded, self-contained elementary school in this century. It is a comprehensive system designed to produce higher educational achievement through providing effectively for differences among students in rate of learning, learning styles, and level of motivation [Klausmeier, 1971]."

The purpose of this study was to investigate the relationship of IGE/MUS-E to the learning climate of pupils. In this study, learning climate was defined as a combination of those behavioral and attitudinal variables in a pupil's immediate school setting which may affect learning. They included a pupil's attitude toward several factors related to school morale and his self-concept as a learner.

The study involved three major theoretical constructs. They were: IGE/MUS-E theory with its focus upon meeting individual learning needs; social system theory as it relates to the classroom; and instructional theory as it relates to learning climate and self-concept. A review of the literature related to these constructs revealed theoretical and empirical support for the following underlying assumption of the study: An individualized program of instruction which attempts to accommodate the personal need disposition of the learner and the goals of the organization is conducive to a positive attitude toward school morale and the self-concept of the learner.

The major question posed in the study was: *Is the IGE/MUS-E organizational structure characterized by a different learning climate than the traditional self-contained organizational structure?* To answer this question, ten null hypotheses were tested. Five of these dealt with pupil attitude toward: themselves as learners, fellow pupils, teachers instruction, and school in general, with the first, global

hypothesis dealing with learning climate as a summary of these five attitude factors. Four ancillary hypotheses dealt with pupil attitude toward the school plant, school administration, the community, and with tardiness and attendance.

An experimental-control comparison design utilizing traditional self-contained classroom schools as controls was employed. A sample of IGE/MUS-E schools located in Wisconsin was selected using the 1971-72 Directory of Multiunit Schools (Wisconsin R & D Center, 1971), based on the following criteria: The school must be a fully functioning IGE/MUS-E, must be in at least its second year of operation, and must contain pupils in the 9-12 age range (upper unit).

The control schools were matched on the criteria of geographic location, size, and socioeconomic background. They contained pupils of the 9-12 age range (fifth grade) and had been functioning as a traditional, self-contained school for at least one year. The sample drawn included 25 schools, 13 IGE/MUS-E schools and 12 control schools. These schools provided 566 and 410 pupils, respectively.

The instruments chosen for gathering data on learning climate were the School Morale Scale with seven subscales, and the Semantic Differential of Self-Concept as a Learner. These instruments were combined and modified for use in the study as indicated by a pilot test. The pilot test was conducted in one IGE/MUS-E school and one control school which were not included in the study's sample. Attendance and tardiness data were collected from schools in the sample, using the total enrollment of each school.

A multivariate and analysis of variance of data obtained from the scales related to learning climate was performed to answer the global question (hypothesis 1). Univariate tests were employed to test the individual hypotheses with the exception of the hypothesis concerning attendance-tardiness, where a t test was utilized.

The probability level of all tests of statistical significance was established at .05. A probability level of .10 was considered to indicate a moderate difference.

FINDINGS AND CONCLUSIONS

Analysis of data collected on the School Morale Scale, the Semantic Differential of Self-Concept as a Learner, and attendance and tardiness forms produced the following results:

Hypothesis 1 (the global hypothesis): *No difference exists between IGE/MUS-E schools and traditional schools with regard to learning climate.*

Finding: No significant difference was found between the pupils in IGE/MUS-E schools and the pupils on the general learning climate measure.

Hypothesis 2: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their self-concept as learners.*

Finding: Pupils in IGE/MUS-E schools scored significantly higher than the pupils in traditional schools on the measure of self-concept as a learner only when data for District 13 were excluded from the analysis.

Hypothesis 3: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward their fellow pupils.*

Finding: Pupils in IGE/MUS-E schools scored moderately higher than the pupils in traditional schools on the measure of pupil attitude toward fellow pupils. The difference was not significant.

Hypothesis 4: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward teachers.*

Finding: No significant difference was found between the pupils in IGE/MUS-E schools and the pupils in traditional schools on the measure of pupil attitude toward teachers.

Hypothesis 5: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward instruction.*

Finding: No significant difference was found between the pupils in IGE/MUS-E schools and the pupils in traditional schools on the measure of pupil attitude toward instruction.

Hypothesis 6: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward school in general.*

Finding: No significant difference was found between pupils in IGE/MUS-E schools and pupils in traditional schools on the measure of pupil attitude toward school in general (school morale).

Ancillary Hypothesis 1: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school plant.*

Finding: No significant difference was found between pupils in IGE/MUS-E schools and pupils in traditional schools on the measure of pupil attitude toward their school plant.

Ancillary Hypothesis 2: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the school administration.*

Finding: No significant difference was found between pupils in IGE/MUS-E schools and pupils in traditional schools on the measure of pupil attitude toward administration and staff.

Ancillary Hypothesis 3: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their attitude toward the community.*

Finding: No significant difference was found between pupils in IGE/MUS-E schools and pupils in traditional schools on the measure of pupil attitude toward their community.

Ancillary Hypothesis 4: *No difference exists between pupils in IGE/MUS-E schools and pupils in traditional schools with regard to their record of tardiness and attendance.*

Finding: No significant difference was found between pupils in IGE/MUS-E schools and pupils in traditional schools on attendance and tardiness reports.

