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Kremer, Michael Lee

EFFECTIVENESS OF INDIVIDUALLY GUIDED EDUCATION SCHOOLS AS MEASURED BY TEACHER OPINION AND THE "SCHOOL IMPROVEMENT INVENTORY"

Iowa State University PH.D. 1985

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Effectiveness of individually guided education schools as measured by teacher opinion and the School Improvement Inventory

by

Michael Lee Kremer

A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
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Introduction

> If we lived in a social vacuum, changing schools would be as simple as arranging the players on a chess board in the absence of an opponent. We could simply select the arrangements we prefer and move the pieces around until we liked the result.
>
> The real world of educational change is, however, about as far from an opponentless board game as we can get. The fundamental reason for this is the school's relationship to society. Over the years society has become accustomed to the school model that was developed during the industrial revolution. Alternative models are resisted both because they violate social expectations and because habit is so powerful. The prevailing model of education has become ingrained in the patterns of teachers, administrators, and students. To use an alternative model requires that school personnel learn how to make that model work and also that they change deep-seated norms. Although educators can easily learn to make alternatives work, after a time the old patterns tend to reassert themselves and wipe out the new approach. This combination of social expectation and educational habit has been lethal to many reforms (42, p. 63).

With the increased demands upon the schools for an enlightened citizenry needed in a modern technological society have come increased amounts of change in the schools in an attempt to meet these demands. "The concern for change in our schools, and for the processes which effect change, is paramount among American educators" (20, p. 1). The results of these demands and attempts to meet them on the part of the school are evidenced by an increasing commitment of student time, increasing numbers of school personnel needed in the schools, and increasing expenditures of public money. At the same time that schools

are striving to improve the educational environment, school personnel are being asked ever more insistently to account for the results of their programs. One does not have to be very observant to recognize the widespread public concern over the effectiveness of schools as witnessed through the interest created in the report submitted by the National Commission on Excellence in Education.

In 1965, the Charles F. Kettering Foundation established the Institute for Development of Educational Activities, Inc. (/I/D/E/A/) as its educational affiliate for the purpose of developing new ways to accelerate improvement in education. In that era of unprecedented change, it was evident that although many innovative ideas were introduced in schools, the schooling process basically remained constant.

Bloom reported that the process of schooling today is much the same in America as in other developed nations of the world. It is carried out in formally organized schools in which a teacher and graded instructional materials provide instruction to groups of students, typically about 20 to 70 students in each group. Further, students tend to be classified and grouped by age or grade. The age-grade, single teacher organization for instruction and the administrative arrangements in local schools have become institutionalized (10, pp. 7-8).

During the sixties, grants from government and other organizations were issued to assist schools in the process of up-dating. However, many of these programs did not succeed or did not have a sustaining impact on the educational process. Goodlad and Klein contend that "... many of the changes we have believed to be taking place in schooling

have not been getting into classrooms; changes were blunted on school and classroom doors" (27, p. 97).

Recognizing this phenomenon, /I/D/E/A/ initiated a study in 1966 to determine the conditions under which learning could take place in the classroom most successfully for each individual student. Coordinated by John Goodlad, the 5-year study, Study of Educational Change and School Improvement, included a group or league of 18 cooperating schools in California. The philosophy, process, and findings of this study formed the basic structure for the present innovative program, the /I/D/E/A/ Change Program for Individually Guided Education (IGE).

Other factors which influenced the development of the Change Program were insights gleaned from the Ford Foundation sponsored, Harvard Teams Project (1959-1964) and the advancements of the Wisconsin Research and Development Center for Cognitive Learning. Today, the development and growth of IGE is traced to the Wisconsin Center and /I/D/E/A/, but each organization's philosophy and process is markedly distinct.

Wisconsin's Research and Development Center, through the work of Herbert Klausmeier, has been identified as the formal initiator of the IGE concept (1964). Succinctly, the Wisconsin model is based on seven components, and it emphasizes curricular materials based upon behavioral objectives, while the /I/D/E/A/ Change Program includes 35 outcomes and stresses teacher and staff education through an extensive training program. Regarding in-service, Bahner asserts that "... Wisconsin's

approach was to keep training to three days if possible, and five days at the most" (52, p. 211).

By 1970-1971, /I/D/E/A/ had established the Change Program for IGE and had developed materials and used selected Wisconsin materials for implementation of the Change Program in schools for the first time. After 1972, /I/D/E/A/ materials for in-service training and other pertinent literature contained distinct terminology and direction from those of the Wisconsin Program.

The /I/D/E/A/ Change Program for Individually Guided Education is based on 35 outcomes or performance objectives to be implemented by school personnel (see Appendix A). The long-range in-service programs for teachers aim to create learning environments appropriate to each student as well as skills and attitudes necessary for continuous improvement in schools serving ages 5 to 12, 10 to 15, and 14 to 19, respectively. IGE is a process of individualization and continuous improvement achieved through in-service, implementation, and evaluation.

The /I/D/E/A/'s Guide to an Improvement Program for Schools describes IGE as follows:

> IGE calls for teachers to make numerous professional judgments formerly made by textbooks, curriculum guides, and administrative-supervisory personnel. IGE is not a "teacher proof cookbook" that provides decisions, but it is a process for making decisions about instruction as well as for making choices that relate to continuous improvement (40, p. 12).

The IGE model brings a number of innovative practices typically used in isolation into a total system designed to facilitate individualized and personalized instruction in elementary and secondary schools.

Romano explained that "... teaming, nongradedness, differentiated staffing, decision-making, individualization, and a focus on the uniqueness of each child are examples of innovative practices used in IGE schools" (82, p. 12). Its program provides various degrees of structure and choice for students based upon diagnostic data about the learner's needs, interests, skills, learning style, academic ability, and learning strengths and weaknesses. It also considers both student and parent desires and concerns.

Since the development of the IGE model by the Institute for the Development of Educational Activities and the Wisconsin Research and Development Center, continuous research has been conducted by both groups and other educators; improvement strategies have been designed and implemented. In a study of IGE principals, Paden reported that "... although IGE schools are typically innovative and humanistically oriented, they have defied national statistics academically. During four years of collecting data through questioning more than 400 elementary school principals, only one principal in 400 reported a significant decrease in standardized achievement scores. In fact, more than 40 percent of the principals surveyed in 1976-1977 said their achievement scores were either slightly or significantly higher than before, while 33 percent reported slightly lower scores and 25 percent had not administered achievement tests in their schools" (77, pp. 3-4).

The IGE concept incorporates the human values of caring, sharing, cooperation, and responsiveness as well as achievement and decision-making

aspects. Based upon cited research and /I/D/E/A/'s experience with IGE schools, the Individually Guided Education process has generated positive and negative feelings during its 15 years of implementation, but positive findings are more numerous than the negative. These data hold promise for the future.

Purpose of the Study

Regrettably, enthusiastic educational innovators are not always enthusiastic educational evaluators. The simple truth is that the answers to questions regarding the effectiveness of schools, whether innovative or not, have in many instances been largely an attestation of professional opinion and subjective judgments. Those educators who have attempted to communicate objective results of educational programs have for the most part relied on output measures such as achievement tests.

IGE schools are broadly conceptualized in terms of the 35 outcomes of the IGE Change Program (86) and according to organizational structure and the instructional programming of individual student (38). These definitions, however, do not provide the empirical bases to determine the extent of implementation and to determine if IGE makes a difference in schools which have implemented the program.

The purpose of this study is three-fold. First, to determine the extent of implementation of Individually Guided Education outcomes in selected school districts with both IGE schools and non-IGE schools. Second, to determine the opinion of teachers concerning Individually Guided Education outcomes in school districts with both IGE schools

and non-IGE schools. And third, to provide building administrators with valid and reliable information relative to school improvement.

Statement of the Problem

By the 1975-76 school year, nearly 3,000 elementary schools in the United States were identified with IGE. By 1983, there were approximately 1,000 schools registered with the Association of Individually Guided Education in Atlantic City, New Jersey. If education is to progress at a rate consistent with the accelerated rate of current school effectiveness information within the general technology in society, it must find or create options that provide flexibility to deal with needed changes in a proficient manner. Since IGE continues to exhibit its influence in schools, it seemed appropriate to determine if the implementation of the program in one or more schools in a school district had made a difference in other schools in the district in terms of IGE implementation. The resulting information would provide direction for in-service emphasis, especially toward dynamic philosophic modes of behavior. The problem for this study was to investigate the difference in use of IGE outcomes in non-IGE and IGE elementary schools in school districts which originally were committed to Individually Guided Education.

More specifically, the problem was to test the following hypotheses:

1. Is there a difference in the degree of implementation of IGE in the two types of schools, IGE and non-IGE, in the same school district?

H_1 There will be no significant difference in the degree of implementation of IGE outcomes labeled School Decisions in the two types of schools, IGE and non-IGE school, in the same school district.

H_2 There will be no significant difference in the degree of implementation of IGE outcomes labeled School Organization in the two types of schools, IGE school and non-IGE school, in the same district.

H_3 There will be no significant difference in the degree of implementation of IGE outcomes labeled Curriculum and Teaching in the two types of schools, IGE school and non-IGE school, in the same school district.

H_4 There will be no significant difference in the degree of implementation of IGE outcomes labeled Student Responsibility in the two types of schools, IGE school and non-IGE school, in the same school district.

H_5 There will be no significant difference in the degree of implementation of IGE outcomes labeled Planning, Analyzing and Improving in the two types of schools, IGE school and non-IGE school, in the same school district.

2. Is there a difference in the opinion of implementation of IGE outcomes in the two types of schools, IGE school and non-IGE school, in the same school district?

H_6 There will be no significant difference in the respondent's perceptions of the degree of implementation of IGE outcomes labeled School Decisions in the two types of schools, IGE and non-IGE school, in the same school district.

H_7 There will be no significant difference in the respondent's perceptions of the degree of implementation of IGE outcomes labeled School Organization in the two types of schools, IGE school and non-IGE school, in the same district.

H_8 There will be no significant difference in the respondent's perceptions of the degree of implementation of IGE outcomes labeled Curriculum and Teaching in the two types of schools, IGE school and non-IGE school, in the same school district.

H_9 There will be no significant difference in the respondent's perceptions of the degree of implementation of IGE outcomes

labeled Student Responsibility in two types of schools, IGE school and non-IGE school, in the same school district.

H_{10} There will be no significant difference in the respondent's perceptions of the degree of implementation of IGE outcomes labeled Planning, Analyzing and Improving in the two types of schools, IGE school and non-IGE school, in the same school district.

3. Is there a difference in the opinion of the faculty expectations for leadership in the two types of schools, IGE school and non-IGE school, in the same school district?

H_{11} There will be no significant difference in the opinion of the faculty leadership expectations in the two types of schools, IGE school and non-IGE school, in the same school district.

4. Is there a difference in the opinion of the faculty perceptions of the building administrator's effectiveness in the two types of schools, IGE school and non-IGE school, in the same school district?

H_{12} There will be no significant difference in the opinion of the faculty perceptions of the building administrator's effectiveness in the two types of schools, IGE school and non-IGE school, in the same school district.

5. Is there a difference in the opinion of the faculty perception of school climate in the two types of schools, IGE school and non-IGE school, in the same school district?

H_{13} There will be no significant difference in the opinion of the faculty perception of school climate in the two types of schools, IGE school and non-IGE school, in the same school district.

6. Is there a difference in the opinion of the building administrator's instructional leadership behaviors in the two types of schools, IGE and non-IGE, in the same school district?

H_{14} There will be no significant difference in the opinion of the faculty building administrator's effectiveness in the five instructional leadership behaviors which make a difference in student achievement.

Additionally, it was the problem of this study to discover and determine as much background information as possible through structured telephone interviews with IGE building principals. The interview will explore both the past and present in relationship to the implementation of Individually Guided Education. Listed below are the specific questions which were used in the interview.

1. Did your school receive district approval to implement Individually Guided Education (IGE)?
2. In your estimation, what are/were the IGE program outcomes?
3. How well do/did your school board members understand IGE?
4. How is your school progressing in the implementation of IGE?
5. What organization of teachers and students do you support and why?
6. Do you have any preference as to age grouping patterns?
7. What are your feelings about common planning time for groups of teachers within schools?
8. How important is it for schools to work together to stimulate an interchange of ideas and solutions to problems?
9. Are/were applicants familiarized with your school program before accepting a position?
10. What method is/was used to select team leaders in your assigned school?
11. Did anyone outside your school help evaluate your progress toward goals?
12. Were parents and students provided opportunities to examine the rationale and organizational structure of the school?

13. How do you feel about peer observation as an approach to staff development?

Source of Data

Data to investigate IGE were obtained through the use of the Inventory of Selected School Practices Questionnaire and the School Improvement Inventory. The instruments were applied in three districts in central Iowa. A total of 20 elementary schools make up the elementary program in the three districts. Eight of the schools were in Ames, four in Indianola, and eight in Marshalltown. However, only 11 schools were utilized in the investigation.

A questionnaire titled Inventory of Selected School Practices Questionnaire was designed by Sister Evelyn Piché at Michigan State University in 1979. Researchers at the Kettering Foundation (/I/D/E/A/) and experts at Michigan State University critiqued and verified the appropriateness of the questionnaire. The questionnaire was devised to indicate levels of implementation of Individually Guided Education practices in schools and to obtain the opinion status of these IGE practices. The 35 IGE outcomes, the basic structure of IGE, served as a guideline for the questionnaire. Language is generic in nature so that terminology could be identified by non-IGE participants. The outcomes were clustered in five categories for ease of interpretation.

The second instrument, titled the School Improvement Inventory, was designed for the Northwest Area Foundation and developed by James Sweeney at Iowa State University. The inventory is a valid and reliable instrument for assessing: (1) a school faculty's expectations

for leadership at the building level, (2) faculty perceptions of building administrator's effectiveness, and (3) school climate, as perceived by the faculty reflected in six areas: (a) goal orientation, (b) teamwork, (c) commitment or esprit, (d) expectations, (e) student attitudes, and (f) administrator dedication and enthusiasm. In addition, it provides feedback on the building administrator's efficacy in five instructional leadership behaviors which make a difference in student achievement.

A March 1984 application of both instruments was made in six IGE schools and five non-IGE schools in the Ames, Indianola, and Marshalltown public school districts.

The IGE Principal Telephone Interview Guide was administered to principals who were participants in the Central Iowa League during the initial implementation of IGE in the early 1970s. Five out of the seven principals whose buildings received the IGE in-service program remain a part of the same public school district. The other two building principals have retired.

Definition of Terms

To provide clarity and brevity, all abbreviations in this dissertation are listed with the complete terms the first time they appear. Thereafter, only the abbreviation is used. Following is a list of abbreviations and terms used in this study:

1. Facilitator: A person trained by /I/D/E/A/ to coordinate communication and the cooperative implementation efforts in a league of IGE schools.

2. /I/D/E/A/: An abbreviation for the Institute for the Development of Educational Activities, Inc. It is the educational affiliate of the Charles F. Kettering Foundation.

3. /I/D/E/A/ Change Program: A term designated by /I/D/E/A/ to classify a program designed to facilitate the implementation of research findings more rapidly than by natural evolution.

4. Individually Guided Education (IGE): A researched education process encompassing the coordination of many innovations (e.g., team teaching, continuous progress learning, and multiage grouping) aimed at creating learning environments appropriate to each student as well as skills and attitudes necessary for continuous improvement through a program of in-service for school staff.

5. IGE Outcome: The term used for performance expectations. The 35 outcomes pertain either to individualized instruction or continuous improvement.

6. IGE School: The appropriate reference to a school striving to achieve all outcomes associated with Individually Guided Education.

7. Individualized Instruction: An educational process in which decisions related to the learning task and the behavior of the teacher emerge from the diagnosis of each learner. It should not be confused with independent study or tutorial situations.

8. In-service: A planned and continuous educative process utilizing IGE materials and other appropriate resources related toward the implementation of specific outcomes.

9. League: A group of schools working cooperatively with a facilitator to implement IGE outcomes.

10. Learning Community (L.C.): The organizational structure that facilitates the /I/D/E/A/ Change Program for IGE. Each L.C. consists of a leader, teachers, aides, and 75-100 students. The L.C. contains a heterogeneous group of staff members and students of two or more age ranges or "grades."

11. Learning Community Leader: A teacher responsible for organizing, coordinating, and leading the L.C. to carry out its function of educating students and providing staff development programs.

12. Non-IGE School: A school not associated with IGE either through /I/D/E/A/ or Wisconsin R & D. In this study, they are labeled non-IGE regardless of their organizational structure or educational practices.

13. Program Improvement Council (PIC): A decision-making and advisement committee composed of the principal and learning community leaders concerned with school-wide policies and operational procedures. Instructional Improvement Committee (IIC) or steering committee are synonymous terms.

14. School District: The legal entity created for the purpose of operating and maintaining education within boundaries.

15. Wisconsin R & D Center: An abbreviation for the Wisconsin Research and Developmental Center. The R & D Center is located in Madison, Wisconsin and is supported in part by funds from the United States Office of Education.

Delimitations of the Study

The scope of this investigation was confined to 11 public elementary schools: four in Ames, Iowa; four in Indianola, Iowa; and three in Marshalltown, Iowa. Three of the IGE schools were located in Indianola, two in Marshalltown, and one in the Ames Community School District. All six IGE schools were members of the Central Iowa IGE League. The non-IGE schools in the investigation were represented by three elementary schools in Ames and one non-IGE school was studied in each of the other two districts.

These schools had been involved in ongoing research at Iowa State University focusing on IGE -- November 1972, December 1973, November 1975, and February 1976.

Non-IGE control schools were selected due to similarities to the IGE schools under investigation. In each school district, an effort was made to select control schools with a staff and program similar to the IGE school(s) being examined. The socio-economic level of the students being served was also considered when a control school was selected. In general, control schools were selected that were as comparable to the IGE school as was possible. Attention was also given to selecting control schools that would be good representatives of the elementary program in each district.

CHAPTER II. REVIEW OF LITERATURE

Continuous educational improvement has been sought and promoted since the mid-1960s by two organizations instrumental to the development and growth of IGE. In 1964, the Wisconsin Research and Development Center (Wisconsin R & D Center) was funded by the United States Office of Education and in 1965, /I/D/E/A/ (Institute for the Development of Educational Activities, Inc.) was established by the Charles F. Kettering Foundation. The two organizations worked parallel to each other until 1969, when they combined efforts to facilitate the growth of IGE.

Since IGE's eclectic process demanded an examination of those concepts associated with the program, the literature was reviewed from the following perspective: the degree of change in schools and educational innovations, IGE as a focus for educational reform and renewal, the leadership role of the IGE principal, and contemporary studies involving Individually Guided Education.

The Degree of Change in Schools and Educational Innovations

Early studies of innovation indicate that change in American school systems came about through a very slow process. Mort (69, p. 318) asserted that "between insights into a need and the introduction of a way of meeting the need that is destined for general acceptance there is typically a lapse of a half-century." Studies coordinated by Mort and Cornell (70) in the late 1930s reviewed the diffusion rate of educational innovations or adaptability. Although extremely slow in

implementation, school systems with high adaptability were those where teachers participated in in-service or training programs and were more understanding of new school practices.

At this time in history, it would appear that the typical pattern of innovation was to decide on the manner of meeting a need and then waiting for another 50 years for the installment or diffusion of a productive innovation. Mort's (69, p. 318) findings verified that a positive relationship existed between the speed of adopting innovation and the financial support provided by the community.

Perhaps the diffusion rate was not as slow as it first appeared. Mort's studies reported in the 1930s on the rate of diffusion did substantiate observations from P. H. Coombs' study. Coombs (19, pp. 118-119) reported a survey in which six out of 27 innovations that were investigated had been adopted in school systems throughout the country within about ten years.

Recognizing the slow rate of acceptance and use of new ideas in educational systems, it has been established that educators lag behind those of the medical, agricultural, and industrial systems. Miles (66, pp. 631-662) delineates three reasons for this situation.

1. There is an absence in education of any body of valid scientific research findings.
2. There is a lack of change agents in order to promote new educational ideas.
3. Very little economic incentive exists to adopt even those ideas and innovations which have been explored, and which on the face of it appear to have some logical validity.

As time progresses, the rate of diffusion accelerates. Miles (66, p. 650) describes the change process as involving stages of exploration, namely:

> The development of awareness and interest concerning the innovation; evaluation (in the sense of reaching a judgmental decision about the potential rewards and costs of the innovation); actual trial of the innovation in the local system. This process results in a decision to adopt, adapt, or reject the innovation.

In summarizing the studies of change, Mackenzie (62, pp. 414-415) concluded that many forces outside the school situation greatly influenced the rate of change and appeared to be the dominant initiators in the studies. These included the following: non-educationists, foundations, academicians, business and industry, educationists, and the federal government. Change in education is shaped by a number of forces, some of which facilitate and some of which impede the process.

Motivating forces which foster acceptance of a change program are the following: dissatisfaction with the present situation, external pressures toward compliance, momentum toward change, and motivation by consultant or change facilitator. Researchers located at Iowa State University find it particularly noteworthy that the work of Joe Bohlen and George Beal [supported by cooperative extension centered on diffusion/adoption of new ideas in agriculture (5, 11) and enhanced by their former student Everett Rogers (81)] has had a major impact on the United States Educational Research and Development Centers which fostered massive change projects in the late 1960s and 1970s. Examples would be the change programs developed by Gene Hall at the University of Texas (30) and the IGE program at Wisconsin (46).

Because of its complexity, resistance to planned change is a complex rather than simple problem. Observations and studies on the topic are numerous.

Miller (68, pp. 8-19) reported three general inhibiting elements in an individual's resistance to depart from the known. The first is traditionalism, which is related to stability and in some situations supports continuity. The second element is laziness. Innovations involve added energies. Related to laziness is indifference and rationalization. Fear and insecurity is the last general element. Other elements more essentially related to schools are: administrative reticence, educational bureaucracy, inadequate finances, community indifference and resistance, insufficient knowledge concerning the process of change, and inadequate teacher education programs.

Bentzen and Tye (8, pp. 352-359) also reported that many factors impede the bringing about of desirable change in elementary schooling. They are inadequate finance, value dilemmas, vested interests, bureaucracy and adherence to norms, confusion in decision-making, leadership vacuum, and the lack of strategies.

Resistance to change will be minimal if teachers are allowed to participate in the decision-making process. This is substantiated by Goodwin Watson (93, p. 23), who concluded that:

1. Resistance will be less if participants in the change process have worked together to diagnose a situation and agree on a basic problem and feel it is important.
2. Resistance will be less if the goals are adopted by consensual group decision.
3. Resistance will be reduced if proponents are able to empathize with opponents to recognize

valid objections and to take steps to relieve unnecessary fears.

4. Resistance will be reduced if individuals experience acceptance, support, trust, and confidence in their relations with one another.

Cartwright and Zander (14) support the idea that change will meet with little resistance in schools where the individual is motivated to: (1) accept the goals and decisions of the group; (2) seek to influence these groups and decisions so they are consistent with his own goals and experiences; (3) communicate fully to the members of the group; and (4) behave in a way calculated to receive support and recognition from members of the group and particularly from individuals whom he sees as having more power and status than himself.

Change is a complex phenomenon. Change in any system will create pressure on and tensions in other related systems. In view of the fact that any major change in society will effect stress on other subsystems, school leaders need to anticipate, identify, and deal realistically with changing situations. The change process needs recognition in schools.

Lewin (54) describes change as a three-step procedure of unfreezing, moving, and refreezing the organization. The unfreezing process means reducing the forces keeping the organization at its present level. Unfreezing brings the organization to a new level. This step involves the development of new values, behaviors, or attitudes through internalization, identification, or change in structure. The third step, refreezing, involves stabilizing the change at a new "quasi-stationary equilibrium" through the use of

supporting mechanisms, e.g., changes in group norms, or modification of organization policy or reward structures.

Hollingsworth and Hass (34, p. 613) utilized Lewin's ideas.

> Once efforts are exerted to disrupt equilibrium for change, steps must be taken to maintain the new state, thus establishing a state of equilibrium at a different level. This process can be divided into three distinct steps: unfreezing, changing and refreezing. If change is to have any probability of permanence, there must be a "locking in" effect, that is, the structural environment should be modified to lend permanence to the psychological changes.

The psychological, technological, and structural aspects of an organization are all involved with change, and to neglect any segment is to lower the probability of successfully implementing a change program. The lack of a systematic approach to organizational change causes a lack of change permanence or the establishment of a desired situation.

There are many strategies of planned change. Bushnell and Rappaport (13, p. 10) enumerates six factors of planned change as:

1. Diagnosing the problem;
2. formulating objectives, and criteria of effectiveness;
3. identifying constraints and needed resources;
4. selecting potential solutions;
5. evaluating these alternatives; and
6. implementing the selected alternative with the school system.

Today a great variety of change techniques are in use; methods of grouping and categorizing these techniques are also numerous. One such method which is potentially useful is to distinguish between efforts which seek to alter individuals' personal characteristics and others which aim to change the conditions under which they operate.

This distinction is often a difficult one; Katz and Kahn (44, pp. 390-391) describe the situation:

> The confusion between individual and organizational change is due in part to the lack of precise terminology for distinguishing between behavior determined largely by structural roles within a system and behavior determined more directly by personality needs and values. The behavior of people in organizations is still the behavior of individuals, but it has a different set of determinants than behavior outside of organizational roles.

In studying educational reform and renewal, the institutional characteristics of schooling need consideration. Schools have underlying patterns of conduct, belief, and values which provide meaning to the ongoing activities of learning. These patterns and assumptions of school life have tended to produce standardized educational experiences to emphasize certain knowledge which is technical rather than imaginative, and to maintain noncritical and protective professional activities.

Baldridge (4, p. 37) summarizes results from a series of research projects on organizational change that were sponsored at Stanford. Those results indicated that large, complex school districts with a turbulent, changing, and heterogeneous environment will probably be much more innovative than a small, simple district with a relatively stable, homogeneous environment. The fundamental logic concerns structure:

1. Size makes a series of demands concerning coordination, control; and complexity to which a district must respond.
2. Differentiation and structural complexity produce cadres of specialists concerned about the task demand within their specialized realms. Consequently, these specialists

search for new ways of handling the demands within their specialized units.

3. The environment surrounding a district makes numerous demands because of its heterogeneity and change.

These structural elements of school districts are insightful explainers of innovative behavior. Schools are in a very real sense living organizations, and, accordingly, they respond to new or modified patterns of operation in much the same way as a living organism would. Hilfiker (33, pp. 20-21), in his study of eight school systems, has demonstrated that the innovativeness of a given school system is amenable to measurement by the type of interpersonal relationships and norms observed to exist in that system.

Chris Argyris (1) has suggested the characteristics associated with an effective intervention of a change agent: (1) the establishment of valid information, (2) the development of independence on the part of the client, and (3) the development of client commitment to change. These guidelines imply that the change agent and the client must perceive conditions as they actually exist through reality testing. Further, the change agent must behave in a manner which helps the client become a fully functioning individual, making his own choices and being responsible for his own behavior. When the client determines his own solution to problems, he is more likely to achieve and maintain lasting changes.

Another insight on elements of change considerations are those from Tye and Novotney (91, p. 49). They stated that:

> Schools have the characteristics of all complex organizations to one degree or another. Research into such organizations suggests that the areas which offer the most potential for improving schools are those which involve training staff, decentralizing decision making, minimizing role distinctions, improving staff morale, and the like.

The Rand Study of Educational Change (9, p. 15) reported numerous findings. One of the effective findings toward educational change supports the idea of participation at the local level.

> One finding that merits attention involves implementation strategies that promote mutual adaptation and, we believe, lead to effective implementation. The following strategies operating together promoted mutual adaptation:
>
> 1. Adaptive planning.
> 2. Staff training keyed to the local setting.
> 3. Local materials development.
> 4. The establishment of a critical mass of project participants.

Innovations using these strategies in concert were likely to result in significant teacher change that appeared to have been incorporated by the participating staff.

There is ample documentation to support the view that teacher participation in decision-making has desirable consequences. Studies researched in industry, dating from the famous Western Electric Studies at Hawthorne, Illinois (80), to later studies, such as Coch and French (18, pp. 512-532), Vroom (92), Maier and Maier (63, pp. 320-323), and Wickert (94, pp. 184-197), reveal the value of staff involvement.

Involvement of staff in the change process is basically a management and leadership problem. Change agents are literally both managers and leaders. Although schools are not factories, schools are composed

of people operating in a variety of organizational relationships. The findings of management research offers a source of guidance in staff development.

Likert (56, p. 78) explains that managers who are highly productive tend to exhibit certain common characteristics:

1. They are guided by the fact that any new practice must give promise for improving both attitudes and productivity.
2. They rapidly sense any unfavorable shift in attitude among their subordinates and promptly change or stop the activity responsible for the undesirable shift.
3. They avoid putting greater hierarchical pressures on workers to increase production.
4. They tend to use principles and practices of management which yield better communication and better decisions.

Bellows, Gilson, and Odiorne (6, p. 229) have shown that when an accountant, engineer, or teacher enters the field of work, 80 percent of his job revolves around technical skills and 20 percent on ability to get along with people. As a person moves in the hierarchy, the technical component decreases while the human component increases.

The principal of a school is in the position of public relations and is challenged especially in the change process. In Brickell's (12) New York report, it is found that instructional programs and rearrangements of organizational structures depends "almost exclusively" upon administrative initiative. The administrator is a key element in the change process. Brickell postulates that:

> The administrator may promote or prevent innovation.... He is powerful...simply because he has the authority to precipitate a decision. Authority is a critical element in innovation, because proposed changes

> generate mixed reactions which can prevent concensus among peers and result in stagnation.

Lieberman (55) conducted a study of more than 700 teachers in 31 elementary schools about the characteristics of principals. Lieberman discovered that the principal can be the key agent for change in the school when performing the role of the leader. She found that when the principal shares decision making with staff and involves both the principal and the teachers in organizing the school to deal with its problems, the teachers respond with higher morale and greater professionalism. Under such leadership, teachers become more willing to engage in the processes of bringing about change in the school.

One concept that does provide the necessary ingredients of improvement is that of self-renewal systems or strategy for planned change described by Miles and Lake (67, p. 82). They describe such a process as:

> A self-renewing school system would have the ability to continuously sense and adapt to its changing external and internal environment in such a manner as to strengthen itself and optimally fulfill its goal of providing quality education for children.

The emergence of new planning tools and change strategies in education offers the hope of more rapid adaptation of public schools to the demands of modern society. However, there are several difficulties in incorporating any particular innovation into the culture of schools. The difficulty depends on many factors, ranging from the characteristics of the innovation itself to the structure of the culture affected by the change.

One study of the League of Cooperating Schools, as reported by Bentzen (7), defines the self-renewing school as a school which is sensitive to changing school needs and has the capability of adjusting to a changing environment. Bentzen notes that engaging in self-renewal implies receptivity to change and makes an important distinction:

> ...we did not envision a self renewing school leaning with every passing wind of innovation. To us the self renewal syndrome took account of the individuality of schools and tied a staff's choice of changes to its assessment of individual school circumstances. The attitude toward change that we looked for could best be called 'responsible receptivity to change'....

Bentzen found responsive receptivity to change was found in those schools whose staffs could analyze needs, search for solutions to problems, and decide a course of action. They were willing to "consider paths that they had never traveled as well as paths they knew."

Goodlad (26, p. 63) also makes a distinction between change for change sake and change as a result of self-renewal practices. He discusses the importance of a staff's ability to articulate a sense of direction. Without a conceptualization of direction, the school "...lies vulnerable to those entrepreneurs, most of them well meaning, who would pile on another layer of something 'good because it is new.'"

From the contemporary change literature used by John Goodlad in his five-year study and others cited in this review, it is clear that a change program is embraced when a commitment to the change program is made by the professionals in the school setting. Willis (96, p. 25) summarizes this phenomenon:

> Among the many lessons learned about educational improvement one thing stands out above all the rest: If teachers are expected to change their methods of behaving to ones considered desirable for better instruction, they must be given the freedom to elect that change; attempts to impose change upon them may yield some short-term, superficial success, but will fail in the long run.

IGE as a Focus for Educational Reform and Renewal

Francis Chase (15), a keen student of educational reform and renewal, has described IGE as follows:

> IGE is described as a system, and it is a system of many interrelated components; but it is also a strategy, incorporating many tactics, for attaining educational objectives; and when fully implemented, it takes on an institutional character as a new kind of school. It offers distinctive patterns for the organization and management of instruction and learning environments; it fosters new sets of relationships to other education agencies and to the supporting community; it incorporates coordinated strategies for continuing evaluation, refinement, and renewal; and it stimulates staff development and curricular innovation. Moreover, IGE stands out as one of the more widely adopted and better implemented of the educational innovations which took shape in the sixties. The indications are that IGE may take its place among the more constructive of American contributions to the advancement of education.

The origins of IGE can be traced back to 1965 when Project MODELS (Maximizing Opportunities for Development and Experimentation in Learning in the Schools) was begun at the Wisconsin Research and Development Center (Wisconsin R & D Center) under the direction of Herbert Klausmeier et al. (51). Representatives of 13 Wisconsin School Systems and the Wisconsin Department of Public Instruction participated in the effort. Their aim was to create "a new type of organization...in the

school building to deal with some of the mutual concerns of the center, the school systems, and the State Department of Public Instruction regarding the development of exemplary instructional systems and sophisticated experimentation" (50).

As the first practical result of Project MODELS, 13 instructional and research (I & R) units were started as replacements for age-graded school classes in Milwaukee, Madison, Janesville, and Racine, Wisconsin, the second semester of 1965-66. In the summer of 1966, an eight-week institute was conducted by center staff and University of Wisconsin professors for personnel implementing the unit structure. A similar program was offered in the summer of 1967. As a result, in 1966-67, the number of functioning I & R units increased to 19, and in 1967-68, for the first time, seven elementary schools were completely organized as multiunit schools.

At about this same time, it became apparent to center staff members that changing the schools' organizational-administrative arrangements as a means toward better individualization of instruction was not enough (85, p. 218). By that time, Individually Prescribed Instruction, under development by the federally-funded Learning Research and Development Center at Pittsburgh, was receiving national prominence; but it was very different in philosophy and practice from the Project MODELS approach. Klausmeier and two other center staff members, Mary Quilling and James Watter, discussed possible names for the emerging Wisconsin approach to individualizing instruction and agreed that the term

"Individually Guided Education" reflected the kind of approach being developed (85, p. 218).

Also early in 1968, an /I/D/E/A/ staff member heard a presentation by Klausmeier regarding the work of the center and expressed interest in exploring "possibilities for cooperative dissemination" of the multiunit model (85, p. 218). Discussions with /I/D/E/A/ personnel ensued in the following months, and in June 1969, the two organizations entered into a formal agreement whereby the University of Wisconsin gave /I/D/E/A/ the non-exclusive rights to use printed and taped materials regarding the multiunit concept produced by the R & D Center.

The first "/I/D/E/A/ Change Program" materials were developed and used by /I/D/E/A/ personnel in 1970-71 in implementing multiunit schools for the first time -- primarily in Wisconsin, South Carolina, and Colorado (85, p. 218). In the 1970-71 school year, there were 164 IGE schools; 99 were in Wisconsin.

In 1971, an unanticipated shift in federal funding priorities found the Department of Health, Education and Welfare (HEW)/United States Office of Education (USOE) selecting the multiunit school for national installation in schools during the 1971-72 school year and funded the R & D Center to provide the necessary in-service education (85, p. 218). During this year, the center used /I/D/E/A/ materials to carry out implementation activities. Through the activities of the two organizations, the number of IGE schools increased from 164 in 1970-71 to 500 in 1971-72 (85, p. 218).

However, during late 1971, /I/D/E/A/ initiated a policy whereby its materials were made available only to individuals who attended an /I/D/E/A/ training session and signed an agreement originated by /I/D/E/A/. It became impossible, therefore, for individuals who had been trained only by the R & D Center to purchase and use the materials. As a result, the R & D Center went back to using its original materials and began developing new ones. Beginning in January 1972, /I/D/E/A/ and the center carried out independent efforts using different strategies and materials (85, p. 218). The formal relationship between the /I/D/E/A/ and the R & D Center was oficially terminated by letter in August 1972. The primary areas of disagreement revolved around the use of /I/D/E/A/ in-service materials and the preparation of statements regarding contributions of the two agencies in developing IGE concepts and terminology. In addition, the two groups began to part ways due to two basic philosophical differences: (1) /I/D/E/A/ decided against a curricular emphasis, whereas the R & D Center wanted to develop individualized materials for reading and mathematics; (2) /I/D/E/A/ placed a heavier emphasis on teacher education through a more elaborate training program (85, p. 219). Additionally, according to Romberg (84), /I/D/E/A/ saw IGE as an organization and set of procedures which would facilitate a harmonious learning-teaching environment. Thus, the emphasis was shifted from more effective cognitive instruction to a broader conception of the goals of schooling.

Paden (76) and Romberg (83) both agree that the peak year of IGE involvement was the 1975-76 school year in which there were some 3,000

IGE elementary and middle schools. Romberg (83) believes that a reduction of implementation funds in 1976 and declining elementary school enrollments undoubtedly started a decline at that time. Today, according to Dr. Phillip Geiger (22), who is vice-president of the Association for Individually Guided Education (AIGE), there are 600-1,000 schools who have maintained the IGE label. All three individuals were quick to point out that IGE is the existence of certain principles which were categorized as a list of 35 outcomes. Additionally and emphatically, the individuals believe IGE is alive and well today in those few schools that really adopted IGE and made it work.

The /I/D/E/A/ Change Program for IGE was in its embryonic stage when the /I/D/E/A/ Research Division, under the direction of John I. Goodlad, embarked upon a five-year study. Goodlad and associates (27) observed that these IGE innovations were used in schools with the same common expectations of schooling. A major expectation is coverage of a predetermined body of material by all students within a specified period of time, ordinarily a year and a grade.

Recently, Goodlad, in a statement that applies to his early IGE work (24, p. 106), described the function of schooling:

> The functions of schooling must be twofold: to enable the student to possess and shape the culture and to live effectively and satisfyingly within culture. Efforts to fulfill such function through coverage of content are anachronistic.

The Study of Educational Change was an attempt both to introduce change into schools and to study the process by which change takes place. The strategy selected to provide opportunities for actual change in the

school came from the belief situation of the persons involved in the study. One major belief guiding the study is succinctly described by Shiman and associates (87, p. 2):

> The faculties of individual schools know best what needs to be done in their own situation. Therefore, they should decide where, when, and how innovations should be introduced. A major corollary of this belief is that within any group of schools there exists a number of individuals who have faced the problems of schooling and have come up with innovative and workable solutions. These teachers and administrators can provide help and advice to others who are facing the same problems.

A dominant strategy of the Study of Educational Change was the establishment of the League of Cooperating Schools. The linking elements consisted of three components: each school, a network or potentially new social system embracing the schools, and the /I/D/E/A/ research office with a relationship to UCLA. The schools represented a cross-section of American public elementary education.

Other major beliefs which were recognized, agreed upon, and became guideposts for intervention strategies were the following:

1. The individual school is a strategic unit of educational change; that is, each school, with its students, principal, teachers, parents, and residents of the surrounding community, is a strategic and significant vehicle for effecting educational improvement (39).

/I/D/E/A/ reports that the study showed that the individual teacher who wants to try new patterns of instruction rarely succeeds unless the school supports these efforts.

2. The culture of the school is central both to understanding and to effecting educational improvement. Bahner and Willis (3, p. 100)

postulate that the belief system held by a critical mass of the individuals who compose the staff greatly influences the performance of the school.... Change efforts must be directed toward obtaining agreement from a critical mass of the school staff and toward stimulating them to reach out for help.