Means for all scales and subscales were higher for pupils in IGE/MUS-E schools than for pupils in traditional schools, with the

exception of the subscale "teachers," regardless of significance. Means and standard deviations for all schools on all scales and subscales are summarized in Appendix F. Table 10 summarizes the hypothesis testing performed in the study.

TABLE 10

SUMMARY OF MAJOR FINDINGS

Hypothesis Concerning	Not Significant $p > .05$	Moderately Different $p < .10$	Significant $p < .05$
Learning Climate	X		
Learning Self-Concept	X		X
Other Pupils	X	X	
Teachers	X		
Instruction	X		
Morale	X		
Plant	X		
Administration	X		
Community	X		
Attendance	X[a]		

[a] p figure does not apply here.

Based on the findings of the study, the following conclusions were drawn with respect to IGE/MUS-E schools:

1. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to learning climate.

2. Pupils in IGE/MUS-E schools generally appeared to have a more positive self-concept as learners than did pupils in traditionally organized schools.

3. Pupils in IGE/MUS-E schools displayed a moderately more positive atittude toward their fellow pupils than did pupils in traditionally organized schools. The difference was not significant.

4. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to their attitude toward teachers.

5. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to attitude toward instruction.

6. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to attitude toward school in general (school morale).

7. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to attitude toward their school plant.

8. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to their attitude toward administration and staff.

9. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to their attitude toward their community.

10. There was no difference between IGE/MUS-E pupils and pupils in traditionally organized schools with respect to their records of attendance and tardiness.

The conclusions drawn from this study must, of course, be limited to the population of IGE/MUS-E and control schools from which the sample was selected. The results are further restricted by the abstract nature of such concepts as "learning climate" and "school morale," and by the limitations of self-report instruments which measure perceptions rather than behavior. Generalizability in a comparative study of this nature must necessarily be constrained by the degree to which the reader can accept the assumptions underlying both the theoretical framework and the statistical procedures employed in the study.

IMPLICATIONS

The researcher believes that the evidence concerning IGE/MUS-E schools that has been accumulated and presented in this study warrants the following implications for practice and for future research.

Implications for Practice

Although it is recognized that there can be no complete separation of thought and feeling affecting human behavior, in recent years there has been increasing emphasis on that hazily defined area of a pupil's life labeled the *affective domain*. Those educators, whether they be school board members, administrators, or classroom teachers, who include in their list of educational objectives a concern with the attitudes of their pupils should welcome evidence that the school environment can make a difference in these areas. Even those practitioners who are primarily concerned with academic achievement, but who also are concerned with the relationship between cognitive growth and affective growth, should welcome this evidence.

Fears expressed by some practitioners that a team approach to education in the elementary school may substantially weaken the student-teacher relationship were not supported by this study. Similarly, the fear that pupil morale might be lowered because of the "confusion" caused by cross-grading and multi-aged grouping was not substantiated by this study. Pupil-pupil relationships also appear to be improved in an IGE/MUS-E setting. The increased interaction of pupils within the across age and grade may be the greatest contributing factor here. Evidence of improved learner self-concept may be related to individual goal setting where failures measured against group norms are fewer.

Implications for Further Research

Several questions which merit further research are suggested by the results of this study. Educational researchers concerned with affective education may find the following questions of interest:

1. What are the behavioral manifestations of those attitudinal variables examined in this study?

2. Is there a relationship between learning climate or self-concept and pupil achievement?

3. Are the dimensions of morale as defined by social system theory in evidence in IGE/MUS-E schools?

4. Are other factors such as learner independence or a creative atmosphere improved by the IGE/MUS-E organizational structure?

5. Which components of the IGE/MUS-E system contribute to a positive learning climate?

6. Would results similar to those obtained in this study be found across a sample of pupils of other ages?

7. Would results similar to those obtained in this study be found in middle, junior, or senior high schools?

8. Why are some IGE/MUS-E schools more effective than others?

9. What are the dollar cost differences between IGE/MUS-E schools and traditional schools?

10. What happens to IGE/MUS-E pupils when they transfer or graduate from a traditionally organized school system?

11. What is the "teaching climate" of an IGE/MUS-E school?

12. Would a pre-post or a longitudinal design for assessing student attitude produce results comparable to those found in this study?

It is the authors' hope that this study will add some empirical support to the faith of the many practitioners involved in implementing the IGE/MUS-E system, and that it will encourage other researchers to investigate more precisely those feelings and attitudes held by our future society's most important citizens--the pupils in our schools.

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APPENDIX A

LETTER TO SCHOOL DISTRICTS

the
Wisconsin
Research and Development Center
for Cognitive
Learning

the University of Wisconsin · 1025 West Johnson Street · Madison, Wisconsin 53706 · (608)262 - 4901

November 17, 1971

Dear

I am writing you to solicit your assistance in a study that we are planning to conduct in 10-15 school districts. The purpose of the study is to document the differences that a multiunit organization provides for students. The results of the study will be important to those who are concerned that the multiunit school is a viable alternative to conventional schools. The proposed study is a natural extension of the prior research by Professor Pellegrin which was able to characterize the ways in which teachers and principals were affected by the multiunit school organization. Professor Rossmiller of the R & D Center is directing this study with the assistance of Richard Nelson.