3. Each school needs a process by which it can deal effectively with its own problems and effect its own change. Willis (96, p. 2) explained that /I/D/E/A/ planned that, partly through participation in the League, each school would develop an improvement process: a systematic procedure for discussing and diagnosing its own problems, formulating solutions, taking action on recommended solutions, and trying to obtain evidence about the effects of such action. The process, refined after many experiments, was termed DDAE -- Dialogue, Decision-making, Action, Evaluation.

4. Some screening, legitimizing, and communicating of ideas beyond what individual schools might do informally must be built into the new social system.

The League itself became an increasingly powerful resource for staff development with each passing year (96, p. 3).

5. Individuals asked to take risks are more willing to do so when some elements of success are already built into the structure.

When careers or familiar patterns of behavior are at stake, most people prefer to be associated with a winner. For this reason, the League's relationship with /I/D/E/A/ and UCLA loomed large at the beginning of the study (96, p. 3).

From these cooperative belief statements and lived experiences, processes for institutionalizing change were learned. Bahner and Willis (3, pp. 101-102) reported learnings about the study.

> In summary, change takes place most effectively when expectations for change become the new social standard through association with others of similar intentions. Interaction among small groups, first within the school and subsequently within a consortium of schools, must be a part of the change process. And finally, the "way of life" for these small group members must be to take action based on their discussions, assess that action, and interact once again to decide on modifications to their plans. When this occurs in an atmosphere of mutual support, creative solutions to existing problems emerge. Staff members provide learning environments appropriate for individual students. They also engage in process which lead to continuous improvement of those learning environments and their own professional competency.

The dominant concept underlying IGE is individualization. This resulted from a philosophy which not only recognized individual differences but also insisted that differences were to be considered in planning and instruction. The reader must be reminded of the social and culture context of the 1960s. This was the Age of Aquarius, doing your own thing, and the unfolding of the me generation. IGE schools served to perhaps foster many of these attitudes. The need to incorporate the philosophy of individual differences in schools with teachers, administrators, students, and parents, and at the same time not substantially increase expenditures of money, was one basic consideration in the development of IGE. It was believed that changes in organization, method, and materials could more effectively meet individual differences given the same dollar support.

Specifically, /I/D/E/A/'s philosophy (96, p. 5) is summarized in a description of the ideal school which should meet students' differences in at least these basic ways:

1. by helping each student to progress through his learning program at his own pace;
2. by varying the medium of instruction (textbooks, audiovisual materials, demonstrations);
3. by varying the instructional mode (large group, small group, tutorial, independent study);
4. by varying time, space, and place for learning;
5. by matching each student with the person best suited to that student for a specific learning task.

The /I/D/E/A/ Change Program for Individually Guided Education is aimed at two basic goals: (1) individualizing learning programs for students, and (2) continuous improvement of the staff and school. The IGE Change Program coordinates and integrates a number of innovative practices, typically used in isolation, into a dynamic total system designed to facilitate personalized instruction in elementary and secondary schools. It is a program which provides various degrees of structure and choice for students based upon diagnostic data about the learner's needs, interests, skills, learning style, academic ability, and learning strengths and weaknesses. It also takes into account both parent and student desires and concerns.

Coakley's (17, p. 4) description of IGE is:

> IGE is not a status or condition that a school attains once and for all, as one attains citizenship or the age of 21. It is, rather, a way of life for a school, a process rising out of the constant evaluation of current practices and the development of a school staff of a growing capacity to improve their own efforts.

The Change Program for Individually Guided Education is based on 35 outcomes (see Appendix A) to be achieved by school personnel. In their entirety, the outcomes are the specific definition of IGE and guide a staff engaged in the change process. They encompass the approach, the philosophy, and the activities that can change a school and bring the IGE way of life into classrooms.

Of the 35 outcomes, the first two outcomes deal with commitment process and other conditions necessary for beginning the IGE program in schools. The remaining 33 describe the conditions in the ideal but realistic IGE school. The Implementation Guide (86) provides numerous suggestions for implementing each outcome.

The /I/D/E/A/ IGE Program is not a research, development, and diffusion model for change. Goodlad (25, p. 116) states the following regarding this concept:

> The League approach represents an alternative to R.D. and D. as a strategy for school change and improvement. It does not rule out the usefulness of R.D. and D. and its products, but these become meaningful after, not before, the people in a school begin to examine themselves and their settings through the process of D.D.A.E. (dialogue, decision-making, action, evaluation). This approach does not rule out, either, the presence of interested, outside parties; in fact, they are essential. When those within the school begin to stir, they need to establish a relationship with sympathetic, constructive, critical elements on the outside. Forces on the inside and forces on the outside establish a productive tension to change. Perhaps the entire process is best left unnamed; but, if we must, "S.S. and S." will suffice -- symbiosis, synergy, and serendipity.

The Wisconsin Research and Development Center's IGE concept is composed of seven components. Klaismeier (47, p. 17) names the following:

1. multi-unit organizational-administrative arrangements;
2. instructional programming for the individual student;
3. evaluation for educational decision making;
4. compatible curriculum materials;
5. home-school-community relations;
6. facilitative environments; and
7. continuing research and development.

In its evolution, according to Chase (16, p. 198), IGE has exhibited to an unusual degree the inherent capabilities of the Wisconsin R & D Center as set forth above. For example, the Wisconsin Center has endeavored at every step to build on and complement the work of university scholars in the various subject disciplines and the behavioral sciences, and has worked diligently to render the findings of research more accessible to school personnel. The R & D Center also has been successful in building a support system for IGE which involves active participation of the state education agency, teacher education institutions, and local education authorities in many states. The major components of IGE promote continuing evaluation, adaptation, and renewal through new information and active planning processes.

In the words of Francis Chase (15):

> It has been Herbert Klausmeier who with remarkable insight and persistence, has nurtured the concept of IGE from its nebulous beginning to the present fully operational system which may well be the best yet devised model for organizing instruction to meet the needs of individual students and to release the creative talents of teachers.

The Leadership Role of the IGE Principal

Joyce and Hersh (43, p. 27) determined that effective schools have administrative leaders, most often principals, who actively advocate and facilitate the attributes associated with effective schools. In this study, it seems clear that the principal must make sure the identified attributes are carried out appropriately. Such a person listens to staff requests and seeks to support such requests whenever reasonable. In addition, such a person initiates dialogues about expectations, school-wide rules, and the establishment of a good testing program. Most essential, with such leadership, the administrator is seen by both teachers and students as supportive, caring, and trustworthy, all of which help create conditions for excellence.

Lazarsfeld (53, pp. 3-4) stated that an administrator of any organization is confronted with four major tasks.

1. The administrator must fulfill the goals of the organization.
2. The administrator must make use of other people in fulfilling these goals, not as if they were machines, but rather in such a way as to release their initiative and creativity.
3. The administrator must also face the humanitarian aspects of his job. This is moral -- the idea that under suitable conditions people will do better work than they will under unsuitable conditions.
4. The administrator must try to build into his organization provisions for innovation for change, and for development. In a changing world, people and organizations must adjust to changing conditions. The conditions for change must be incorporated into the organization so that there may be a steady process of development rather than a series of sudden disruptive innovations.

Related to the fourth task, Lipham (58, p. 118) discusses the administrator's role in change. The role is that of "boundary spanning" or "linking" human and material resources to the school, in an attempt to bring about educational improvement.

The tasks outlined by Lazersfeld are constructs which can be related to the constructs in Lieberman's study of the principal's influence. In Lieberman's study (55, pp. 35-48) of principal leadership behavior style, the basic assumption was that the school is a social system and the principal's leader behavior in that setting influences both teacher attitude and behavior.

1. Task - The extent to which the principal organizes activities and resources to promote ideas and stimulation for teachers about changing school needs.
2. Authority - The amount of decision making power kept by the principal or delegated and shared with the teachers.
3. Expressiveness - The extent to which the principal fosters a warm atmosphere in the school by taking into consideration the needs and interests of the teachers.

Lipham (58) believes that fulfilling effectively the role as principal of an IGE school requires several significant, substantive changes in the behavior of the principal. A study by Goodridge (28) revealed that principals were the major decision makers concerning the initial decision to adopt IGE and that, in a majority of IGE schools, this decision was shared with teachers and others. Similarly, Howes (37) discovered that the successful adoption and institutionalization of IGE was directly and systematically related to the clearly perceived advantages of IGE, the degree to which individuals were informed and

able to communicate with others engaged in making the change, and the extent to which individuals were involved in and supported the change process.

Lipham (59) identified certain instructional approaches which proved promising in preparing principals for IGE schools.

1. Greater emphasis should be given to foundational administrative theory in graduate courses, conferences, seminars, and workshops for principals.
2. In addition to the current emphasis on the functions of the principal in tasks dealing with curriculum, staff personnel, financial-physical resources, and community relations, attention must be given to theories of leadership, decision making, organization, social systems, values, and change.
3. The principal who would initiate a major educational change should become thoroughly knowledgeable about the program prior to its attempted implementation. Appropriate information about the demands, constraints, and relative merits of each component of the program must be adequately communicated and understood during each of the following stages of implementation: awareness, commitment, changeover refinement, and renewal.
4. Greater emphasis should be given to providing reality-centered learning experiences. Case analyses, role playing, and simulation exercises on IGE are particularly productive procedures for developing specific skills required of the IGE principal.

As Klausmeier (46) has indicated, IGE is a comprehensive alternative system of education which calls for major changes in the structure, functions, relationships, and processes of the school. To implement IGE effectively, one must not only thoroughly understand the nature of the change, but also possess positive attitudes toward change and be skilled in the change process.

In a study of the relationships of the principal's leadership behavior to the effectiveness of instructional operations in IGE schools, Lipham and Fruth (61) found that staff perceptions of the principal's support and participation were positively and significantly related to effectiveness.

Williams (95, pp. 19-24) suggests the importance of the principal's awareness of staff perceptions of his leadership style. Such awareness largely determines how effective he will be in dealing with the staff. It was also noted that teachers in schools with high operational efficiency perceive the ideal principal as being more tolerant of uncertainty than do teachers in schools with lower operational efficiency, who feel the ideal principal should emphasize production.

While the principal should inspire the staff to move toward planned change, Morton and Morton (71a, p. 4) emphasized that meaningful and lasting change will occur only when teachers have had a significant part in the decision-making processes involved in planning and implementing the changes. Culver and Hoban (20, p. 45) indicate that when teachers are involved, they respond with higher morale. The principal, they suggest, must create an atmosphere in the school conducive to shared decision making and problem solving.

Research by Goodridge (28, p. 233) concludes that the principal's influence is particularly instrumental in the awareness and adoption phases of planned change. According to House's study (35, pp. 338-340), increasing the frequency and quality of interpersonal contacts can

enhance the success of innovation by aiding in the formation of a support group advocating the change.

Lipham and Fruth (61, p. 234) indicated the building's social interaction and principal's personal influence are key variables in successful change. Because the principal is the designated leader of his staff, he can do a great deal to either encourage or discourage progress (95, p. 40). In addition to supporting and facilitating an environment conducive to change, the principal must understand the dynamics of change processes (61, p. 230). Howes (36, p. 134) found that the presentation of adequate information about the advocated change was essential if the principal was to secure staff acceptance to change.

That the principal should take responsibility for the leadership of his school may seem to be an obvious assumption, and yet, as Novotney (72, p. 4) points out, the true leader is a rare commodity in our schools. Out of an ignorance of the nature and the functions of leadership and a preoccupation with the management and maintenance of the schools, principals are expected to be administrators rather than leaders.

Although other factors have been identified as contributing factors to successful school operation, evidence persists regarding the overriding importance of the principal. Silberman (88, pp. 50-54) described this role:

> A school is as good or as bad, as creative or as sterile, as sensitive or as callous, as trusting or as suspicious, as flexible or as rigid, as free or as inhibited, as encouraging or as threatening as the person who heads it up.

> Outstanding principals stand for the unshakable belief that every child can learn, that teachers and principals must be life-long learners, that people must always come before paper work, and that school must be an encouraging, supportive place where people feel free to take risks, knowing they won't be ridiculed if they are wrong and that they will be respected for trying. Without this kind of atmosphere, all else fails. With it, everything is possible.

Individually Guided Education Contemporary Studies

Both the Wisconsin R & D Center and /I/D/E/A/ were well aware that IGE required substantial changes in the behaviors of persons involved in its implementation. So that school staffs would acquire the new behaviors, the changeover was approached in two ways: first, by developing implementation materials; second, by providing opportunities for the school staff to acquire the understanding, skills, and attitudes expected in their new and expanded roles.

The materials that were developed described prototypes and guidelines for each of the 35 outcomes of IGE (51). These materials were designed to assist staff members in understanding the concepts and practices of IGE, acquiring the needed skills, and making adaptations appropriate to local circumstances.

To assist schools in making the changeover from the traditional, age-graded, self-contained elementary school to IGE, three strategies were followed as a part of an overall implementation plan. The first and primary strategy was for the selected center (/I/D/E/A/ or Wisconsin R & D Center) to train teams of implementors from other agencies -- state education agencies, teacher education institutions, and so forth --

who in turn worked with schools through four implementation stages: awareness, first-year changeover, second-year maintenance and refinement, and institutionalization (51).

The second strategy was for a teacher education institution to take the initiative in helping schools implement IGE. This strategy was made possible by the development of the Leadership Series in IGE (48). In this approach, a team of teacher educators plans a sequence of activities which includes conferences, courses, and seminars to help school administrators and teachers learn about and subsequently implement IGE.

The third strategy was for an intermediate education agency, a teaching center, or a school district to provide IGE implementation assistance as part of an ongoing staff development program. This strategy was often used in school districts where there already were IGE schools and the commitment to IGE was strong. Persons knowledgeable about and experienced in IGE conducted the staff development activities.

Since IGE elementary schools started in different ways, with the assistance of different persons and different agencies, and had been involved with IGE for differing number of years, it was reasonable to expect considerable variability in the commitment to the ideas underlying IGE and to its different components. /I/D/E/A/ thought in-service training to be very significant and, therefore, developed a two-week training program. Wisconsin's approach was to keep training to three days if possible and five days at the most (85, p. 219).

The program of Individually Guided Education is a product of the curriculum-school reform of the 1960s. It addressed the problem of directing elementary schooling toward the individual child. IGE should be viewed as an innovation which, if it were really implemented, would bring about changes in schooling practices. However, there are several difficulties in incorporating any particular innovation into the culture of schools. McClelland (65) discusses how effective implementation may involve different levels of cultural restructuring. The simplest level is the substitution of one isolated component of the system for another, such as a change in textbook. The most complex of all changes deals with values, such as asking teachers to value an active classroom over a quiet one. This way of characterizing innovations focuses on the degree of restructuring that will be involved.

Romberg (84) has labeled the poles of this dimension of change "ameliorative innovation" and "radical innovation." Ameliorative innovations are designed, or perceived as designed, to make some on-going schooling practice better or more efficient but do not challenge the traditions associated with the school culture. At the other extreme, radical innovations are designed and perceived as challenging the cultural traditions of schools. IGE was designed with radical change in mind. It challenges basic assumptions of how schools operate, how knowledge is defined in schools, and how teachers and children function in elementary school.

The Study of Educational Change and School Improvement (96, pp. 1-3) was an on-site evaluation which concentrated on the process of educational

change with the purpose of developing new ways to accelerate improvements in education. The guidelines for action were verified during the five years of the project. Briefly stated, the findings were:

1. The individual school, made up of students, principal, teachers, parents, and residents, is a strategic unit of educational change and an individual teacher rarely succeeds in innovation either working in opposition to or without the support of other members of the school family.
2. The culture (beliefs and practices) of a school is central both to understanding and to affecting educational improvement and rarely will a school change its pattern if the staff feels present practices work well.
3. Given existing social and educational restraints, most individual schools are not strong enough to overcome the inertia against change built into the typical school district and thus need the emotional and professional backing of other change-minded schools.
4. Each school needs a process by which it can deal effectively with its own problems. A process which meets this need is DDAE (dialogue, decision making, action, evaluation).
5. Some screening, legitimizing, and communicating of ideas beyond what individual schools might do informally must be built into the new social system, and committees with representatives from the cooperating schools can perform this function.
6. Individuals asked to take risks are more willing to do so when some elements of success are already built into the structure, and affiliation with a program and/or other schools with recognized success offers this security.

These findings were instrumental in the development of a "Change Program for Individually Guided Education."

During the early years of the Change Program, /I/D/E/A/ staff members conducted a study with 21 IGE schools (96, p. 17). Observations were made by /I/D/E/A/ staff members in pairs so that observer

reliability could be evaluated. Questionnaires were distributed to principals, teachers, facilitators, and learning community leaders. A follow-up was conducted the following year. The findings were:

1. Teachers in first-year IGE schools feel that their principals use instructional and self-improvement processes to a greater degree than teachers before they participate in Individually Guided Education.
2. Teachers in first-year IGE schools feel that Learning Community Leaders initiate instructional and self-improvement processes to a greater degree than teachers before they participate in Individually Guided Education.
3. Teachers in first-year IGE schools feel that they use instructional and self-improvement processes to a greater degree than teachers before they participate in Individually Guided Education.
4. Though teachers in first-year IGE schools feel that the instructional and self-improvement processes are used to a greater degree than teachers who have not yet participated in the program, the IGE outcomes are only partially implemented during the first year.

In another /I/D/E/A/ study, Paden (74, p. 18) found that teacher perceptions on implementation based upon questionnaires were very similar whether they had been involved with IGE for three months or 15 months. These beginning /I/D/E/A/ studies were complemented by studies involving the multi-unit orientation. Paden offered the following explanations:

1. The implementation strategies used during the fall of 1972 were sufficiently improved over those used prior to that time to allow the 1972 teachers to move into the program more quickly than was possible using the strategies employed with the 1971 teachers.
2. As IGE teachers are involved with the Change Program and become more knowledgeable of the thirty-five outcomes, they may have a tendency

to judge themselves more critically. This phenomenon would reveal an apparent lack of progress.

3. The questionnaire may not be sensitive to the kinds of changes that occur in IGE schools between the third and fifteenth months of implementation.
4. The implementation strategies utilized with schools after the third month of implementation may not be effective in terms of bringing about sustained continuous change, i.e., there is a large initial change but very small long-range change.

Another early national study of IGE was conducted by Belden Associates (74, p. 21) for /I/D/E/A/ to evaluate the /I/D/E/A/ Change Program for IGE during the 1972-73 and 1973-74 school years. The conclusions were statements about schools in the process of changing. Study conclusions are as follows:

1. General attitudes of administrators, teachers, parents, and students are positive toward IGE. They support the in-service training, the educational concepts, the organization, and the overall effects of the program.
2. Implementation strategies for initiating IGE are improving. Attitudes of administrators, teachers, and students toward methods of orienting and training are more positive in schools that use the more recent strategies than in those who used earlier procedures.
3. Administrators and students in schools that have participated in IGE for three or more years feel more positive about the educational concepts of IGE than those in the program only one or two years.
4. Administrators, teachers, parents, and students are more positive about the program in schools that have implemented most of the IGE outcomes. The degree of implementation is consistently related to positive feelings, effects on students, acceptance, and commitment to the program.
5. In general, the attitudes of administrators, teachers, parents, and students in urban and non-urban schools are equally positive.

6. The majority of teachers believe IGE processes work equally well for slow and fast learners and for culturally advantaged and culturally different learners.
7. Attitudes of parents and students toward the program and its effects are more positive where students have attended an IGE school for more than one year.
8. In general, reactions to the program are equally positive in schools that have primarily white students and those that are primarily non-white.
9. Implementing IGE can result in perceived administrator and teacher overloads especially when the rate of change, the level of support, or the sequence of adoption are not appropriate to the capabilities and resources of participating schools.