The design of the study involves one testing period of 40 minutes which can be conducted by Mr. Nelson or by local teachers. The focus of the study is on fifth grade students who are in multiunit schools in at least their second year of operation. In addition, there is the desirability of fifth grade students from a control school utilizing a conventional organization. The study is planned to begin in January 1972, with a pilot trial in two schools in December 1971.

I hope that you can join us in this important study. We feel that the results of the study are pertinent not only to a general audience, but, in addition, to you as you formulate your plans for the future. Let me assure you, however, that when we report to a general audience, the identity of individual schools will be withheld.

Could you respond to this proposal at least tentatively within the next ten days? If you should have any questions or should want more information, please feel free to call me at (608) 262-4901.

Sincerely,

Don Hubbard
Assistant Scientist

DH/jb
Encls.

cc: Richard Nelson

APPENDIX B

COMBINED INSTRUMENT USED

The School Morale Scale

Name _____
Last First Middle Initial

School _____ (Circle One) Boy Girl

Directions: This is not a test. It is a list of sentences about your school. Read each one silently as I read it aloud and decide whether you agree or disagree with the statement. If you agree, put a capital A in front of the statement. If you disagree, put a capital D in front of the statement.

This is a part of a project being done at many different schools all over Wisconsin. No one at your school will see your answers. They will be collected and taken away right away. So answer as honestly as you can. You will probably find that you agree with some of them and disagree with others.

Remember: Do not answer the way you think you should, but the way you really feel.

____ 1. Compared to most school buildings I've seen, this building is nicer.

____ 2. There are many more audio-visual materials available at this school than at the average school.

____ 3. There are too many rules and regulations at this school.

____ 4. The people in this community want the schools to try out new educational methods and materials.

____ 5. If there were more clubs here, this school would be a lot friendlier place.

____ 6. All my teachers know me by name.

____ 7. I look forward to Friday afternoons because I won't have to go to school for two days.

____ 8. My school building is too large; it is too far to walk from one place to another.

____ 9. Our library is not a very friendly place.

Adapted from L. S. Wrightsman, R. H. Nelson, and M. Taranto, The Construction and Validation of a Scale to Measure Children's School Morale, paper presented to the American Educational Research Association, Chicago, February 1968.

____ 10. The principal of this school is very fair.

____ 11. My parents feel the community is spending too much for education.

____ 12. Most of my friends go to the same school that I do.

____ 13. Most of my teachers laugh at my mistakes in class.

____ 14. I'd rather go to this school than most.

____ 15. My school is too crowded.

____ 16. This school has helped me develop hobbies, skills, and interests I didn't have before.

____ 17. There are not enough janitors in my school to keep it clean.

____ 18. Teachers in my school get paid more than do teachers in nearby cities and counties.

____ 19. Most of the students here aren't interested in how the school athletic teams do.

____ 20. Most teachers here help me feel comfortable and at ease in class.

____ 21. Often I'm afraid that I'll do something wrong at school.

____ 22. This school building is the nicest I have ever seen.

____ 23. We work too much on reading and math at this school and there is not enough opportunity for students to develop their own interests.

____ 24. The school's secretary here is helpful.

____ 25. The parents of most of the students here are not very interested in the school.

____ 26. This school has just about the right number of students in it for me.

____ 27. Teaching is just another job to most teachers at this school.

____ 28. I would not change a single thing about my school, even if I could.

____ 29. This school building is old and run-down.

____ 30. Our homework assignments are fair and reasonable.

____ 31. There is too much supervision of students at this school.

____ 32. This school district spends more money on education than most school districts do.

____ 33. Sometimes I'd rather eat lunch by myself than with the other students here.

____ 34. Most teachers at this school don't have any "teacher's pets."

____ 35. If it were possible, I would rather go to another school.

____ 36. If I were a teacher, I would want to teach in a school like this one.

____ 37. Often I do more work and do it better than someone else, but I don't get any better grade for it.

____ 38. The principal of this school knows most of the students by name.

____ 39. Few of the parents come to school plays, sports activities, or open houses.

____ 40. The older children at this school are very friendly toward the younger ones.

____ 41. The teachers here are more interested in keeping the school bright and shiny than in helping the students.

____ 42. I am very proud of my school.

____ 43. Most of the classrooms in this school are drab and undecorated.

____ 44. At this school we can take subjects like art, shop, and music which are of special interest to us.

____ 45. The lunchroom here is too noisy. (Leave blank if no lunchroom.)

____ 46. The people in the city (or town) I live in are very interested in having good schools.

____ 47. I wish that I went to a school which has fewer students than this one.

____ 48. Most of the teachers at my school are very friendly and understanding.

____ 49. I get scolded a lot at school.

____ 50. My school is a comfortable one.

____ 51. Sometimes the assignments we are given are not very clear.

____ 52. The janitors in my school do a good job.

____ 53. Most parents really aren't interested in how good our schooling is.

____ 54. There is a lot more "school spirit" here than at most schools.

____ 55. There is not a single teacher in my school who I could go to with a serious problem.

____ 56. I am lucky that I get to attend this particular school.

____ 57. This school building is just about the ugliest that I have ever seen.

____ 58. My teachers use a lot of books, references, and audio-visual materials to help me learn.

____ 59. Students are likely to get punished hard here for doing something wrong.

____ 60. The leaders of this community have provided schools here equal to those anywhere.

____ 61. I wish the other children at this school were friendlier to me.

____ 62. The principal and teachers here really like it when a student has done something outstanding.

____ 63. There is a lot of wasted time at this school.

____ 64. My school building is the only one of its kind in the country.

____ 65. The textbooks used in this school are pretty dull and uninteresting.

____ 66. Things are done at this school in a neat, orderly way.

____ 67. This school district doesn't spend much money on its schools.

____ 68. I have many good friends at this school.

____ 69. Teachers do not seem to understand the needs and problems of students here.

____ 70. Each morning I look forward to coming to school.

____ 71. My school is often dirty and smelly.

____ 72. Our library is well-stocked with good books and many reference materials.

____ 73. The principal and assistant principal are too strict here.

____ 74. The P.T.A. at this school is very active.

____ 75. There is no place in this school for a student to be by himself to think through a problem.

____ 76. Students here pretty much get the grades they deserve.

____ 77. Many of my friends at this school would like to go to another school instead.

____ 78. There are many things in this school building which need to be repaired.

____ 79. The school work is too hard at my school.

____ 80. The secretary knows the names of most of the students.

____ 81. The community really supports our school.

____ 82. I don't like most of the other students at this school.

____ 83. Too many of my teachers are mean or unfriendly.

____ 84. I am ashamed of my school.

Semantic Differential of Self-Concept as a Learner

Circle the term in each row which best describes myself as a learner.

very strong	somewhat strong	average	somewhat weak	very weak
very useful	somewhat useful	average	somewhat useless	very useless
very fast	somewhat fast	average	somewhat slow	very slow
very pleasant	somewhat pleasant	average	somewhat boring	very boring
very difficult	somewhat difficult	average	somewhat easy	very easy
very cheerful	somewhat cheerful	average	somewhat lonely	very lonely
very successful	somewhat successful	average	somewhat unsuccessful	very unsuccessful
very wise	somewhat wise	average	somewhat foolish	very foolish
very glad	somewhat glad	average	somewhat sad	very sad

Adapted from Lois Stillwell, A semantic differential for measurement of global and specific self-concept, unpublished article available from the author.

APPENDIX C

ITEM STATISTICS AND COEFFICIENT ALPHA RELIABILITIES
OF SCHOOL MORALE SCALE

ITEM STATISTICS: SUBSCALE DEALING WITH MORALE ABOUT OTHER STUDENTS

Item No.	(125 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
12	0.78	0.42	0.26	0.18	0.86	0.35	0.19	0.11	0.84	0.37	0.18	0.13
26	0.69	0.46	0.41	0.27	0.55	0.50	0.33	0.25	0.55	0.50	0.24	0.24
40	0.20	0.40	0.17	0.13	0.18	0.39	0.29	0.17	0.46	0.50	0.14	0.20
54	0.56	0.50	0.25	0.22	0.54	0.50	0.27	0.23	0.45	0.50	0.01	0.14
68	0.74	0.44	0.39	0.24	0.85	0.36	0.30	0.16	0.92	0.27	0.31	0.12
5	0.69	0.46	0.04	0.11	0.29	0.45	0.06	0.11	0.16	0.37	0.11	0.11
19		NOT GIVEN			0.61	0.49	0.42	0.28	0.60	0.49	0.13	0.19
33	0.71	0.45	0.30	0.21	0.75	0.44	0.26	0.18	0.86	0.35	0.15	0.11
47	0.74	0.44	0.37	0.24	0.61	0.49	0.42	0.28	0.58	0.49	0.21	0.23
61	0.31	0.46	0.24	0.20	0.16	0.37	0.21	0.13	0.44	0.50	0.04	0.15
75	0.42	0.49	0.33	0.26	0.29	0.45	0.29	0.21	0.23	0.42	0.14	0.15
82	0.74	0.44	0.20	0.17	0.60	0.49	0.46	0.30	0.77	0.42	0.02	0.10
	(Alpha reliability of subscale = .59; Mean of raw scores = 6.65; S.D. of raw scores = 2.25)				(Alpha reliability of subscale = .65; Mean of raw scores = 6.28; S.D. of raw scores = 2.42)				(Alpha reliability of subscale = .38; Mean raw scores = 6.84; S.D. of raw scores = 1.87)			

This table originally appeared as Table 5 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. E. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: SUBSCALE DEALING WITH MORALE ABOUT TEACHER-STUDENT RELATIONS