A three-year survey of IGE principals was coordinated by /I/D/E/A/ (75, pp. 10-11). The general trends reported are consistently favorable. The responses are very positive; with few exceptions, the attitudes expressed evidence of a greater degree of positiveness each year. Ten generalizations are supported by the principals' responses reported in the study:

1. Most IGE principals report that their school budgets are no larger than the budgets for non-IGE schools in their districts.
2. Approximately three out of every ten principals report "slightly higher" or "significantly higher" scores in reading and/or verbal achievement during the 1975-1976 school year.
3. Approximately one out of every four principals reports "slightly higher" or "significantly higher" mathematics achievement scores.
4. Principals' responses about achievement scores are more positive for 1975-1976 than they were for 1973-1974 and 1974-1975. However, in no year did more than two principals out of three hundred report a "significant decrease" in achievement scores.
5. About one of every three principals reports less frequent student vandalism. They at least partially attribute this change to their involvement with IGE.

6. About one of every four principals reports lower student absence rates. They attribute this improvement at least partially to their involvement with IGE.
7. About one of every five principals reports fewer teacher absences which they attribute, at least partially, to their involvement in IGE.
8. Most principals report increased involvement of students in planning for their own learning and a greater acceptance of the responsibilities that accompany this involvement.
9. Most principals report greater involvement of the teachers in issues that affect their roles.
10. Most principals report increased use of the League concept to provide support and stability to implementation.

Based on the investigation of the relationship between selected personal attributes of school personnel and the nature and extent of problems educators perceived when considering the implementation of IGE, Heffernan (32) revealed the following implication for the coordination of staff development.

First, IGE facilitators/implementors must be trained as highly sophisticated strategists with skills in problem identification, problem analysis and resolution, human relations, and program planning. These facilitators must move out of the role of salesperson and into a consultative position, assisting school staffs to develop the necessary skills for renewal. Second, schools cannot follow pre-established sequence of activities, time lines, pre-determined objectives, and training programs. Each school is unique in its strengths and weaknesses, knowledge, human and financial resources, skills, needs, and problems. The in-service program must be designed specifically for each local school.

Recognizing the uniqueness of each school, Goodridge (28) conducted a study designed to identify those who were responsible for the final decision to implement IGE and the factors that influence the decision to adopt. He used field methodology to conduct the study in eight geographically distributed schools which adopted IGE in the preceding 12-month period. Following are major conclusions:

1. Principals were the major decision makers concerning the decision to implement IGE. In a majority of the schools this decision was shared with staff teachers.
2. Board members, office personnel, and parents were minimally involved in the adoption decision process.
3. Individualization of instruction related to the IGE program was the major reason for the adoption of IGE.
4. There was a lack of awareness on the part of some teachers regarding the seven components of IGE.
5. The most influential and successful external change agents were teachers from other IGE schools who were viewed as credible.
6. In none of the cases was decision making shared among board members, superintendents, principal, staff and parents. When decision making was shared, it was between not more than two levels in the organization.
7. When the research data were collected, many decision makers considered that the amount of information available to them had been inadequate, although at the time of adoption they had considered themselves well informed concerning IGE.
8. Where visits to IGE schools were arranged, they had a positive effect on the decision to adopt IGE.

In response to those concerned about the consequences of IGE in schools, studies were conducted which compared specific variables in IGE and non-IGE schools. Lipham, Dunstan, and Rankin (60) studied the relationship of decision involvement and principals' leadership to

teacher job satisfaction in selected secondary schools. The major findings were:

1. Regarding involvement in decision making, school staffs were generally in a state of decision deprivation. They felt more deprived of making managerial or schoolwide decisions than they did in making technical or classroom type decisions.
2. Regarding staff perceptions of the principals' leadership, they rated principals highest in support behavior and lowest in work facilitation.
3. Staff involvement in decision making was significantly and positively related to staff job satisfaction.
4. Staff perceptions of the leadership behavior of the principal were significantly and positively related to staff job satisfaction.

Lipham (59, p. 22) summarized these studies.

> IGE schools, as compared with non-IGE schools, are significantly higher in open communication networks and essential interdependence relationships (Pellegrin, 1969); organizational adaptiveness and flexibility (Walter, 1976); teacher motivation and morale (Herrick, 1974); and school learning climate (Nelson, 1972). In IGE schools, teachers feel that they are involved in making potent instructional decisions (Feldman, 1976; Holmquist, 1976; Wright, 1976); that their values and viewpoints are represented appropriately (Nerling, 1975); that they experience job satisfaction (Mendenhall, 1976); and that their principals provide both instrumental and supportive leadership (Gramenz, 1974).

Five doctoral studies conducted in IGE schools through Iowa State University also compared IGE with non-IGE schools.

1. In 1974, Halversen (31) found IGE schools rated significantly higher in the following areas: (1) amount of teaming, (2) use of auxiliary personnel, (3) amount of instructional improvement activities, (4) amount of school-to-school interaction, and (5) the use of teacher advisors. The study also concluded that the degree of implementation

of IGE processes increased between the second and third years in the IGE schools.

2. Lindaman's (57) study which was conducted in 1975 revealed that non-IGE students had a slightly more positive self-concept than IGE students. Non-IGE male high achievers had significantly higher scores on the home-parent subscales than IGE males. In addition, non-IGE teachers estimated their students' self-concepts significantly more positive. Only the interaction between IGE and age showed a significant effect on composite scores.

3. Doyle (21) used the Indicators of Quality to measure the effectiveness of IGE schools in 1976. Fifteen Iowa schools were used to assess the four categories of school quality as defined by the Indicators of Quality; individualization, interpersonal regard, creativity, group activity. Doyle found IGE schools were significantly different in the areas of individualization and group activity.

4. In 1976, Olney (73) evaluated teachers' opinions on 40 educational trends. The study revealed that IGE teachers rated significantly higher in: (1) individualized curriculum, (2) team teaching, and (3) use of paraprofessionals. A significant difference was found favoring teachers from non-IGE schools in (1) the amount of structure and (2) the concern for subject matter.

IGE teachers also rated significantly higher on three items which measures teacher knowledge about instructional principles and practices: (1) continuous progress learning, (2) use of small groups, and (3) the concern for subject matter.

5. Also in 1976, Stow (89) found IGE schools were significantly higher in the following areas: (1) interpersonal regard, (2) group activity, (3) participation of pupils in the learning process, and (4) organizational structure related outcomes. This investigation was unique to the other studies at Iowa State University due to the fact it identified change over time in IGE schools. The schools were grouped according to the degree of implementation of IGE processes and then compared the grouping on Indicator of Quality scores over all three years: 1972, 1973, and 1975.

Joyal (41) examined changes in student learning patterns as schools implemented IGE. His findings showed that learning patterns in the IGE schools were characterized by (1) increased use of different instructional and audiovisual materials, (2) instructional groups of varying sizes, and (3) students showing greater self-direction in terms of learning activities.

Geske and Rossmiller (23, p. 21) attempted to discover if instructional personnel in IGE schools spent their time in ways different from instructional personnel in non-IGE schools. Data for the study were obtained from a sample consisting of 15 pairs of matched IGE and non-IGE schools drawn from nine states. A total of 96 teachers and 26 principals participated in the study. According to the data, the IGE teachers devoted two hours more per week to direct instruction of pupils than did the non-IGE teachers.

In addition, the two groups of teachers differed in the amount of time they spent in different modes of instruction. Teachers in IGE

schools spent an average of 6.34 hours a week in one-to-one instruction, whereas teachers in non-IGE schools spent 2.55 hours in that mode. On the other hand, the reported times for instruction in the large group mode were .26 hours a week in IGE schools and 1.27 hours in non-IGE schools. With regard to specific curricular areas, the allocated times by teachers for reading on a one-to-one basis were 1.66 hours in IGE schools and .73 hours in non-IGE schools; for math on a one-to-one basis, 1.70 and .67 hours; and for math on a large-group basis, .00 and .55 hours, respectively. During a typical school week, IGE teachers allocated significantly more time to one-to-one instruction, especially in reading and math, and significantly less time to large-group instruction.

If one assumes that a relationship exists between pupil achievement and the amount of time a teacher spends in instructional activities, or between pupil achievement and the amount of time a student is actually exposed to instruction, one can assume that IGE schools are creating a more favorable learning environment than non-IGE schools.

One of the difficulties in studying the effectiveness of IGE is to determine to what degree the concepts of IGE are being implemented in the school. There are high-implementing IGE schools which indicate a higher degree of implementation of IGE principles than in low-implementing IGE schools. Krawjewski et al. (52, p. 212) offer this explanation:

> Our problem is that many schools will identify themselves as IGE schools, when, in fact, within these schools the process does not exist or if it does, only in a very small way. We hope that researchers in the future avoid the label on the door. There are schools in this country not in

> the program which are probably very high on the IGE principles. Conversely, we know that there are some schools in our program not yet exhibiting those principles in the classroom. We think the former should be in the experimental group, even though not labeled as IGE schools; and the latter should be in the control group, even if they do happen to bear the IGE label. It's what they are doing that's important, not what the label is on the school.

Price (79) reported that schools identified as high implementers of IGE processes compared to schools identified as low implementers are associated with high achievement scores in reading, mathematics, and more positive attitudes toward schooling. Results that supported high implementation of IGE processes were most significant for students with low aptitude scores, students with high composite achievement scores, and for girls.

High- and low-implementing IGE schools were studied to determine school climate. Gresso (29) contrasted those schools most comprehensively using the concepts of IGE (high) with schools using the concepts least (low). He found that high implementing schools were more open, more autonomous; the teachers had higher morale; and the principals demonstrated strong leadership and greater consideration toward teachers. Low-implementing schools had a more paternal, closed climate in which teachers felt organizational constraints or control for the sake of control; teachers experienced more hindrance in accomplishing their tasks; and principals were more aloof.

Piché's (78) study involving 600 teachers in 12 states from a select IGE population revealed that outcomes concerned with school decisions, curriculum and teaching, and school organization have a

higher percentage of use in IGE school districts (IGE schools and non-IGE schools) and in non-IGE school districts than outcomes related to student responsibility and processes of planning, analyzing, and improving. In this study, 66 percent of the non-IGE district teachers and 50 percent of the non-IGE teachers (in an IGE district) reported that their schools were not organized in teams.

Wotiska and Romano (97) conducted a study in 14 selected Michigan school districts to determine the extent of implementation of seven IGE components as defined by the Wisconsin R & D Center: (1) multiunit organization, (2) instructional programming for the individual student, (3) evaluation for educational decision making, (4) curriculum materials compatible with (2) and (3) above, (5) home-school community relations, (6) facilitative environments, and (7) continuing research and development.

Despite the data which showed that there is an adequate implementation of the seven components in the participating IGE schools, a follow-up on site observation of a sample of these schools showed far too many inconsistencies. It seemed clear to the researchers that those IGE schools did not have a clear picture of the various components of IGE.

Kelley, Wood, and Joekel (45) investigated teacher perceptions of climate in 545 schools. The investigators categorized schools by degree and length of implementation. Information on the degree of implementation was received from /I/D/E/A/ based on results obtained from their monitoring with the IGE Implementation Questionnaire. The investigators concluded that there were no differences in teacher

perception of school climate between IGE schools and the national norms for all schools or between IGE schools of high rank and IGE schools of lower rank.

Another consideration of any educational change is the possibility of becoming a part of common expectations of the system. Investigating the change elements related to the institutionalization of an IGE school, Howes (37) reported that there were six factors affecting institutionalization: open and supportive environments, user liking for the multiunit school; user cost-benefit; use of open communication channels; supportive services and resources; and flexibility of the change process. She discovered that the successful adoption and institutionalization of IGE was directly and systematically related to the clearly perceived advantages of IGE, the degree to which individuals were informed and able to communicate with others engaged in making the change, and the extent to which individuals were involved in and supported the change process.

In 1977, Howes (36, p. 8) reported that to insure successful institutionalization, "managers of change should organize their activities around (1) the preparation of the organization to accept the proposed change, and (2) assistance to the organization for the implementation of the change." Well-designed plans for both of these activities should be appropriately organized before the change is initiated. She further stated that individuals who will be using the innovative project must be involved with the innovation for the change effort to take place.

The IGE evaluation project began at the Wisconsin R & D Center in May of the 1975-76 school year to portray the extent of the impact of IGE on elementary schooling. Data collection was completed at the end of the 1978-79 school year; analysis and reporting of results continued from that time. Romberg (84) presented the basic results of the evaluation study which are briefly summarized below:

1. While responses to an IGE implementation questionnaire were received from over 900 schools, in many of those schools, IGE was never truly adopted. The degree of implementation of IGE components was low. Nearly 60 percent of the sample could at best be called "nominal" adopters of IGE, and only about 20 percent could be called true implementers.

2. The staff and student survey (Phase I) conducted in October 1977 in over 150 schools using the IGE label showed that the variation in implementation of certain IGE organizational components had no relationship to variation in student achievement in reading and mathematics. However, the implementation of IGE components was found to be directly related to the level of teacher job satisfaction. Participation in a larger IGE movement and satisfaction with the effectiveness of their instructional program seem to be the key aspects of teachers' job satisfaction.

3. Phase II, a validation study of the Phase I survey and an extension in the area of implementation, substantiated the survey results of Phase I for the sample of 30 schools drawn from the Phase I sample. A key finding of Phase II relates to variation in IGE

implementation among the schools, reflecting differential understanding of the IGE components; the more successful IGE schools were those in which the program had been installed in a well-planned fashion, with prior staff commitment and parent approval and provision for sufficient training. This phase was conducted in the spring of 1978.

4. Phase III, a case study carried out during the 1977-78 school year in six schools, focused on institutional life as characterized by work, knowledge, and occupational ideologies. Three institutional configurations were identified -- technical, constructive, and illusory. Different assumptions about teaching, learning, and schooling in the three types of schools determined the form that IGE took in those schools. All six schools had been nominated by regional IGE leaders as exemplars of IGE schooling. Thus, even in schools reported to be exemplary IGE schools, quite different patterns of use were observed.

5. Phase IV was conducted in 1982 to study the implementation and effectiveness of the Center's curriculum programs. Interrelationships examined in the comparative studies failed to find major differences which could be attributed to either IGE or the curriculum programs. The researchers found that each classroom or unit is unique, with differences in what content is taught and how much time is allocated to the content; what operationally constitutes an instructional program differs among classes, particularly in reading; and IGE and non-IGE schools did not systematically differ on content or time variables.

Summary

As a systems approach to the reform of schooling, IGE was intended as a comprehensive program coordinating research and development, teacher training, curriculum materials, school administration and district practices, and home-school relationships, as well as student and teacher behaviors. IGE's designers believe that by applying the principles of educational psychology through a systems approach, the objectives, variables, and interrelationships of an educational environment can be known and can be structured to yield efficient learning. The procedures of IGE are assumed to be universally applicable to any and all school settings and are believed to be capable of reforming all elementary schooling.

The IGE program embodies at least two attitudes found in the current trends of American educational thinking. One of these is the belief that individualization is important and that the development of individual talents and interests is a significant goal of education. The second attitude involves the assumption that important social problems, such as the education of youth, are most effectively attacked through the power of scientific expertise.

Schools have patterns of conduct, beliefs, and values which give meaning to the teaching/learning process. However, these same patterns also standardize and routinize educational experiences and outcomes. Thus, the introduction and implementation of new and innovative educational ideas, principles, and practices has been a slow process. This is particularly true for innovations based on individual differences

of students and professionals. Given the conventional organization and established norms of schools, often such dynamic changes are viewed as suspect and when implemented are a pseudo representation of innovation.

Many factors shape the change process, some of which facilitate while others impede. Resistance to change, even to planned change, is a complex phenomenon. Researchers claim, and have substantiated the fact, that resistance can be minimized if teachers or those at the local school level participate in the decision-making process of the school.

The IGE principal's ability to modify behavior in light of the demands of the situation would seem to be important in effecting and encouraging continuous improvement behaviors of the school's staff. In the literature on change, implementation efforts have been associated with the effectiveness of a change agent. This person typically supports those directly involved in change by providing assistance in identifying problems, seeking solutions, and evaluating the program. Studies of IGE principals reveal that (1) principals were the major decision makers concerning the initial decision to adopt IGE (28); (2) the staff perceptions of the principal's support and participation were positively related to effectiveness (61); and (3) that the principal must create an atmosphere conducive to shared decision making and problem solving (20).

Pertinent literature and many research studies indicated that IGE schools, as compared with non-IGE schools, are (1) significantly higher

in open communication networks and essential interdependence relationships (61); (2) organizational adaptiveness and flexibility (61, 41); (3) teacher motivation and morale (61); and (4) school learning climate (61, 89).

In IGE schools, teachers feel that (1) they are involved in making potent instructional decisions (61); (2) that their values and viewpoints are represented appropriately (61); (3) that their principals provide both instrumental and supportive leadership (61); (4) that there is a higher degree of individualizing the curriculum, team teaching, and use of paraprofessionals (31, 73, 21); (5) that more time is devoted to direct instruction of pupils and the allocation of significantly more time to one-to-one instruction (23).

One of the difficulties in studying the effectiveness of IGE is to determine to what degree the concepts of IGE are being implemented in the school. Schools identified as high implementers are (1) associated with higher achievement scores and more positive attitudes toward schooling (79); (2) more open, more autonomous, and higher morale (29); (3) principals demonstrated strong leadership and greater consideration toward teachers (29); and (4) that outcomes concerned with school decisions, curriculum and teaching, and school organization have a higher percentage of use in IGE schools (78).

The systematic and long-term inquiry leading to the present status of IGE in schools throughout the country was hardly something any single person did alone. Participation of numerous schools, local school districts, regional education service centers, colleges and universities, and state education agencies, as well as related work of other institutions, has been critical to the accomplishment of IGE objectives over the past ten years. Furthermore, numerous components of IGE were conceived and tested by many others over more than two decades.

Jon Paden (77) writes on behalf of the Charles F. Kettering Foundation and /I/D/E/A/ in a report titled Reflections for the Future that "...as we have done throughout the IGE development experience, we have collected and analyzed data to help provide a better view of the course ahead." Research and experience indicate that schools can have only limited success without adequate environments for growth within the home, neighborhood, and community.

CHAPTER III. METHODS AND PROCEDURES

A joint intermediate agency, authorized by /I/D/E/A/ to implement IGE in selected Iowa schools, was formed in January 1972 with George Hohl, Iowa State University, and John Martin, Department of Public Instruction, serving as facilitators. The facilitators were asked to see that the /I/D/E/A/ policies were followed and to work with the membership. The schools chosen for the Central Iowa League were from Ames, Indianola, Marshalltown, and Newton. The IGE programs were begun in these schools during September 1972 (21).

If education is to progress at a rate consistent with the accelerated rate of current school effectiveness information within the general technology in society, it must find or create options that provide flexibility to deal with needed changes in a proficient manner.

The purpose of this study was three-fold. First, to determine the extent of implementation of Individually Guided Education outcomes in school districts with both IGE and non-IGE schools. Second, to determine the opinion of teachers/principals concerning Individually Guided Education outcomes in school districts with both IGE and non-IGE schools. And finally, to provide building administrators with valid and reliable information relative to school improvement.

Selection of the Sample

The scope of this investigation was confined to six IGE schools and five non-IGE schools from a cluster of schools that were formerly a part of the Central Iowa League. The districts involved were as

follows: Ames, Indianola, and Marshalltown. The non-IGE schools were selected due to similarities to the IGE schools under investigation: staff, program and socio-economic level of students. These schools have been involved in on-going research surrounding IGE -- November 1972, December 1973, and November 1975 (21, 31, 89). Attention was also given to selecting non-IGE schools that would be good representatives of the elementary program in each district (21). The classification of sample schools is noted in Table 1.

The seven principals selected for interviewing purposes were all trained at Iowa State University in a four-day session under the direction of the facilitators in May 1972. Five remain active in their administrative roles, while two have since retired.

Table 1. Classification of sample schools

School	IGE	Non-IGE
Ames	1	3
Indianola	3	1
Marshalltown	2	1

Description of the Instruments

Three instruments were used to gather the data for this study. The Inventory of Selected School Practices Questionnaire is a structured questionnaire devised to indicate the degree of implementation and teacher's opinion about the appropriateness of each outcome or practice in any elementary school. The School Improvement Inventory is a short, mark-sense survey instrument designed to gather information which can

be used for school improvement. The Principal Interview is a structured interview format, which was developed to obtain the perceptions of selected IGE principals' past, present, and future commitment to the Individually Guided Education model. Biographical data were gathered from all respondents through the use of a Teacher Data Form.

Inventory of Selected School Practices Questionnaire (Appendix B)

Inventory of Selected School Practices Questionnaire, written by Sister Evelyn Piche', is a structured questionnaire. The questionnaire was designed so that each variable would receive two responses: degree of implementation and teacher's opinion about the appropriateness of each outcome or practice in any elementary school. Outcomes were organized in five clusters: School Decisions, School Organization, Curriculum and Teaching, Student Responsibility, and process of Planning, Analyzing, and Improving (78). The decision for the placement of each outcome was based on the experiences of the /I/D/E/A/ staff. Therefore, it should be noted that the outcomes have been grouped arbitrarily, based on their best judgment.

A Likert scale was used for the response codes. Six categories identified the degree of implementing IGE outcomes in the local school. Three categories identified teacher's opinion about the appropriateness of implementing the IGE outcomes in any elementary school.

A review of literature pertaining to Individually Guided Education was examined prior to designing the questionnaire. Researchers at the Kettering Foundation (/I/D/E/A/) and experts at Michigan State University critiqued and verified the appropriateness of the questionnaire. Generic

language was used so that the IGE and non-IGE schools could have recourse to common terminology. Two elementary schools field tested the instrument and as a consequence, minor revisions were made (78).

School Improvement Inventory (Appendix C)

The School Improvement Inventory was developed by James Sweeney at Iowa State University (1983) as part of the School Improvement Model (SIM) Project. The creation of the inventory was supported by the Northwest Area Foundation, a consortium of five K-12 school organizations, and the Research Institute for Studies in Education at Iowa State University (64).

The School Improvement Model is a total-system/outcomes-based approach to raising student achievement K-12, with emphasis on performance evaluation of all teachers and administrators. Professors Richard Manatt and Shirley Stow from Iowa State University are co-directors of the project. The uniqueness of SIM is its endeavors to make four important linkages in teacher performance to student learning; administrator's behavior to teacher performance; curriculum content and student achievement; and finally, staff development (11).

The School Improvement Inventory is a valid and reliable instrument for assessing: (1) a faculty's expectations for leadership at the building level, (2) faculty perceptions of building administrator effectiveness, and (3) school climate, as perceived by the faculty reflected in six areas: (a) goal orientation, (b) teamwork, (c) commitment or esprit, (d) expectations, (e) student attitudes, and (f) administrator dedication and enthusiasm. In addition, it provides the building administrator with feedback on their efficacy in five

instructional leadership behaviors which make a difference in student achievement (64).

The instrument was designed for use by both elementary and secondary school principals.

Principal Interview (Appendix D)

The Principal Interview was developed to provide additional information about the role Individually Guided Education has played in the IGE schools sampled during the past 12 school years. The structured telephone interview format is designed to determine the opinion of principals concerning the extent of implementation of the Individually Guided Education outcomes.

Authorities were consulted, the literature was searched, results from open-ended questionnaires were pooled, and discussions conducted on what constitutes an appropriate question. The ideas were brought together and the questions ultimately identified. This decision was made in consultation with the writer's advisor after field testing the instrument with two IGE elementary principals.

Teacher Data Form (Appendix E)

A biographical data sheet was provided each teacher. Questions to be answered concerned age, sex, total years in teaching, grade level taught, and specific questions regarding Individually Guided Education training.

Methods of Collecting Data

The present investigation was launched to determine the extent of implementation of Individually Guided Education outcomes and to determine the opinion of teachers concerning Individually Guided Education outcomes in school districts with both IGE and non-IGE schools as measured by the Inventory of Selected School Practices Questionnaire. The study compares the extent of IGE implementation data from each sample school with current school effectiveness literature as measured by the School Improvement Inventory. In addition, the Principal Interview form was used to obtain the perceptions of the IGE principal as s/he reacts to the model since the early years of implementation.

Inventory of Selected School Practices Questionnaire/ School Improvement Inventory

Data collection was accomplished through the following organized plan.

1. In January of 1984, 11 schools from three districts were asked to be a part of study which would provide educators with practical insights toward the improvement of schooling. Superintendents in the school districts of the sample were telephoned to ensure participation in the study.

2. In February of 1984, the superintendents were mailed an appropriate letter which reaffirmed the study and named the selected IGE and non-IGE schools. A copy of the principal's letter and a copy of the Inventory of Selected School Practices Questionnaire and School Improvement Inventory were included in the mailing. The mailing was

followed up by another telephone conference with each district superintendent in order to answer specific questions concerning the study and receive the necessary participant information.

3. A suitable letter was mailed in mid-March 1984 to principals of the 11 selected schools introducing the study and explaining procedures for participation. A questionnaire, inventory, biographical data sheets, and an envelope for each teacher were included in the mailing. A large stamped self-addressed envelope was included for return mailing.

4. Principals who did not return the requested information received a telephone reminder.

Upon completion of the instruments, the teachers sealed them in envelopes provided and returned them to the school secretary. Returned questionnaires were interpreted as implying informed consent. Provisions had been made in each district for the collection of all completed instruments.

Participants were advised that all information received would be held in confidence and that no school would be identified by name in the study. This procedure, coupled with the personal contact with each district, enabled the researcher to obtain the desired returns from all of the participating schools. The teacher response to this aspect of the study represented a return of 62 and 60 percent.

All written communications concerning the collection of teacher data are contained in Appendix F.

Table 2. Frequency and percentage profile data of questionnaire/inventory

Type of school	Mailed	Returned	Percent returned
IGE	127	79	62
Non-IGE	100	60	60

Principal Interview

IGE principals within the three selected school districts who had received Individually Guided Education training agreed to participate in the structured telephone Principal Interview session (Appendix G). IGE implementation training was verified through computer printouts received from the Iowa Department of Public Instruction (DPI) which were ultimately cross-referenced with those received from /I/D/E/A/ and the Wisconsin R & D Center. A letter of inquiry was sent and a conference held with each principal to explain the purpose of the telephone interview.

Five out of the original seven principals who received IGE training remain actively involved in a building level administrative assignment within the selected sample of schools. The remaining two had retired within the past two school years.

Participants were advised that all information received through the interview would be held in confidence and that no individual would be identified by name in the study.

Table 3. Classification of principal involvement

School	Active IGE trained principal	Retired
Ames	2	1
Indianola	1	0
Marshalltown	2	1

Treatment of Data

The response to the Inventory of Selected School Practices Questionnaire was coded and punched for computer analysis at the Iowa State University Computer Center. The scoring and data analysis for the School Improvement Inventory was performed by Jim Sweeney (90). Statistical treatment of the data for this study was performed using factoral analysis of variance techniques contained in the Statistical Package for the Social Sciences (SPSS) (71b). The factors were school district (1, 2, or 3) and program (IGE versus non-IGE). Tests for interaction of the factors were also performed and followed up on as appropriate. The data recorded from the principal interview were summarized by hand.

CHAPTER IV. FINDINGS

The purpose of this chapter is to report the results of the investigation to: (1) determine the extent of implementation of Individually Guided Education outcomes in selected school districts with both IGE schools and non-IGE schools, (2) provide building administrators with valid and reliable information relative to school improvement, and (3) present information recovered from telephone interviews with IGE building principals. The data reported in this chapter were compiled from three survey instruments: (1) Inventory of Selected School Practices Questionnaire, (2) School Improvement Inventory, and (3) Principal Interview. The chapter consists of three major sections: (1) Perception Data; displays of data obtained from principal interviews, (2) Inferential Statistics; analyses using multiple regression with dummy variables through application of an alternative (analysis of variance) strategy and hierarchial decomposition for main effects as well as for interactions, sometimes called the stepdown procedure, and (3) Descriptive Data; measures of central tendency and variability. In order to fully appreciate the descriptive and inferential data, the information from the principal interviews will be presented first.

Three areas were of primary interest in the study: (1) the degree of implementation of IGE in the two types of schools, IGE and non-IGE, in the same school district; (2) administrative functions--especially human resource management, instructional leadership, non-instructional management, pupil personnel, school-community relations and student behavior--and school climate as measured by goal orientation,

cohesiveness, and esprit; and (3) the IGE program perceptions of both past and present IGE principals. One hundred thirty-nine teachers and seven building administrators supplied the data for analysis.

Profile of the Teachers

To provide a teacher profile, respondents were asked to indicate their age interval, sex, total number of years in teaching, grade level taught, and IGE training information. Both IGE and non-IGE teachers indicated ages ranging from the 21 to 25 age interval up to the age interval of 61 to 65. Thirty-four of the 79 (or 43.0 percent of the IGE teachers responding) were in the 21 to 40 age range; in contrast, for the 60 non-IGE teachers who responded, 31 (or 52.7 percent) were in the same age range. Out of a total of 139 teachers responding for both groups, only 20 (or 14.4 percent) were males.

Eighteen of the 60 non-IGE teachers (or 30.0 percent) presently teach in grades kindergarten through grade 3; on the other hand, 34 of the 79 (or 43.0 percent) IGE teachers teach grades kindergarten through grade 3. Both IGE and non-IGE teachers indicated years of teaching experience ranging from the 0 to 5 interval up to the experience interval of 41 to 45. Forty-four of the 79 (or 55.7 percent of the IGE teachers responding) were in the 0 to 15 years of experience range; for the 60 non-IGE teachers who responded, 37 (or 61.7 percent) were in the same experience range.

Table 4 contains information relative to Individually Guided Education training. It can be seen that IGE schools surveyed have a larger percentage of IGE trained teachers.

Table 4. Profile of teachers receiving IGE training

	Number of teachers	Received IGE training	Percent
IGE	79	55	69.6
Non-IGE	60	14	23.3

Principal Interview Data

As an important part of this study, IGE principal telephone interviews were conducted to discover and determine as much background information as possible. Their interviews explored both the past and present relationship to the implementation of IGE. Data contained in Table 5 portray the responses from IGE principals surrounding the approval source for involvement in Individually Guided Education.

Table 5. Responses to Question 1: Did (_____) School receive district approval to implement individually guided education? (in frequencies and percentages)

	Yes		No		Don't know	
	F	%	F	%	F	%
N = 7	5	71.4	0	0	2	28.6

For additional background information, the question was asked, "With what agency did your school's involvement in IGE originate?" All seven principals said the originating agency was Iowa State University through the support of the Iowa Department of Public Instruction. The next

background question was concerned with whether or not the school affiliated with any other IGE schools. All of the principals interviewed maintained affiliations outside their own building as part of the Central Iowa League.

The second question, which was a part of the telephone interview, created a list of program outcomes which the IGE principals considered extremely important. Table 6 reveals the responses to the question.

Table 6. Responses to Question 2: In your estimate, what are/were the IGE program outcomes?

Suggested outcomes	Number of respondents who mentioned the outcome
1. Individualized instruction	6
2. Well-defined communications process	6
3. Multi-age grouping pattern	4
4. Team teaching/team leader	4
5. Objective oriented learning	2
6. Sharing between schools	2
7. Student involvement in decisions	1

As suggested, principals were asked whether they were committed to the IGE program outcomes. Just over 71 percent of the respondents said they were. Principals who said they were uncomfortable with the program were asked to give their reasons for the lack of support shown toward the IGE program. Their responses point out the importance of a common

commitment to IGE from all members of the local educational community. Abandonment of IGE was due to lack of faculty support and absence of administrative financial backing.

The third major question surrounded school board members' understanding of Individually Guided Education. Table 7 depicts the recovered data.

Table 7. Responses to Question 3: How well do/did your school board members understand IGE? (in frequencies and percentages)

	In depth		Quite well		Very little		Not at all	
	F	%	F	%	F	%	F	%
N = 7	1	14	1	14	4	58	1	14

It was the consensus opinion of this group of principals that board members in the early '70s became involved in the IGE school improvement program only when issues reached the stage of controversy. Therefore, the basis for understanding was centered around the administrative reaction to encourage questions/problems.

Table 8 summarizes responses which led to a discussion about the present implementation state of Individually Guided Education in the schools surveyed as part of the interview process.

Table 8. Responses to Question 4: How is (_____) School progressing in the implementation of IGE? (in frequencies and percentages)

	Very well		Not too well		Poorly		Program dropped	
	F	%	F	%	F	%	F	%
N = 7	3	43	1	14	1	14	2	29

Responses to the question indicated that the label IGE school does not have a clear and consistent meaning. In the schools which continue to look at themselves as maintaining the IGE ingredients, there was neither understanding of, nor agreement with, the primary problem addressed in the improvement plan--how to shift instructional planning from the group to the child. The key step in the IGE plan was identifying the intellectual needs of the child. Instructional planning was to proceed from that point. Principals surveyed described their current administrative organization and/or multi-age grouping pattern in an effort to justify the IGE label.

Table 9 depicts responses to IGE principals' preferred organizational plan for both teachers and students. Since the primary reason for organizing students into multi-aged units is to provide for instruction based on individual needs, principals were asked to list their IGE subject(s). An IGE subject is defined as "one in which teachers follow the whole sequence of identifying objectives for the students in their

Table 9. Responses to Question 5: What organization of teachers and students do you support and why?

Organizational related responses	Number of respondents who mentioned the organizational arrangement
1. Units/multi-age groupings	5
2. Units/self-contained by grades	1
3. Combination of (1) and (2)	1

unit, preassessing for those objectives, then grouping according to which objectives they need to master, instructing on those objectives, then testing again and regrouping." The most common number of subjects was two, reported by five principals, but the range extended from one to four. Reading was the most commonly selected subject; math was a very close second.

Table 10 displays the IGE principals' preference in the area of age grouping patterns. It was discovered that the typical organizational structure format adopted by a district was ultimately based upon the budget restraints surrounding space availability/number of students per grade level. The respondents supported the present plan which has been implemented in their specific buildings.

Table 10. Responses to Question 6: Do you have any preference as to age grouping patterns?

Suggested pattern	Number of respondents
1. K-1, 2-3, 4-5	3
2. K, 1-2, 3-4, 5-6	2
3. K-2, 3-5	1
4. K, 1, 2-3, 4, 5	1

Table 11 reveals IGE principals' feelings about teacher-scheduled common planning time. Six of the principals responded that all their units had weekly planning meetings and one said some of their units had

these meetings. Release time was provided in two of the buildings so that unit staff members could plan together during the school day.

Table 11. Responses to Question 7: What are your feelings about common planning time for groups of teachers within schools? (in frequencies and percentages)

	Very important		Important		Not too important		Unimportant	
	F	%	F	%	F	%	F	%
N = 7	4	57	2	29	1	14	0	0

Table 12 depicts IGE principals' responses to the importance of the IGE league concept which was an important component of the treatment. All the principals interviewed were affiliated with other IGE schools both inside and outside their system. In addition, six of the principals were very positive toward the arrangement but displayed disappointment towards the support received from central office personnel. One felt his role as an instructional leader meant spending more time working with teachers rather than more time during the school day in meetings.

Table 12. Responses to Question 8: How important is it for schools to work together to stimulate an interchange of ideas and solutions to problems? (in frequencies and percentages)

	Very important		Important		Not too important		Unimportant	
	F	%	F	%	F	%	F	%
N = 7	4	57	2	29	1	14	0	0

Table 13 portrays the importance the IGE principals placed upon familiarizing potential teacher candidates to Individually Guided Education. All principals agreed that this IGE requirement was fulfilled.

Table 13. Responses to Question 9: Were applicants familiarized with your school program before accepting a position? (in frequencies and percentages)

	Yes		No		No response	
	F	%	F	%	F	%
N = 7	7	0	0	0	0	0

Data contained in Table 14 summarize the IGE principals' team leader selection process. The question of whether all units had unit leaders received a positive response from all seven of the principals. A related question concerned whether it was the school's policy to rotate the unit leader position. Three (43 percent) replied that it was, while four (57 percent) said it was not. Two of the school districts provided additional financial reimbursement to the selected unit leaders. Each school has an

Table 14. Responses to Question 10: What method was used to select team leaders in your assigned school?

Method used	Frequency of response
1. Appointment by principal	5
2. Election by professional staff	1
3. Rotate position each year	1

Instructional Improvement Committee (I.I.C.) comprised of the principal and unit leaders. To the question of how frequently this group met, by far the most common reply was "once a week."

Table 15 presents data recovered from IGE principals interviewed regarding Individually Guided Education evaluation plans. Each principal was asked what kind of feedback he/she received in order to evaluate progress toward the pre-established goals. The following sources were mentioned by six of the principals as infrequent sources of assistance: (1) Iowa Department of Public Instruction, (2) Wisconsin Research and Development Center, (3) Central Iowa League visitations, and (4) Iowa State University. Only two of the principals recall receiving any kind of written report surrounding specific recommendations.

Table 15. Responses to Question 11: Did anyone outside your school help evaluate your progress toward goals? (in frequencies and percentages)

	Regularly		Seldom		Never		Can't recall	
	F	%	F	%	F	%	F	%
N = 7	1	14	4	58	1	14	1	14

Parents were definitely provided opportunities to examine the rationale and organizational structure of an IGE school. A variety of communication processes were developed by this group of seven principals including evening meetings and parent newsletters. Follow-up questionnaires became a routine part of the delivery system. It was

agreed that students played an insignificant role in the decision-making process.

Table 16 provides information relative to peer observation as an approach to staff development. Peer observation was defined as the teachers requesting their peers observe specific activities and give requested feedback. Six of the principals interviewed felt very good about the opportunities presented for professional growth through formal feedback from another building peer. All agreed that it was a concept which never reached the administrative priority level but grew more out of teacher interest in exploring this specific IGE outcome.

Table 16. Responses to Question 13: How do you feel about peer observation as an approach to staff development? (in frequencies and percentages)

	Tried and liked		Tried and disliked		Didn't get involved	
	F	%	F	%	F	%
N = 7	6	76	0	0	1	14

In summary, responses to the Principal Interview indicated that IGE implementation was incomplete in many schools. The label IGE was obviously used to describe many schools that as yet had not implemented key IGE features. There were also schools that had fully implemented only some of the IGE features. Not one of the principals surveyed was willing to report that they had implemented all major IGE features. Five of the principals were really working at reorganizing their staffs by forming units, sharing decision making, and attempting to change the pattern of

instruction in their schools. One was heading in the same direction but encountered problems in forming units, or setting objectives. The building was not yet IGE, but it was no longer a conventional school either. And, finally, one principal liked some of the ideas about IGE and wanted to be identified with the concepts but never did make the fundamental organizational and instructional changes characteristic of Individually Guided Education.

Inferential Statistics

Ten hypotheses provided focus for the study. These hypotheses were stated in the null form and tested for significance. Significance was set at the .05 level but reported at that level and beyond. Each hypothesis will be restated, followed by a presentation of data, and then a decision as to whether there is sufficient evidence to reject the null hypothesis. Participants in the study responded to the same questionnaire devised to determine levels of use of IGE outcomes and opinions of teachers about the use of each IGE outcome in any elementary school. Throughout this chapter, the school districts will be described as Districts 1, 2, or 3 in order to maintain the confidentiality of those districts who agreed to be a part of the study.

Degree of Implementation of IGE Outcomes

There were 86 items on the Inventory of Selected School Practices Questionnaire. Those items are clustered into five categories: (1) School Decisions, (2) School Organization, (3) Curriculum and Teaching, (4) Student Responsibility, and (5) Planning, Analyzing, and Improving.

Each item was ranked from 1 (never) to 5 (always). Mean rank was calculated for each of the five categories. Separate analyses were performed on the mean rank data for each category. Each analysis included a two-by-three factorial ANOVA with two levels of IGE and three levels of district.

> Hypothesis 1: There is no significant difference in the degree of implementation of IGE outcomes labeled School Decisions in the two types of schools, IGE and non-IGE schools, in the same school district.

Outcomes 1 through 12 were included in the category of School Decisions. As shown in Table 17, the overall main effect of District was

Table 17. ANOVA summary from multiple regression analysis of School Decisions as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	1.4819	1	1.4819	6.175*
District	0.9660	2	0.4830	2.013
I x D	4.2126	2	2.1063	8.777**
Total between	6.6605			
Error	29.0380	121	0.2400	
Total	35.6985			
Follow-up:				
District 1	0.8842	1	0.8842	3.6840
District 2	3.8800	1	3.8800	16.1680**
District 3	0.0530	1	0.0530	0.2210

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510$.