Item No.	(125 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
6	0.62	0.49	-0.02	0.08	0.85	0.36	0.15	0.10	0.96	0.19	0.09	0.03
20	0.70	0.46	0.43	0.26	0.56	0.50	0.58	0.35	0.61	0.49	0.56	0.33
34	0.43	0.50	0.19	0.18	0.41	0.49	0.35	0.25	0.36	0.48	0.42	0.27
48	0.73	0.44	0.65	0.33	0.78	0.41	0.50	0.25	0.74	0.44	0.59	0.30
62	0.78	0.41	0.43	0.23	0.89	0.32	0.32	0.13	0.90	0.30	0.29	0.12
76	0.70	0.46	0.53	0.29	0.69	0.46	0.34	0.22	0.69	0.46	0.49	0.28
13	0.85	0.36	0.09	0.08	0.84	0.37	0.24	0.13	0.80	0.40	0.39	0.20
27	0.64	0.48	0.22	0.19	0.58	0.49	0.34	0.25	0.59	0.49	0.45	0.29
41	0.85	0.36	0.38	0.18	0.76	0.43	0.42	0.23	0.80	0.40	0.33	0.18
55	0.74	0.44	0.48	0.26	0.53	0.50	-0.03	0.08	0.70	0.46	0.10	0.12
69	0.69	0.46	0.55	0.31	0.56	0.50	0.55	0.33	0.47	0.50	0.61	0.36
83	0.75	0.43	0.50	0.26	0.67	0.47	0.55	0.32	0.62	0.49	0.59	0.34
	(Alpha reliability of subscale = .73; Mean of raw scores = 8.48; S.D. of raw scores = 2.66)				(Alpha reliability of subscale = .72; Mean of raw scores = 8.13; S.D. of raw scores = 2.65)				(Alpha reliability of subscale = .78; Mean of raw scores = 8.25; S.D. of raw scores = 2.81)			

This table originally appeared as Table 6 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: INSTRUCTION AND INSTRUCTIONAL MATERIALS SUBSCALE

Item No.	(127 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
2	0.54	0.50	-0.01	0.10	0.40	0.49	0.09	0.14	0.36	0.48	0.20	0.18
16	0.76	0.43	0.32	0.21	0.53	0.50	0.31	0.25	0.50	0.50	0.41	0.28
30	0.65	0.48	0.42	0.28	0.51	0.50	0.36	0.27	0.64	0.48	0.46	0.29
44	NOT GIVEN				0.95	0.22	0.20	0.07	0.95	0.22	0.30	0.08
58	0.87	0.34	0.19	0.11	0.83	0.38	0.22	0.14	0.74	0.44	0.41	0.24
72	0.60	0.49	0.42	0.29	0.86	0.34	0.23	0.13	0.69	0.46	0.39	0.25
9	0.35	0.48	0.13	0.16	0.85	0.36	0.19	0.12	0.71	0.45	0.30	0.21
23	0.56	0.50	0.27	0.23	0.46	0.50	0.26	0.23	0.42	0.49	0.35	0.26
37	0.56	0.50	0.28	0.23	0.50	0.50	0.32	0.25	0.42	0.49	0.26	0.22
51	0.25	0.43	0.40	0.24	0.17	0.38	0.26	0.15	0.23	0.42	0.13	0.12
65	0.53	0.50	0.37	0.27	0.44	0.50	0.51	0.33	0.24	0.43	0.34	0.21
79	0.73	0.44	0.42	0.25	0.73	0.45	0.46	0.27	0.80	0.40	0.38	0.20
	(Alpha reliability of subscale = .63; Mean of raw scores = 6.40; S.D. of raw scores = 2.36)				(Alpha reliability of subscale = .64; Mean of raw scores = 7.23; S.D. of raw scores = 2.34)				(Alpha reliability of subscale = .69; Mean of raw scores = 6.71; S.D. of raw scores = 2.53)			

This table originally appeared as Table 2 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: SUBSCALE DEALING WITH GENERAL SCHOOL MORALE

Item No.	(125 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
14	0.68	0.47	0.46	0.28	0.59	0.49	0.54	0.32	0.55	0.50	0.49	0.31
28	0.30	0.46	0.29	0.20	0.11	0.32	0.31	0.13	0.07	0.26	0.16	0.07
42	0.68	0.47	0.49	0.29	0.60	0.49	0.58	0.34	0.54	0.50	0.50	0.32
56	0.75	0.43	0.34	0.21	0.52	0.50	0.49	0.31	0.33	0.47	0.47	0.29
70	0.54	0.50	0.28	0.23	0.29	0.45	0.35	0.22	0.20	0.40	0.37	0.20
7	0.08	0.27	0.19	0.08	0.08	0.28	0.06	0.04	0.05	0.22	0.12	0.05
21	0.20	0.40	-0.01	0.06	0.19	0.39	0.09	0.09	0.28	0.45	0.04	0.10
35	0.74	0.44	0.48	0.27	0.65	0.48	0.57	0.33	0.62	0.49	0.57	0.34
49	0.69	0.46	0.32	0.22	0.68	0.47	0.32	0.22	0.61	0.49	0.35	0.25
63	0.65	0.48	0.28	0.22	0.74	0.44	0.19	0.15	0.69	0.46	0.19	0.17
77	0.57	0.50	0.30	0.23	0.39	0.49	0.43	0.28	0.29	0.45	0.36	0.23
84	0.80	0.40	0.39	0.21	0.69	0.46	0.46	0.27	0.80	0.40	0.44	0.22
	(Alpha reliability of subscale = .68; Mean of raw scores = 6.67; S.D. of raw scores = 2.51)				(Alpha reliability of subscale = .74; Mean of raw scores = 5.54; S.D. of raw scores = 2.71)				(Alpha reliability of subscale = .71; Mean of raw scores = 5.04; S.D. of raw scores = 2.55)			