*P<0.05.

**P<0.01.

not significant. However, the overall main effect of IGE was significant. More importantly, the interaction of IGE with District was highly significant.

Follow-up tests on the simple main effects of IGE for each level of District indicated that District 2 IGE schools had significantly higher mean scores within the outcome labeled School Decisions than the non-IGE schools. District 1 IGE schools indicated the same pattern of results. On the other hand, District 3 IGE school mean scores were slightly below the non-IGE school scores. The data are displayed in Table 18. The corresponding Figure G.1 is located in Appendix G.

Table 18. Mean ratings of School Decisions for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	3.85	9	.393	3.49	28	.554
District 2	3.67	40	.460	3.06	14	.458
District 3	3.33	24	.462	3.41	12	.640

[a]1 = low degree of implementation; 5 = high degree of implementation.

Hypothesis 2: There will be no significant difference in the degree of implementation of IGE outcomes labeled School Organization in the two types of schools, IGE school and non-IGE school, in the same district.

In order to determine if there was any significant effect of District and degree of IGE implementation on the School Organization pattern (outcomes 13 through 34 on the questionnaire), a two-by-three ANOVA was

performed. The overall main effect of District was not significant. But, as shown in Table 19, both the main effect of IGE and the interaction of IGE with District were highly significant.

Table 19. ANOVA summary from multiple regression analysis of School Organization as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	9.4956	1	9.4956	20.429**
District	2.7316	2	1.3658	2.938
I x D	17.9835	2	8.9918	19.346**
Total between	30.2107			
Error	56.2355	121	0.4648	
Total	86.4462			
Follow-up:				
District 1	7.0028	1	7.0028	15.0660**
District 2	17.2386	1	17.2386	37.0880**
District 3	3.2380	1	3.2380	6.9660**

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510$.

*P<0.05.

**P<0.01.

Follow-up tests were used to determine the simple main effects of IGE participation for all three school districts. For both District 1 and District 2, IGE schools had significantly higher mean scores within the outcome labeled School Organization than the non-IGE schools. In District 3, the pattern of results was the opposite; in fact, non-IGE schools had a

higher mean rating in the School Organization outcomes. The specific data are displayed in Table 20 and Figure G.2 (see Appendix G).

Table 20. Mean ratings of School Organization for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	3.96	9	.712	2.95	28	.734
District 2	3.78	40	.557	2.40	14	.636
District 3	2.90	24	.670	3.54	12	.906

[a]1 = low degree of implementation; 5 = high degree of implementation.

Hypothesis 3: There will be no significant difference in the degree of implementation of IGE outcomes labeled Curriculum and Teaching in the two types of schools, IGE school and non-IGE school, in the same school district.

To test this hypothesis, outcomes 35 through 54 of the questionnaire were included in the category, Curriculum and Teaching. As indicated in Table 21, a two-by-three factorial ANOVA was performed in order to determine if there was any significant effect of District and degree of IGE implementation within the labeled outcome area. As displayed, the overall main effect of District was not significant. However, the main effect of IGE and the interaction of IGE with District were significant.

Follow-up tests were used to determine the simple main effects of IGE participation for each school district. As shown in Table 22, the District 2 IGE schools had significantly higher mean scores within the Curriculum and Teaching outcomes. District 2 IGE schools indicated the

Table 21. ANOVA summary from multiple regression analysis of Curriculum and Teaching as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	2.6343	1	2.6343	6.687*
District	1.2002	2	0.6001	1.523
I x D	3.6975	2	1.8487	4.693*
Total between	7.5320			
Error	47.6701	121	0.3940	
Total	55.2021			
Follow-up:				
District 1	1.3505	1	1.3505	3.4280
District 2	4.8931	1	4.8931	12.4190**
District 3	0.0885	1	0.0885	0.2250

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510.$

*P<0.05.

**P<0.01.

Table 22. Mean ratings of Curriculum and Teaching for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	4.09	9	.507	3.64	28	.675
District 2	4.00	40	.535	3.31	14	.713
District 3	3.55	24	.636	3.65	12	.753

[a] 1 = low degree of implementation; 5 = high degree of implementation.

same pattern of results. District 3 IGE mean scores were slightly below the non-IGE school scores. The reported results are also displayed in Figure G.3 (see Appendix G).

> Hypothesis 4: There will be no significant difference in the degree of implementation of IGE outcomes labeled Student Responsibility in the two types of schools, IGE school and non-IGE school, in the same school district.

To test this hypothesis, outcomes 55 through 68 were included in the category, Student Responsibility. As indicated in Table 23, a two-by-three ANOVA was performed in order to determine if there was any significant effect of district and degree of IGE implementation for these

Table 23. ANOVA summary from multiple regression analysis of Student Responsibility as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.0221	1	0.0221	0.039
District	0.1373	2	0.0686	0.120
I x D	7.1462	2	3.5731	6.257**
Total between	7.3056			
Error	69.0975	121	0.5711	
Total	76.4031			
Follow-up:				
District 1	2.7827	1	2.7827	4.8730*
District 2	0.7146	1	0.7146	1.2510
District 3	3.6710	1	3.6710	6.4280*

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510.$

*P<.05.
**P<.01.

outcomes. Neither the overall main effect of District nor IGE was significant. But the interaction of IGE with District was highly significant.

Follow-up tests were utilized to determine the simple main effects of IGE participation for each district. District 1 and District 2 IGE schools had higher mean scores than the non-IGE schools within the outcomes labeled Student Responsibility, although the difference was only significant in District 1. In District 3, the pattern of results was the opposite; non-IGE schools had a significantly higher mean rating in the school outcomes labeled School Organization. The data are displayed in Table 24 and Figure G.4 (see Appendix G).

Table 24. Mean ratings of Student Responsibility for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	3.23	9	.692	2.59	28	.764
District 2	2.75	40	.749	2.49	14	.517
District 3	2.44	24	.836	3.12	12	.857

[a]1 = low degree of implementation; 5 = high degree of implementation.

Hypothesis 5: There will be no significant difference in the degree of implementation of IGE outcomes labeled Planning, Analyzing, and Improving in the two types of schools, IGE school and non-IGE school, in the same school district.

To test this hypothesis, outcomes 69 through 86 on the questionnaire were included in the category Planning, Analyzing, and Improving. As depicted in Table 25, neither of the main effects (IGE, District) nor the interaction of IGE with District was significant.

Table 25. ANOVA summary from multiple regression analysis of Planning, Analyzing, and Improving as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	1.1961	1	1.1961	2.437
District	2.6701	2	1.3350	2.720
I x D	2.9199	2	1.4600	2.975
Total between	6.7861			
Error	59.3879	121	0.4908	
Total	66.1740			

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510.$

Although the tests did not indicate significance, District 1 and District 2 IGE schools had higher mean scores within the outcomes labeled Planning, Analyzing, and Improving than the non-IGE schools. In District 3, the pattern of results was the opposite. The data are displayed in Table 26 and Figure G.5 (see Appendix G).

Teacher Perceptions of IGE Outcomes

The second main purpose of this part of the study was to determine the perceptions of teachers concerning Individually Guided Education

Table 26. Mean ratings of Planning, Analyzing, and Improving for IGE and non-IGE schools and districts

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	3.00	9	.783	2.43	28	.571
District 2	2.78	40	.633	2.40	14	.792
District 3	2.25	24	.722	2.49	12	.949

outcomes in school districts with both IGE schools and non-IGE schools. Five separate analyses were performed to study the teachers' perception about the appropriateness of outcome use in any elementary school: (1) School Decisions, (2) School Organization, (3) Curriculum and Teaching, (4) Student Responsibility, and (5) Planning, Analyzing, and Improving. As stated in the previous section, a two-by-three factorial ANOVA was performed for each cluster of survey questions to determine if there were any significant effects of district and teacher perception on the labeled outcomes.

> Hypothesis 6: There will be no significant difference in the respondent's perceptions of the effectiveness of the IGE outcome labeled School Decisions in the two types of schools, IGE school and non-IGE school, in the same district.

To test this hypothesis, outcomes 1 through 12 of the questionnaire were included in the category School Decisions. The overall main effects of both IGE and District were significant. In addition, the interaction of IGE with District was also significant. Teachers' perceptions of the

outcomes labeled School Decisions are reflected within the Table 27 two-by-three ANOVA summary.

Table 27. ANOVA summary from multiple regression analysis of School Decisions as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.2975	1	0.2975	5.9660*
District	0.3475	2	0.1737	3.4830*
I x D	0.3862	2	0.1931	3.8720*
Total between	1.0342			
Error	6.0342	121	0.0499	
Total	7.0654			
Follow-up:				
District 1	0.0907	1	0.0907	1.8180
District 2	0.5708	1	0.5708	11.4380**
District 3	0.0223	1	0.0223	0.4470

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510$.

*P<.05.

**P<.01.

Follow-up tests were utilized to determine the simple main effects of IGE participation for each school district. The data revealed that District 2 IGE schools had significantly higher mean scores than the non-IGE schools. In other words, the IGE schools believed more strongly that the school practices listed under School Decisions were effective practices for schools than did the non-IGE schools. Both the District 1 and the District 3 IGE schools indicated the same pattern of results. The

corresponding data are displayed in Table 28 and Figure G.6 (see Appendix G).

Table 28. Mean ratings of School Decisions for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	1.14	9	.156	1.25	28	.231
District 2	1.25	40	.235	1.48	14	.317
District 3	1.17	24	.190	1.22	12	.096

[a] 1 = yes; 2 = neutral; 3 = no.

Hypothesis 7: There will be no significant difference in the respondent's perceptions of the effectiveness of IGE outcomes labeled School Organization in the two types of schools, IGE school and non-IGE school, in the same district.

To test this hypothesis, outcomes 13 through 34 were included in the category School Organization. The overall main effect of District was not significant. But both the main effect of IGE ($P<.01$) and the interaction of IGE with District ($P<.05$) were significant. The two-by-three ANOVA data are recorded in Table 29.

Follow-up tests were used to determine the simple main effects of IGE participation for all three districts. For both District 1 and District 2, IGE schools had significantly higher mean scores within the outcome labeled School Organization than the non-IGE schools. IGE schools in

Table 29. ANOVA summary from multiple regression analysis of School Organization as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.7160	1	0.7160	8.6980**
District	0.1465	2	0.0733	0.8900
I x D	0.5917	2	0.2959	3.5950*
Total between	1.4542			
Error	9.8782	120	0.0823	
Total	11.3324			
Follow-up:				
District 1	0.6004	1	0.6004	7.2950**
District 2	0.6385	1	0.6385	7.7580**
District 3	0.0687	1	0.0687	0.8350

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510$.

*P<.05.

**P<.01.

both District 1 and District 2 more strongly believe that the school practices listed under School Organization are effective school practices than did the corresponding non-IGE schools. In District 3, the pattern of results was the opposite; in fact, non-IGE schools had a higher mean rating in the School Organization outcomes. The corresponding data are displayed in Table 30 and Figure G.7 (see Appendix G).

Table 30. Mean ratings of School Organization for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	1.10	9	.117	1.39	28	.383
District 2	1.18	40	.180	1.43	13	.420
District 3	1.31	24	.255	1.21	12	.276

[a]1 = yes; 2 = neutral; 3 = no.

Hypothesis 8: There will be no significant difference in the respondent's perceptions of the effectiveness of IGE outcomes labeled Curriculum and Teaching in the two types of schools, IGE school and non-IGE school, in the same district.

To test this hypothesis, outcomes 35 through 54 of the questionnaire were included in the category of Curriculum and Teaching. As displayed in Tables 31 and 32, neither the overall main effect of IGE or District, nor the interaction of IGE with District was significant at the .05 level of significance. The mean ratings are also displayed in Table 32 and Figure G.8 (see Appendix G).

Hypothesis 9: There will be no significant difference in the respondent's perceptions of the effectiveness of IGE outcomes labeled Student Responsibility in the two types of schools, IGE school and non-IGE school, in the same district.

To test this hypothesis, outcomes 55 through 68 of the questionnaire were included in the category Student Responsibility. The obtained ANOVA table with corresponding degrees of freedom found neither the main effects (IGE, District) nor the interaction of IGE with District to be significant

Table 31. ANOVA summary from multiple regression analysis of Curriculum and Teaching as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.0226	1	0.0226	1.0120
District	0.0117	2	0.0058	0.2600
I x D	0.0506	2	0.0253	1.1330
Total between	0.0848			
Error	2.7013	121	0.0223	
Total	2.7861			

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510.$

Table 32. Mean ratings of Curriculum and Teaching for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	1.02	9	.034	1.10	28	.237
District 2	1.07	40	.100	1.11	14	.191
District 3	1.07	24	.110	1.04	12	.061

[a] 1 = yes; 2 = neutral; 3 = no.

at the .05 level of significance. Specific data from the two-by-three ANOVA is located in Table 33. Mean ratings of respondent's perceptions of the effectiveness of the IGE outcomes labeled Student Responsibility are in Table 34 and Figure G.9 (see Appendix G).

Table 33. ANOVA summary from multiple regression analysis of Student Responsibility as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.0991	1	0.0991	0.5360
District	0.6239	2	0.3119	1.6860
I x D	0.2202	2	0.1101	0.5950
Total between	0.9432			
Error	22.3784	121	0.1849	
Total	23.3516			

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510$.

Table 34. Mean ratings of Student Responsibility for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	1.26	9	.232	1.44	28	.357
District 2	1.58	40	.478	1.52	14	.454
District 3	1.49	24	.447	1.40	12	.461

[a] 1 = yes; 2 = neutral; 3 = no.

Hypothesis 10: There will be no significant difference in the respondent's perceptions of the effectiveness of IGE outcomes labeled Planning, Analyzing, and Improving in the two types of schools, IGE school and non-IGE school, in the same district.

To test this hypothesis, outcomes 69 through 86 of the questionnaire were included in the category of Planning, Analyzing, and Improving. As depicted in Table 35, a two-by-three ANOVA found neither IGE or District main effects nor the interaction of IGE with District to be significant at the .05 level. Mean ratings of the respondent's perceptions of the effectiveness of the labeled outcomes in IGE and non-IGE schools and district are in Table 36 and Figure G.10 (see Appendix G).

Table 35. ANOVA summary from multiple regression analysis of Planning, Analyzing, and Improving as function of IGE and non-IGE schools and districts

Overall ANOVA source	SS	df	MS	F-ratio[a]
IGE	0.1614	1	0.1614	1.4040
District	0.1280	2	0.0640	0.5570
I x D	0.3794	2	0.1897	1.6500
Total between	0.6688			
Error	13.9139	121	0.1150	
Total	14.5827			

[a] $F_{.05}(2,121) = 3.0718$
$F_{.05}(1,121) = 3.9201$
$F_{.01}(2,121) = 4.7865$
$F_{.01}(1,121) = 6.8510.$

Table 36. Mean ratings of Planning, Analyzing, and Improving for IGE and non-IGE schools and districts[a]

	IGE			Non-IGE		
	Mean	N	Std. dev.	Mean	N	Std. dev.
District 1	1.19	9	.321	1.38	28	.336
District 2	1.25	40	.246	1.40	14	.392
District 3	1.40	24	.469	1.30	12	.243

[a]1 = yes; 2 = neutral; 3 = no.

Descriptive Data

Four hypotheses provided the focus for this particular part of the study. The hypotheses were stated in the null form but were not tested statistically because of the nature of the School Improvement Inventory. The authors Pinkney and Sweeney intended that the subscales of the School Improvement Inventory be used anecdotally, not in an additive form. Consequently, all of the findings pertaining to climate are presented only as descriptions of the two kinds of school units (IGE, non-IGE) in the three school organizations. Each hypothesis will be restated and followed by a presentation of data. A glossary of terms from administering the School Improvement Inventory is located in Appendix H.

> Hypothesis 11: There will be no significant difference in the opinion of the faculty leadership expectations in the two types of schools, IGE and non-IGE schools.

Table 37 presents the mean priority ranking for the six administrative functions by type of school (IGE and non-IGE). Teachers were asked to determine the relative importance that should be placed on

each of the six administrative functions. Responses were aggregated and means derived. Since 5 represented their highest priority and 1 the lowest, the higher the mean score, the higher the ranking. For example, Human Resource Management received the highest mean score from non-IGE schools (4.14), whereas, on the other hand, IGE teachers accorded Learning Environment Management (4.02) as the most important.

Non-instructional Management had a mean score of 2.69 (non-IGE) and Pupil Personnel 2.63 (IGE), respectively, ranking those two functions as least important.

Table 37. Teachers' mean priority ranking of administrative functions by school type

Function	Non-IGE		IGE		Composite	
	Mean	Rank	Mean	Rank	Mean	Rank
Human Resource Management	4.14	1	4.01	2	4.08	1
Learning Environment Management	4.01	2	4.02	1	4.02	2
Instructional Leadership	3.65	3	3.58	3	3.62	3
School-Community Relations	2.90	4	3.20	4	3.05	4
Non-instructional Management	2.69	6	2.86	5	2.78	5
Pupil Personnel	2.78	5	2.63	6	2.71	6

Teachers in both IGE and non-IGE schools in the same district indicated that developing and maintaining discipline standards (Learning

Environment Management), and assisting teachers to obtain maximum use of their human potential to motivate and challenge students (Human Resource Management) were their top priorities. They also indicated that they valued administrator behavior which helped them to enhance student learning through updating, and program and classroom evaluation (Instructional Leadership). School-Community Relations was seen as moderately important but lagged behind the other three tasks. Working with pupils and student groups (Pupil Personnel) and supervising logistical matters and the school plant (Non-instructional Management) were ranked considerably lower on the scale.

> Hypothesis 12: There will be no significant difference in the opinion of the faculty perceptions of the building administrator's effectiveness in the two types of schools, IGE and non-IGE schools.

Table 38 presents the means representing teachers' perceptions of the effectiveness of the building administrators in performing each of the six administrative functions by type of school. The IGE school teachers saw their principals as most effective in Learning Environment Management (4.00) and Instructional Leadership (3.82). In the non-IGE schools, administrators were seen as most effective in Learning Environment Management (4.23) and in School-Community Relations (4.09). Both the IGE and non-IGE schools saw their building administrators as least effective in the area of Pupil Personnel. The difference in mean scores is small between five of the six administrative functions. The composite score reveals that administrators were seen as most effective in Learning Environment Management (4.12) followed by School-Community Relations

(3.94). They were considered least effective in the area of Pupil Personnel.

Table 38. Teachers' perceptions of administrator effectiveness in performing administrative functions by school type[a]

	Non-IGE		IGE		Composite		Natl. norms	
	Mean	Eff. rank	Mean	Eff. rank	Mean	Eff. rank	Mean	Eff. rank
Learning Environment Management	4.23	1	4.00	1	4.12	1	2.98	6
School-Community Relations	4.09	2	3.73	4	3.94	2	3.31	1
Instructional Leadership	3.97	3	3.82	2	3.87	3	3.22	3
Human Resource Management	3.92	4	3.65	5	3.86	4	3.06	5
Non-instructional Management	3.87	5	3.77	3	3.82	5	3.30	2
Pupil Personnel	3.73	6	3.28	6	3.40	6	3.10	4

[a]No significance test was made so interpretation of rank order must be done with caution.