This table originally appeared as Table 7 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: SCHOOL PLANT SUBSCALE

Item No.	(127 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
1	0.56	0.50	0.37	0.25	0.22	0.42	0.27	0.18	0.13	0.34	0.34	0.16
22	0.41	0.49	0.55	0.32	0.07	0.25	0.23	0.08	0.02	0.15	-0.06	0.00
36	0.60	0.49	0.43	0.27	0.32	0.47	0.44	0.27	0.31	0.46	0.37	0.26
50	0.53	0.50	0.59	0.34	0.37	0.48	0.50	0.31	0.32	0.47	0.52	0.32
64	0.38	0.48	0.03	0.09	0.56	0.50	-0.18	0.01	0.67	0.47	-0.39	-0.09
8	0.87	0.33	0.32	0.14	0.92	0.28	0.13	0.07	0.98	0.15	-0.09	-0.00
15	0.68	0.47	0.39	0.24	0.54	0.50	0.35	0.26	0.45	0.50	0.31	0.26
29	0.78	0.41	0.51	0.25	0.31	0.46	0.39	0.25	0.21	0.41	0.56	0.28
43	0.57	0.50	0.47	0.29	0.41	0.49	0.43	0.29	0.18	0.39	0.36	0.20
57	0.80	0.40	0.42	0.21	0.63	0.48	0.47	0.30	0.47	0.50	0.58	0.37
71	0.57	0.50	0.38	0.26	0.67	0.47	0.37	0.25	0.67	0.47	0.24	0.21
78	0.49	0.50	0.58	0.34	0.07	0.25	0.32	0.10	0.04	0.19	0.02	0.02
	(Alpha reliability of subscale = .78; Mean of raw scores = 7.22; S.D. of raw scores = 3.02)				(Alpha reliability of subscale = .66; Mean of raw scores = 5.08; S.D. of raw scores = 2.39)				(Alpha reliability of subscale = .58; Mean of raw scores = 4.46; S.D. of raw scores = 2.00)			

This table originally appeared as Table 1 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: SUBSCALE DEALING WITH MORALE ABOUT ADMINISTRATION, REGULATIONS, AND STAFF

Item No.	(127 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
10	0.87	0.34	0.29	0.15	0.75	0.43	0.32	0.20	0.55	0.50	0.41	0.29
24		NOT GIVEN			0.84	0.37	0.24	0.14	0.92	0.27	0.11	0.06
38	0.83	0.37	0.18	0.13	0.41	0.49	0.21	0.20	0.54	0.50	0.15	0.18
52	0.55	0.50	0.49	0.33	0.88	0.32	0.19	0.10	0.90	0.30	0.25	0.11
66	0.54	0.50	0.30	0.26	0.49	0.50	0.39	0.28	0.45	0.50	0.40	0.28
80		NOT GIVEN				NOT GIVEN				NOT GIVEN		
3	0.76	0.42	0.26	0.19	0.63	0.48	0.31	0.23	0.55	0.50	0.38	0.27
17	0.47	0.50	0.38	0.29	0.65	0.48	0.32	0.23	0.61	0.49	0.30	0.23
31	0.57	0.49	0.31	0.26	0.54	0.50	0.24	0.21	0.61	0.49	0.31	0.24
45	0.24	0.42	-0.10	0.04	0.41	0.49	0.17	0.18	0.51	0.50	0.06	0.13
59	0.74	0.44	0.27	0.20	0.49	0.50	0.41	0.29	0.49	0.50	0.47	0.31
73	0.83	0.38	0.25	0.16	0.68	0.47	0.46	0.28	0.51	0.50	0.41	0.29
	(Alpha reliability of subscale = .57; Mean of raw scores = 6.48; S.D. of raw scores = 2.06)				(Alpha reliability of subscale = .63; Mean of raw scores = 6.91; S.D. of raw scores = 2.40)				(Alpha reliability of subscale = .61; Mean of raw scores = 6.77; S.D. of raw scores = 2.38)			

This table originally appeared as Table 3 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

ITEM STATISTICS: SUBSCALE DEALING WITH COMMUNITY SUPPORT AND PARENTAL INTEREST

Item No.	(125 5th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(169 7th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index	(137 9th Graders) Item Mean	Item S.D.	Item Correl.	Reliab. Index
4	0.82	0.38	-0.08	0.05	0.74	0.44	-0.02	0.08	0.50	0.50	0.20	0.20
18	0.26	0.44	-0.07	0.07	0.14	0.34	-0.02	0.05	0.12	0.32	0.06	0.06
32	0.51	0.50	0.22	0.23	0.28	0.45	0.09	0.14	0.15	0.35	0.10	0.09
46	0.85	0.36	0.33	0.18	0.75	0.44	0.39	0.24	0.64	0.48	0.43	0.29
60	0.63	0.48	0.05	0.15	0.63	0.48	0.26	0.23	0.40	0.49	0.31	0.25
74	0.62	0.49	0.25	0.23	0.69	0.46	0.31	0.23	0.69	0.46	0.20	0.18
81	0.74	0.44	0.18	0.18	0.40	0.49	0.42	0.29	0.30	0.46	0.39	0.26
11	0.86	0.35	0.12	0.10	0.88	0.33	-0.09	0.08	0.85	0.35	-0.02	0.05
25	0.81	0.39	0.22	0.16	0.66	0.47	0.29	0.23	0.51	0.50	0.35	0.27
39	0.45	0.50	0.06	0.16	0.38	0.49	0.10	0.16	0.23	0.42	0.16	0.14
53	0.84	0.37	0.37	0.19	0.72	0.45	0.04	0.11	0.59	0.49	0.28	0.23
67	0.78	0.42	0.25	0.19	0.62	0.49	0.29	0.24	0.46	0.50	0.27	0.23
	(Alpha reliability of subscale = .42; Mean of raw scores = 8.15; S.D. of raw scores = 1.89)				(Alpha reliability of subscale = .49; Mean of raw scores = 6.88; S.D. of raw scores = 2.09)				(Alpha reliability of subscale = .57; Mean of raw scores = 5.44; S.D. of raw scores = 2.25)			

This table originally appeared as Table 4 in The reliability of the School Morale Scale, an unpublished article by L. S. Wrightsman and R. H. Nelson of George Peabody College for Teachers (undated).

APPENDIX D

FORM FOR GATHERING ABSENCE AND TARDINESS DATA

ATTENDANCE FORM

Total School Enrollment, 1972 _____

Number Absent March 15, 1972 _____

Number Tardy March 15, 1972 _____

Name of School _____

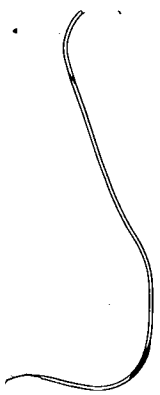
City or Town _____

Return to:

Mr. Richard G. Nelson
Research and Development Center
for Cognitive Learning
1404 Regent Street
Madison, Wisconsin 53706

APPENDIX E

SCHOOL MORALE SCALE SCORE SHEET



SM--SCALE SCORE SHEET

Student's Name _____ (Last) _____ (First) School _____

Date _____ Grade _____ Birthdate _____ Sex _____

Race _____ Teacher's Name _____ Religion _____

Father's Occupation _____ Other _____

School Plant		Instruction		Admin, Reg, Staff		Community		Other Students		Tch.-St. Relat.		Gen. School M.	
+	−	+	−	+	−	+	−	+	−	+	−	+	−
1.	8.	2.	9.	10.	3.	4.	11.	12.	5.	6.	13.	14.	7.
22.	15.	16.	23.	24.	17.	18.	25.	26.	19.	20.	27.	28.	21.
36.	29.	30.	37.	38.	31.	32.	39.	40.	33.	34.	41.	42.	35.
50.	43.	44.	51.	52.	45.	46.	53.	54.	47.	48.	55.	56.	49.
64.	57.	58.	65.	66.	59.	60.	67.	68.	61.	62.	69.	70.	63.
	71.	72.	79.	80.	73.	74.			75.	76.	83.		77.
	78.					81.			82.				84.
Count Up A's	Count Up D's	Count Up A's	Count Up D's	Count Up A's	Count Up D's	Count Up A's	Count Up D's	Count Up A's	Count Up D's	Count Up A's	Count Up D's	Count Up A's	Count Up D's
Sum		Sum		Sum		Sum		Sum		Sum		Sum	