It is instructive to examine perceptions collectively and make comparisons between groups. The perceptions of the referent groups are depicted using graphs which represent the perceptions of teachers for the following: (1) priority ranking of administrative function, and (2) perceived effectiveness in performing each of the functions. The two categories depicted in the figures are appropriately labeled at the top of each graph. Figure 1 shows the collective rankings for priority and

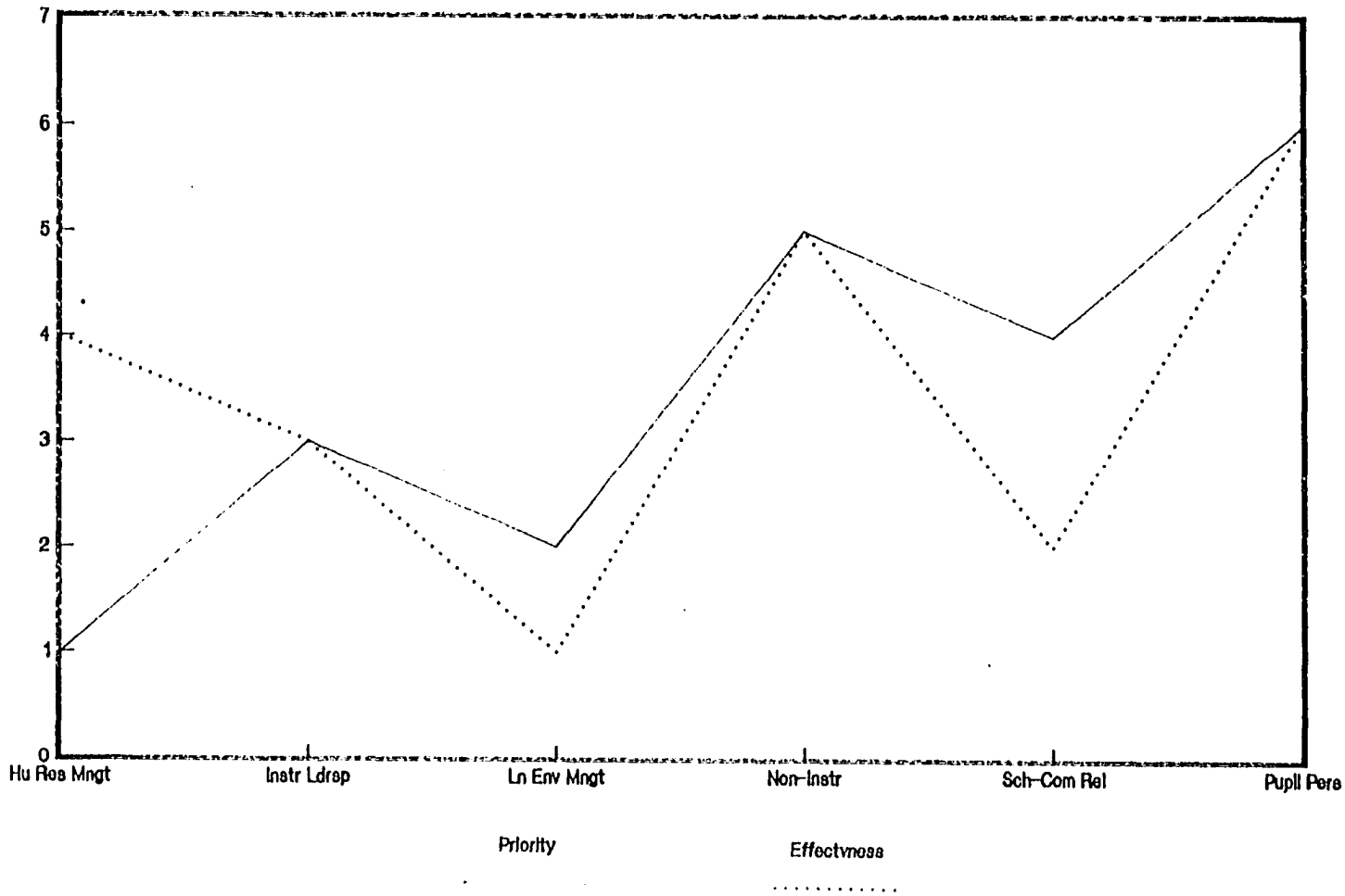

Figure 1. Priority and effectiveness for building administrators performing each of the administrative functions

effectiveness. The vertical axis represents the ranking; the horizontal shows the administrative functions.

The referent groups ranked Human Resource Management and Learning Environment Management as a top priority and Pupil Personnel functions as their lowest priority. Instructional Leadership, School-Community Relations, and Non-instructional Management were ranked 3, 4, and 5, respectively. Collectively, the referent groups reported that building administrators were least effective in Pupil Personnel functions and most effective within the area of Learning Environment Management. Effectiveness in School-Community Relations, Instructional Leadership, Human Resource Management, and Non-instructional Management functions were ranked 2, 3, 4, and 5, respectively.

> Hypothesis 13: There will be no significant difference in the opinion of the faculty perception of school climate in the two types of schools, IGE and non-IGE schools.

Teachers reported their perceptions of the climate of the school on a scale of 1 to 8, with 1 reflecting an indicator of very negative climate and 8 an indicator of very positive climate. Table 39 presents the means and standard deviation for the six school climate variables.

Both the IGE and non-IGE schools exhibited positive school climates. Of the six variables, Administrator Dedication and Enthusiasm was seen as the most positive by both referent groups. Both IGE and non-IGE teachers listed Cohesiveness as the lowest climate measure. It should be noted that teachers' perception of Cohesiveness had the largest standard deviation (1.40) of any climate measure, indicating that perception of Cohesiveness varied by building. Figure 2 shows the collective scores for

Table 39. Means, standard deviations, and rankings for the school climate variables

	Non-IGE			IGE			Composite			National norms		
	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank
Goal Orientation	6.35	1.03	5	6.64	0.83	4	6.55	0.99	5	6.11	0.97	3
Esprit	6.55	1.20	3	6.69	0.77	3	6.68	1.09	2	6.04	1.12	4
Cohesiveness	5.68	1.33	6	6.21	0.89	6	6.04	1.40	6	5.77	1.24	6
Teacher Expectation	6.46	0.96	4	6.71	0.74	2	6.65	0.92	3	6.25	0.97	2
Administrator Dedication and Enthusiasm	7.05	0.89	1	6.78	1.18	1	6.92	1.22	1	6.44	1.69	1
Student Attitudes	6.63	1.10	2	6.60	0.90	5	6.61	1.11	4	5.79	1.35	5

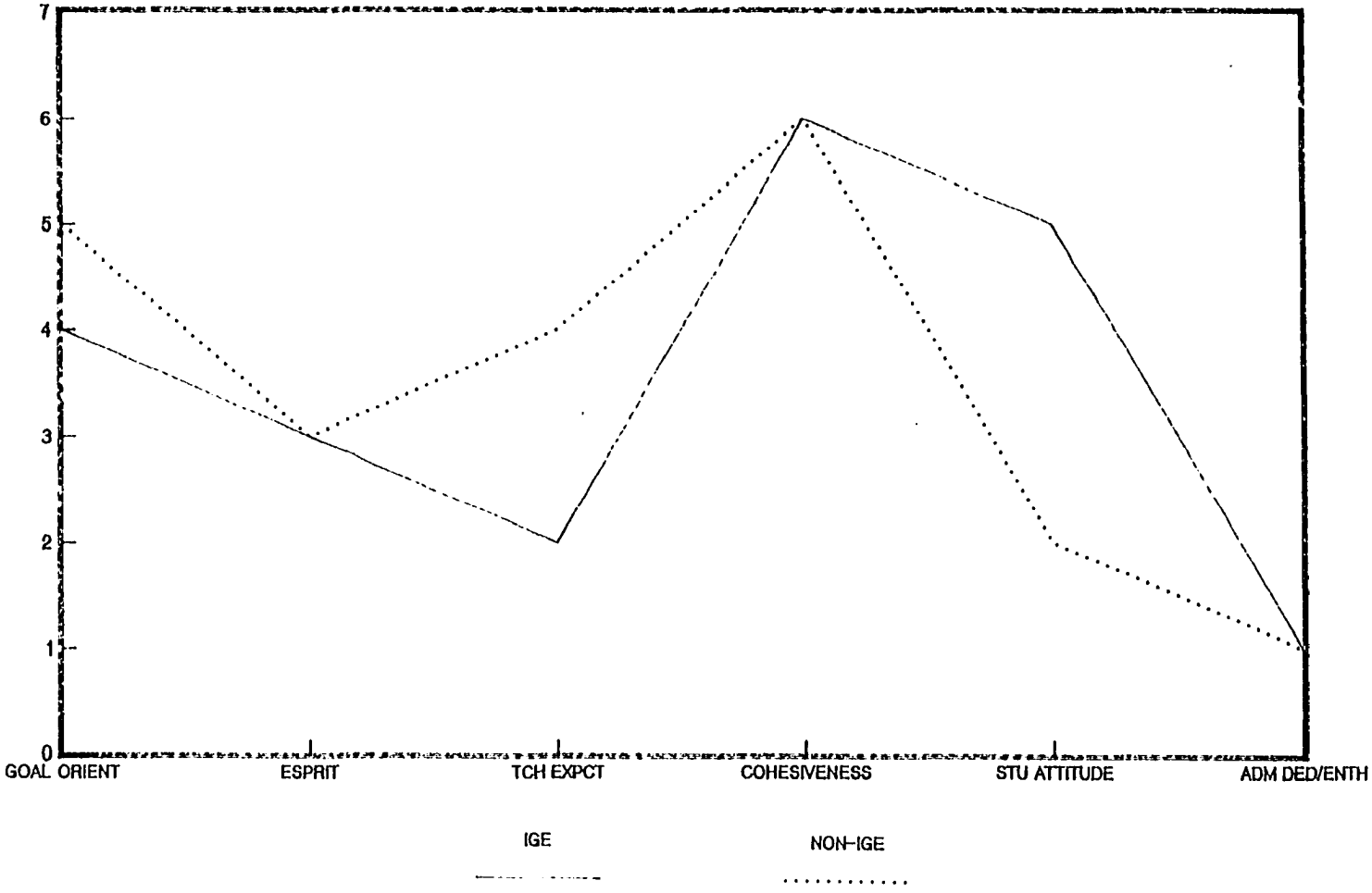

Figure 2. Collective climate measure scores for IGE and non-IGE schools

the climate measures. The vertical axis represents the score, the horizontal axis shows the climate measures.

> Hypothesis 14: There will be no significant difference in the opinion of the faculty's building administrator's effectiveness in the five instructional leadership behaviors which make a difference in student achievement.

Table 40 presents the data representing the scores and rankings of the referent groups' perceptions of the building administrators' effectiveness in the five instructional leadership behaviors which impact on student achievement. Teachers again reported their perceptions on a scale of 1 to 8, with 1 reflecting an indicator of very ineffective behavior and 8 an indicator of very effective behavior. Of the five variables, Supports Teachers and a positive Learning Environment Provision ranked as numbers 1 and 2 in both the IGE and non-IGE schools, but in reverse order. The Learning Environment Provision (6.87) was ranked as number 1 in the IGE schools surveyed, whereby Supports Teachers (7.07) received the top ranking in the non-IGE schools. Both IGE and non-IGE teachers ranked evaluation of Pupil Progress as the weakest instructional leadership behavior.

Table 40. Means, standard deviations, and rankings for the instructional leadership behaviors

	Non-IGE			IGE			Composite			National norms		
	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank	Mean	Std. dev.	Rank
Supports Teachers	7.07	0.85	1	6.72	1.13	2	6.90	1.23	1	6.28	1.82	1
Evaluates Pupil Progress	4.70	1.79	5	4.88	1.66	5	4.77	1.75	5	4.70	1.79	2
Coordinates Instruction/ Curriculum	5.45	1.67	3	5.57	1.49	3	5.54	1.65	3	4.65	1.74	3
Instructional/ Curriculum Emphasis	5.33	1.65	4	5.45	1.42	4	5.44	1.79	4	4.48	1.78	4
Learning Environment Provision	6.79	1.11	2	6.86	0.84	1	6.86	1.13	2	3.89	1.45	5

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This investigation sought to determine the extent of implementation of Individually Guided Education in order to compare this information with current school effectiveness literature. Eleven elementary schools with 139 teachers in the same three central Iowa school districts participated in this study. It was also the problem of this study to obtain the perceptions of IGE principals' past, present, and future commitment to the Individually Guided Education model.

The research used the Inventory of Selected School Praactices Questionnaire to indicate the degree of IGE implementation in five areas: 1) School Decisions, 2) School Organization, 3) Curriculum and Teaching, 4) Student Responsibility, and 5) Planning, Analyzing, and Improving. The School Improvement Inventory was used to gather valid and reliable information relative to practices found in the current school effectiveness literature. Finally, the Principal Interview was administered to provide additional information about the role of Individually Guided Education during the past 12 years.

Both the Inventory of Selected School Practices Questionnaire and the School Improvement Inventory were administered in six IGE and five non-IGE schools. Seven elementary principals were involved with the structured Principal Interview format. The group of seven represents principals who originally received IGE training in the three districts sampled. Individual instrument applications were mailed in March, 1984.

Inventory of Selected School Practices Questionnaire and School Improvement Inventory data were placed on key-punched cards. Statistical treatment of all data was performed at the Iowa State University Computation Center. The data were used in computing the two-by-three factorial ANOVA, corresponding means, and in explaining nonhypothesized questions. The data obtained from the Principal Interview were summarized by hand.

A. A two-by-three factorial ANOVA was used to determine levels of use of IGE outcomes and opinions of teachers about the use of each IGE outcome in any elementary school. Results revealed a significant overall main effect of IGE schools subscale scores of School Decisions ($P<.05$), Curriculum and Teaching ($P<.05$) and School Organization ($P<.01$). This meant that in each of these subscales, respondents in IGE schools indicated a significantly higher degree of implementation than the respondents in non-IGE schools. No differences in the main effect of IGE were found for the areas described as Student Responsibility and Planning, Analyzing, and Improving.

Examination of ANOVA results from the Inventory of Selected School Practices Questionnaire revealed significant interactions of IGE with District in the areas labeled Curriculum and Teaching ($P<.05$), School Decisions ($P<.01$), School Organization ($P<.01$), and Student Responsibility ($P<.01$). Follow-up tests on the IGE factor for each district yielded a consistent and predictable result. For the School Decisions and Curriculum and Teaching

subscales, only District 2 IGE schools indicated a higher degree of implementation than the non-IGE schools, herein referred to as the "IGE effect." For the School Organization subscale, both District 1 and District 2 showed the IGE effect, whereas District 3 evidenced a reverse IGE effect; i.e., non-IGE school respondents indicated a higher degree of IGE implementation than the respondents from IGE schools. For the Student Responsibility subscale, District 1 and District 2 exhibited the IGE effect, although in District 2 the difference was not significant; District 3 displayed a significant reverse IGE effect. The same pattern of results indicating the IGE effect in Districts 1 and 2 and a reverse IGE effect in District 3 generally held for all subscales, although in the area labeled Planning, Analyzing, and Improving, there was no significant interaction.

Next, the perceptions of teachers concerning the appropriateness of IGE clustered outcomes were analyzed with the two-by-three ANOVAs. The analysis yielded significant overall main effects of both IGE and District, as well as the interaction of IGE with District ($P<.05$) in the area labeled School Decisions. The teachers in IGE schools perceived the items clustered within the area labeled School Decisions as more effective practices for schools than did the non-IGE schools' teachers. The significant overall main effects of IGE and District 1 are of secondary interest compared to the interaction. However, the results do indicate two important points:

1) respondents in non-IGE schools, in general, had more negative perceptions than respondents in IGE schools, and 2) that District 2 respondents had more negative perceptions than District 1 and District 3 respondents in both IGE and non-IGE schools. The follow-up to the IGE by District interaction is somewhat paradoxical. It would seem to indicate that only in District 2 were IGE school respondents' perceptions more positive than non-IGE respondents, which is consistent with degree of implementation. However, the respondents from District 2 were overall more negative than respondents in District 1 and District 3. The only reasonable conclusions are either: 1) that higher levels of implementation yield more negative perceptions, or 2) the results of this analysis were due to sampling error.

Both the main effect of IGE ($P<.01$) and the interaction of IGE with District ($P<.05$) were significant in the respondents' perceptions of the IGE outcomes labeled School Organization. Follow-up tests indicated significantly lower mean scores for both District 1 and District 2 IGE schools ($P<.05$) than did the non-IGE schools. In District 3, the pattern of results was in the opposite direction, but not significant. Therefore, it can be assumed that both the District 1 and District 2 IGE schools' teachers perceived the outcomes labeled School Organization as more effective practices for schools than did the non-IGE schools' teachers. The teacher-perception data essentially parallel the conclusions from the degree of implementation data.

No significant differences were found in any of the three remaining clustered areas.

The School Improvement Inventory is a valid and reliable instrument for assessing: 1) a faculty's expectations for leadership, 2) a faculty's perception of building administrator effectiveness, and 3) school climate. In addition, it provides information relative to the five instructional leadership behaviors which impact student achievement.

B. The opinion of faculty's leadership expectations in the two types of schools, IGE and non-IGE, from administering the School Improvement Inventory indicated that Human Resource Management and Learning Environment Management were considered the most important administrative functions. IGE and non-IGE teachers ranked Instructional Leadership third and School-Community Relations fourth. Both types of schools ranked Non-instructional Management and Pupil Personnel as the least important functions (see Table 37).

The results from the School Improvement Inventory, which represent teacher perceptions of performance of administrative functions by building administrators in IGE and non-IGE schools, showed that teachers saw their principals as most effective in the area of Learning Environment Management and least effective in the area of Pupil Personnel. The ranking of the other four functions of building administrators varied from two through five (see Table 38).

The School Improvement Inventory also provided the faculty's perceptions of school climate in the two types of schools, IGE and non-IGE. Administrator Dedication and Enthusiasm was seen as the most positive factor by both groups. Likewise, both IGE and non-IGE teachers listed Cohesiveness as the lowest climate measure. The rankings of the remaining four school climate variables varied by school type, IGE and non-IGE (see Table 39).

And finally, the faculty's opinions of the effectiveness of building administrators in the five instructional leadership behaviors which make a difference in student achievement were gathered by using The School Improvement Inventory. The areas which were labeled Supports Teachers and a positive Learning Environment Provision ranked highest in both IGE and non-IGE schools. The area labeled Evaluation of Pupil Progress was identified as the weakest instructional leadership behavior by both referent groups. Coordinates Instruction/Curriculum and Instructional Curriculum Emphasis were ranked three and four, respectively, by both groups (see Table 40).

C. As evidenced from the Principal Interview, changes in schools occurred mainly to meet building short-term needs rather than to adopt the comprehensive system of IGE. The degree of implementation of IGE components was varied according to the principals interviewed. It is obvious that the term "IGE school" does not have a clear and consistent meaning.

Table 41. A composite summary by district for degree of implementation and teacher perceptions from the Inventory of Selected School Practices Questionnaire

Outcomes	Degree of implementation	Teacher perceptions
School Decisions		
District 1	IGE > Non-IGE	IGE > Non-IGE
District 2	IGE > Non-IGE[a]	IGE > Non-IGE[a]
District 3	Non-IGE > IGE	IGE > Non-IGE
School Organization		
District 1	IGE > Non-IGE[a]	IGE > Non-IGE[a]
District 2	IGE > Non-IGE[a]	IGE > Non-IGE[a]
District 3	Non-IGE > IGE[a]	Non-IGE > IGE
Curriculum and Teaching		
District 1	IGE > Non-IGE	IGE > Non-IGE
District 2	IGE > Non-IGE[a]	IGE > Non-IGE
District 3	Non-IGE > IGE	Non-IGE > IGE
Student Responsibility		
District 1	IGE > Non-IGE[b]	IGE > Non-IGE
District 2	IGE > Non-IGE[b]	Non-IGE > IGE
District 3	Non-IGE > IGE	Non-IGE > IGE
Planning, Analyzing, and Improving		
District 1	IGE > Non-IGE	IGE > Non-IGE
District 2	IGE > Non-IGE	IGE > Non-IGE
District 3	Non-IGE > IGE	Non-IGE > IGE

[a]Indicates significance at P<.01.

[b]Indicates significance at P<.05.

Conclusions

Table 41 represents a composite summary of the degree of implementation and teacher perception data by school district. Within the limitations presented and based upon the findings of this investigation, justifiable conclusions will follow.