Grand Sum, School Morale (Add 7 Sums Above) _____

Children's PHN: Trust. _____ St. Will & Rationality _____ Complexity _____

Children's F Scale: _____ Children's Social Desirability _____

Other _____

APPENDIX F

MEANS AND STANDARD DEVIATIONS FOR ALL SCHOOL DISTRICTS

MEANS AND STANDARD DEVIATIONS OF ALL VARIABLES BY DISTRICT AND TREATMENT

District	Treatment[a]	Learning Climate Component Variables							
		Self-Concept		Other Pupils		Teachers		Instruction	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
1	1	32.07	4.18	8.18	2.07	9.45	2.04	8.38	2.21
	2	30.48	7.10	9.43	1.16	9.70	1.92	8.91	1.81
2	1	32.81	4.87	6.27	2.46	7.42	2.70	6.58	1.92
	2	29.86	5.80	6.73	1.98	7.36	3.02	7.50	2.15
3	1	36.90	5.06	9.30	2.36	9.40	2.09	8.90	1.92
	2	33.04	6.36	7.61	2.57	8.70	2.87	6.96	2.72
4	1	32.19	4.10	7.25	2.07	8.17	2.20	7.18	2.32
	2	--	--	--	--	--	--	--	--
5	1	32.60	7.10	6.63	1.67	6.13	2.85	7.87	2.24
	2	31.68	6.27	5.55	2.53	7.03	2.73	6.77	2.58
6	1	35.23	5.68	8.27	1.78	8.31	2.40	7.69	2.09
	2	33.54	6.14	7.89	2.56	8.57	2.74	8.57	2.01
7	1	33.70	4.75	8.86	2.48	8.97	2.74	8.77	2.19
	2	32.67	6.40	7.48	2.74	8.06	3.33	7.67	3.13
8	1	37.25	3.84	9.22	1.96	8.56	2.31	8.19	2.23
	2	31.63	4.25	7.67	2.79	8.48	2.15	8.15	2.68
9	1	37.00	4.30	8.33	2.48	9.11	2.86	8.89	2.91
	2	34.14	6.33	6.00	2.20	8.50	3.43	8.05	2.30
10	1	31.77	3.60	7.81	2.32	7.97	2.66	7.74	2.10
	2	32.97	3.96	5.50	2.00	5.43	2.46	6.07	2.27
11	1	34.31	6.35	7.71	2.95	8.77	2.51	8.08	2.51
	2	32.15	6.70	5.41	1.65	8.41	2.22	6.30	1.86
12	1	32.50	4.58	7.22	2.60	7.28	2.58	7.09	1.87
	2	32.35	5.48	7.77	2.27	9.35	1.94	9.23	1.63
13	1	32.31	5.59	5.55	2.37	6.72	2.80	6.21	2.78
	2	35.14	5.06	6.46	2.19	8.61	2.13	7.40	2.64
Mean for all districts	1	33.90	4.92	7.74	2.27	8.17	2.52	7.81	2.25
	2	32.47	5.82	6.96	2.22	8.18	2.58	7.63	2.32

[a] 1 = IGE/MUS-E; 2 = Control.

[b] Not used independently in the analysis. Presented for illustration only.

[c] School morale variable is a sum of the other five learning climate components, including General Morale.

(Continued)

Learning Climate Component Variables (cont'd)				Ancillary Variables					
General Morale[b]		School Morale[c]		Plant		Administration		Community	
$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
7.82	2.48	58.70	11.89	7.30	2.51	9.25	2.20	8.32	1.90
8.04	1.92	62.83	8.87	8.83	1.67	9.00	2.02	8.91	1.41
5.92	2.70	49.19	12.93	8.31	3.12	7.65	2.38	7.04	1.46
6.91	2.47	53.36	11.00	8.41	2.36	8.59	2.44	7.86	2.08
8.55	2.28	64.25	9.99	10.45	1.00	8.60	2.11	9.05	1.50
6.13	2.67	55.00	12.73	9.87	2.18	8.57	2.35	7.17	1.95
7.03	2.45	52.23	11.56	8.29	2.56	6.08	2.37	8.23	2.03
--	--	--	--	--	--	--	--	--	--
4.37	2.57	43.90	12.50	6.40	3.18	5.43	2.06	7.07	2.10
5.94	2.42	43.87	14.90	6.97	3.26	4.97	2.75	6.65	2.39
6.12	2.67	54.69	10.67	9.27	2.62	7.04	1.87	8.00	1.67
7.14	2.59	57.46	13.55	9.39	2.04	8.07	2.31	7.82	2.50
8.25	2.62	62.20	12.11	10.23	2.04	8.91	1.92	8.22	1.84
6.43	3.55	52.87	16.99	7.31	3.36	8.52	2.10	7.41	2.18
7.31	2.23	60.36	9.25	9.69	1.55	8.47	1.90	8.92	1.36
6.19	2.82	52.96	15.18	8.19	3.05	6.41	2.04	7.89	2.21
8.28	2.54	60.53	16.47	9.17	2.85	8.39	3.01	8.36	2.11
7.14	3.41	53.14	15.41	8.18	2.89	7.55	2.46	7.73	1.88
6.42	2.86	52.06	14.42	8.71	2.52	6.94	2.54	6.48	2.13
4.97	2.66	38.97	11.81	5.30	2.22	6.00	2.02	5.70	2.15
7.90	2.64	59.17	14.53	9.50	2.48	8.48	2.15	8.73	1.90
5.81	3.10	47.19	11.97	7.78	2.34	6.52	1.93	6.96	2.12
6.31	2.61	50.75	13.06	8.56	2.63	6.91	2.31	7.38	2.38
7.81	3.06	60.31	12.78	9.00	2.87	8.69	1.85	8.46	2.34
5.11	2.77	42.56	14.77	6.19	3.23	5.70	2.53	7.08	2.08
6.54	3.12	50.06	14.22	6.80	3.19	6.65	2.28	7.60	2.09
6.88	2.57	54.66	12.63	8.62	2.48	7.53	2.26	7.91	1.88
6.59	2.82	52.33	13.28	8.00	2.62	7.46	2.21	7.51	2.11