A. As summarized in Table 41, District 2 evidenced the strongest IGE effect in terms of IGE implementation and teacher perceptions. District 1 also indicated an IGE effect but not as strong as District 2. In District 3, the IGE effect was not only weaker than the other two Districts, but also reversed.

   1. There was a significant difference between the IGE and non-IGE schools in District 2 surrounding the degree of use of IGE School Decisions outcomes.
   2. There was a significant difference between the IGE and non-IGE schools in all three school districts surrounding the degree of use of IGE School Organization outcomes. District 1 and 2 IGE schools used the School Organization outcomes to a greater extent than did the non-IGE schools. However, the non-IGE schools in District 3 reported a higher use of the School Organization outcomes than did the IGE schools, thereby diminishing the importance of this finding.
   3. There was a significant difference between the IGE and non-IGE schools in District 2 surrounding the use of IGE Curriculum and Teaching outcomes.

4. There was a significant difference between IGE and non-IGE schools in District 1 and District 3 in the area labeled Student Responsibility. Note that, again, the District 3 non-IGE schools indicated a higher degree of implementation of Student Responsibility outcomes.
5. There was a significant difference between the perceptions of District 2 IGE and non-IGE School Decisions outcomes. The teachers' perceptions are consistent with the degree of outcome use statement discussed earlier and presented in Table 41.
6. There was a significant difference between the perceptions of District 1 and District 2 IGE and non-IGE schools regarding the importance of use of IGE School Organization outcomes. The teachers' perceptions are consistent with the degree of outcome use statement discussed earlier and presented in Table 41. Corresponding items contained within each of the five clusters (School Decisions, School Organization, Curriculum and Teaching, Student Responsibility, and Planning, Analyzing, and Improving) are displayed in Appendix I.

B. Teachers in both the IGE and non-IGE schools indicated that: 1) assisting teachers to motivate, challenge, and excite students to learn at the optimal level, and assisting staff in obtaining maximum use of their human potential to reach personal and organizational goals, and 2) developing and maintaining

discipline standards which provide students with a clear understanding of expectations for behavior inside and outside the classroom and providing an educational atmosphere conducive to learning, were the most important administrative functions.

C. Both IGE and non-IGE teachers ranked 1) scheduling all routine and special activities, supervising logistical matters, and the school plant, and 2) meeting with students individually and in groups to address their problems and concerns, and promoting student involvement in co-curricular and extracurricular activities as the least important administrative functions.

D. Teachers in both IGE and non-IGE schools perceived their administrators as most effective in developing and maintaining discipline standards.

E. Teachers in both IGE and non-IGE schools perceived their administrators as least effective in meeting with students individually and in groups to address their problems and concerns, and promoting student involvement in co-curricular and extracurricular activities.

F. The most positive school climate measure as perceived by both IGE and non-IGE teachers was the extent to which building administrators are dedicated and enthusiastic. On the other hand, both IGE and non-IGE teachers perceived the extent to which teachers are able to work together on important school matters as the lowest climate measure.

G. Both IGE and non-IGE teachers' opinion of building administrator's effectiveness in the five instructional leadership behaviors which impact student achievement ranked 1) the extent to which building administrators set expectations for the entire school and check to make sure those expectations are being met, and 2) the exent to which teachers perceive the school environment to be conducive to learning as the two highest measures. The extent to which the building administrator interrelates what goes on in the classroom with the overall program of the school was ranked as the weakest instructional leadership behavior by both teacher groups.

H. IGE principal telephone interviews were conducted to discover and determine as much background information as possible. It became very clear that the label IGE school does not have a clear and consistent meaning. Principals surveyed described their current administrative organization and/or multi-age grouping pattern in an effort to justify the IGE label.

I. IGE principals reported that the typical multi-age organizational structure was ultimately based upon budget restraints surrounding space availability/number of students per grade level. Generally speaking, IGE schools did not receive any personnel or budget advantage to aid in the implementation of IGE. IGE principals registered disappointment in lack of support received from central office personnel. In addition, principals interviewed

did not feel local board members understood the rationale and organizational structure of an IGE school.

J. Minimal support was provided IGE schools relative to the evaluation of progress toward pre-established goals. Principal interviews indicated that IGE implementation was incomplete in many schools.

Discussion

The 35 outcomes of IGE are directed toward achieving more individualization, interpersonal regard, creativity, and group activity in schools. IGE addressed the problem of directing elementary schooling toward the individual child. In other words, the primary problem IGE addressed was how to shift instructional planning from the group to the child. Is it possible that key personnel in most schools that use the IGE label neither understood nor agreed with that specific goal? One plausible explanation is that very often the label was used symbolically to justify the maintenance of current practice. In other schools adopting IGE, the goal might have been to increase efficiency of current practices.

Results pertinent to the Inventory of Selected School Practices Questionnaire

The results of this investigation were inconclusive in showing that there was a higher degree of outcome implementation taking place in IGE schools. The areas of School Decisions, School Organization, Curriculum and Teaching, and Student Responsibility were found to be different in favor of IGE schools in two of the districts studied. However, the third district revealed a pattern of results which was the opposite. What does

this mean? First, the findings would seem to indicate that the non-IGE schools had already adopted and were maintaining more IGE characteristics than the schools identified to be a part of the change process. Second, District 3 may have lacked an effective change agent to promote the IGE program or failed to provide teachers with meaningful opportunities to participate in the decision-making process (i.e., principal and/or teachers subversively did not adopt the goals and decisions made by central office administrators). Third, it is also possible that lack of a total systems approach to the IGE program caused the lack of desired changes. The results could be reflecting a negligible role played by identified principals in the area surrounding promotion of the change process. If teachers and principals are expected to change their behaviors to ones considered desirable for improving the instructional program, attempts to impose change can at best yield some short-term superficial success, but will fail in the long run. Fourth, it would appear from reviewing the data that the District 3 teachers and/or principals were unwilling to change their adopted behaviors. Unfortunately, as indicated by the findings, IGE teachers' perceptions of principal support and participation may have positively and significantly affected implementation effectiveness. The assumed universally applicable nature of IGE by the founders proved incapable of changing the District 3 IGE schools.

Nevertheless, with the exception of District 3, the IGE program is deserving of a grade of "B," moderately effective. There seemed to be a movement toward desired results in the IGE schools. At this point, there

is no way of knowing how much effort was expended by these schools in attempting to implement and maintain IGE. Furthermore, no attempt was made to determine or control the extent to which the IGE concepts were implemented as taught in the inservice program. If this group of schools (and their respective districts) philosophically support the outcomes that IGE encourages, they may want to evaluate their progress and make those changes to bring about improvement.

Why weren't IGE schools given additional funding for personnel and budget? The obvious answer is that limited budgets did not allow for "seed money" to initiate educational change which was not tested and proved. Boards of education may also be reluctant to give extra money to selected schools, thus encouraging an air of favoritism for those schools chosen. Likewise, schools not selected for IGE and additional funding may have developed negative feelings toward schools who are seemingly "on the inside track." Moreover, parents' and taxpayers' questions are easier to answer if funds are spent equally in all schools across the district, regardless of whether the program is innovative or not.

Results pertinent to the
School Improvement Inventory

The leadership behavior of an elementary principal is one determinant of the ability of a school to attain its stated goals. Consequently, the leadership behavior of IGE principals was of interest to this study. Is the principal in an IGE school different from other principals? Results of this study utilizing a small number of principals, five in non-IGE and six in IGE schools, would suggest that there are no major differences in

1) leadership expectations, and 2) performance of administrative functions as perceived by their respective teachers. Furthermore, teachers in both types of schools perceived Administrator Dedication and Enthusiasm as the highest climate measure in their buildings. And finally, teachers' opinion in both types of schools surrounding the building administrator's effectiveness as an instructional leader identified Supports Teachers and a positive Learning Environment Provision as the two strongest leadership qualities.

Should an IGE principal's leadership behaviors be different from other principals? It is quite obvious that principals should be skilled in the change process and possess a positive attitude toward change (tolerance toward uncertainty). That a principal should accept responsibility for the leadership of the school is an understatement. It is quite possible that staff perceptions of IGE principals' leadership behaviors are not only related to job satisfaction, but positively impacted the effectiveness of the implementation process.

Are there principal leadership qualities which would facilitate the IGE program? It would appear that certain leadership qualities would be desired based on IGE needs for more teacher involvement in instructional decisions and positive interpersonal relationships on the part of team members (Cohesiveness). Interestingly, Cohesiveness was the lowest rated climate measure reported by both IGE and non-IGE teachers. Qualities such as Supports Teachers (communicates with teachers about goals and procedures) would be an important possession of a principal involved in a change process. Coordinates Instruction/Curriculum (interrelates what

goes on in the classroom with the overall goals and program of the school) would also seem to be an important leadership quality for an IGE principal. These behaviors would indicate the principal had the ability to develop a building improvement plan through staff involvement. Both Supports Teachers and Coordinates Instruction/Curriculum were high ranking instructional leadership behaviors as perceived by the IGE teachers.

Is it possible that the grouping and regrouping of students for instruction was misunderstood and poorly implemented as a key outcome of IGE? The assumption made in IGE was that students should be regrouped for instruction according to need; instruction should proceed from two to three weeks; then new groups should be formed. However, it appears the age-graded, self-contained classroom was still the norm, and shared decision making about grouping and regrouping were rare. Basic changes in the traditional classroom structure simply do not happen in most schools.

The intent of instructional programming in IGE which was based upon expecting variations in what students were taught, having students compete against objectives rather than peers, evaluating students on objective referenced tests, and stressing goal setting and other motor visual procedures as the basis of group control, may never have been totally understood or implemented. The old habits in most schools remained. It appears that changes from the traditional practices were evident in some schools, but most often behavioral objectives, related testing, and pacing were emphasized.

Perchance, the limited positive outcomes of IGE are to some extent due to the program itself. The eclectic basis for the procedures meant

practitioners could select what they wanted from the components. Because IGE was developed in an eclectic manner, it lacked a strict organizational structure. The original notion of student needs thus became very open to different interpretations. This research which determined the extent of implementation of individually guided education outcomes in selected school districts with both IGE schools and non-IGE schools, clearly recognizes that a school implements IGE and does not adopt the program. The significance is critical, since it is the difference between fitting the school to the child (IGE) rather than fitting the child to the school (the conventional model).

In considering the effects of IGE as a reform program, it is important to look beyond its language of the individualized instruction, team teaching, and non-graded teaching. The IGE model carries with it certain assumptions about the nature of knowledge, the most effective ways children can work to gain that knowledge, and the role of the professional staff in implementing the reform. IGE was conceived as a systematic attempt to reform schools; it was also designed as a comprehensive program affecting both agencies external to the school and structures within the school. There is a pattern, therefore, of interrelated assumptions that give IGE form and content.

Is it possible that legitimate school knowledge, according to the assumptions of IGE, was never defined by schools in such a way that it was measurable? Realistically, the kinds of knowledge capable of being defined in terms of prestated objectives that can be clearly and easily measured are, of course, limited; such objectives are appropriate to

discrete factual knowledge and skills. The emphasis in IGE is upon knowledge transmission, skills which involve acquiring and remembering information, and on the use of knowledge by substituting equivalent terms for one another, and by remembering relationships. The generation of knowledge is not discussed, nor is the learning of skills and attitudes appropriately approved for creating knowledge.

Maybe objectives could not be prescribed for both all and selected students; the criteria for attainment can vary among students; and the order of the objectives can vary or be invariant, depending upon content. Most IGE literature, however, concentrates on invariant objectives in which some identified level of mastery is set for all children. This conception of curriculum implies a discrete and concrete structure of activities in which students can be closely monitored by teachers as they proceed upward through a hierarchy of skills. The role of teachers is also carefully defined by the requirements of IGE. Their tasks are to develop instructional objectives, to develop and use appropriate measurement tools to assess and evaluate student achievement, to select and sequence student activities and materials, and to work jointly with other staff members to maintain IGE procedures.

What are the relationships among teaching/learning, occupational structures, and the social/cultural orientations of the communities in which the schools are located? The study has pointed to the importance of understanding how the sets of relationships affect the life of a school, and what meaning they give to reform. The specific content and dynamics contain unresolved questions and issues. For example, how do specific

social/cultural characteristics filter into the school to influence instructional practices, and what are the implications of teachers' different and potentially conflicting perceptions of their professional role? Professionals do have relative autonomy in establishing teacher practices, but how is this autonomy exercised to create, sustain, and renew professional ideologies? What are the roles played by state and local education agencies, teachers' associations and unions, educational foundations, and teacher preparation institutes in establishing and legitimatizing school practices? In all likelihood, the issue is not one of qualitative versus quantitative measures, or process versus output measures. Questionnaire and, possibly, field study techniques need to be incorporated into research designs to provide descriptions of ongoing activities, the meaning that such actions have for those involved, interpretations that people give to their own actions and the actions of others, and the regularities and correlations exhibited in school practice.

Perhaps schools never received a common commitment to IGE from all members of the local educational community. The label IGE was obviously used to describe many schools which as yet had not implemented key IGE features; there were also schools which had fully implemented only some of the IGE features. Therefore, it is definitely possible that some of the key IGE features were not implemented due to restricted budgets which limited staff development opportunities and the purchase of IGE-compatible materials. It is quite obvious that very few IGE-labeled schools were

truly reformed to the extent that its professionals had successfully implemented and maintained the total IGE system.

Limitations

Research studies have certain limitations that need to be acknowledged before the results can be considered appropriate. The limitations of this study were:

1. Schools involved in this study were not randomly selected, but were chosen on the basis of their membership in the former Central Iowa League of IGE schools.
2. The study was limited to only three Iowa public school districts.
3. Eight years had passed since the principals last involved themselves with IGE terminology.
4. It was assumed that each of the control schools within each school district was comparable to the IGE schools except for the absence of IGE; moreover, the control schools were intended to be reasonably representative samples of elementary schools in the district. Except for matching on the basis of past established practice, differences among schools were not carefully regulated.
5. Grade level groupings used in the schools for the two instruments did not always encompass the same grade level groups.
6. This study made no attempt to determine the amount of faculty turnover in the schools since the implementation of IGE. Likewise, no monitoring was attempted to determine the amount of effort expended in IGE concepts since that time.

7. The School Improvement Inventory was used by teachers to indicate their perceptions of the leader behavior of the school principal. It should be kept in mind that some individuals may have an inflated view of their effectiveness as a leader while others may respond more modestly.
8. The study was limited to elementary principals and teachers in IGE and non-IGE schools; therefore, it cannot be generalized at the secondary level.

Recommendations

In light of the findings of this investigation, several recommendations seem appropriate.

Recommendations for practice

Those who would introduce educational reform measures must recognize that their intentions, goals, and technologies are subject to the dynamics affecting a particular institution. Reformers should expect that their programs will be interpreted, modified, and used in accordance with the ideologies which are asserted through institutions, as well as in response to conditions outside of institutions. It is very apparent that the relationships which exist among professional ideologies, communities, and classrooms are neither simple nor direct. They are affected by signals and pressures exerted by parents, communities, and occupational groups outside the school, as well as by the interactions within the school.

Methods of evaluation which complement standardized testing and subjective judgment need to be explored by school systems. School

districts may want to consider the value of a measure such as the School Improvement Inventory in a total school improvement model scheme using that particular tool as a device for formative evaluation would allow more immediate feedback in the effectiveness of school programs.

Schools implementing new programs and procedures need to remain cognizant of what's happening to both student and staff interpersonal relationships. Efforts directed toward individualizing instruction need to be evaluated for their total effect on students. Administrators and teachers need to constantly monitor efforts toward implementing any new school reform process. Checkpoints need to be provided in the implementation phase and beyond in order to maintain the effort and the dedication needed to change a school program.

Principals need to be aware of their teachers' perceptions of their leadership behaviors. Discussion should take place between principal and teacher regarding those behaviors that are creating dissatisfaction. The exposure and discussion of a behavior, even if an alteration in the behavior is not possible, will often prevent undesirable conflicts. Principals could use the School Improvement Inventory as a self-evaluation instrument and "jumping-off point" for a building-wide school improvement model.

Superintendents or directors of elementary education may want to consider the use of the School Improvement Inventory with teachers to help principals improve their leadership effectiveness skills. Subsequent discussions with the principals' immediate supervisor regarding the

results should be of value in helping the principal improve or adapt his leader behavior.

Leaders of districts who are today attempting to implement such a sweeping and profound total systems change (such as IGE) should give careful consideration to the need for increased financing to encourage and sustain the change. It appears from examination of this investigation that it takes a long time and much effort to thoroughly establish and institutionalize such a pervasive innovation.

Recommendations for research

The major portion of this study dealt with the effectiveness of IGE schools as measured by the School Improvement Inventory after determining the amount of "IGEness" by using the Inventory of Selected School Practices Questionnaire. It is recommended that a similar study be conducted with schools that remain actively involved with the IGE change program. Schools in this sample were at various points of implementation of IGE processes. Future researchers could also replicate the present study including a broader sample of IGE and non-IGE schools. That sample could also include non-IGE districts.

This study utilized the data recovered from the total school for analysis. It may be interesting to center the study around grade levels/units. Is IGE more effective at the primary or intermediate level?

One of the limitations of the research in this study was the small number of principals involved. It is recommended that a leader behavior study be conducted that would include a much larger number of active IGE

principals. Do the perceived leadership qualities of a principal change after a school has implemented IGE?

Gathering data from several different perspectives about the same program in schools provides a more complete, and more complex, picture of how the program is given meaning in schools. It is recommended that future studies combine the self-report survey data with interview validation data, field study data, and time-on-task validation data.

An ideal outcome measure would be an index of how well the planned variations in instruction met the needs of each individual. Thus, the student would be the unit for data collection, and the index would relate student needs, instructional intent, and pupil performance. For example, one student may need to learn how to apply regrouping strategies. The index would indicate the match between this need, the related instructional activities, and how much the student learned.

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To my secretary, Mary Knox, appreciation is given for typing, proofreading, and other duties necessary to the completion of this project.

Special appreciation is offered to my wife, Julie, and children, Jay, Holly, Justin, Carrie, and Jill. Not only did they put up with the writing of the dissertation, but they also made sacrifices during the years of graduate study. Without their encouragement and support, the completion of this study would not have been possible.

Finally, a note of thanks to friends, co-workers, and relatives who encouraged completion of my doctoral program.

APPENDIX A. IGE OUTCOMES

IGE OUTCOMES

Process of the IGE program has been summarized in 35 outcomes to be achieved by various members of the IGE school personnel. The following are specific outcomes listed for the IGE program (50, pp. 13-15).

1. All staff members have had an opportunity to examine their own goals and the IGE outcomes before a decision is made to participate in the program.

2. The school district has approved the school staff's decision to implement the /I/D/E/A/ Change Program for Individually Guided Education.

3. The entire school is organized into Learning Communities with each Learning Community composed of students, teachers, aides, and a Learning Community leader.

4. Each Learning Community contains a cross section of staff.

5. Learning Community members have an effective working relationship as evidenced by responding to one another's needs, trusting one another's motives and abilities, and using techniques of open communication.

6. Each Learning Community is composed of approximately equal numbers of two or more student age groups.

7. Each student has an advisor whom he or she views as a warm, supportive person concerned with enhancing the student's self-concept; the advisor shares accountability with the student for the student's learning program.

8. Personalized in-service programs are developed and implemented by each Learning Community staff as a whole as well as by individual teachers.

9. The Learning Community maintains open communication with parents and the community at large.

10. Sufficient time is provided for Learning Community staff members to meet.

11. Learning Community members select broad educational goals to be emphasized by the Learning Community.

12. Role specialization and a division of labor among teachers are characteristics of the Learning Community activities of planning, implementing, and assessing.

13. Each student learning program is based on specific learning objectives.

14. A variety of learning activities using different media and modes are used when building learning programs.

15. Both student and teacher consider the following when a student's learning activities are selected:
    - Peer relationships
    - Achievement
    - Learning styles
    - Interest in subject areas
    - Self-concept

16. Students pursue their learning programs within their own Learning Communities except on those occasions when their unique learning needs can only be met in another setting using special human or physical resources.

17. Learning Community members make decisions regarding the arrangements of time, facilities, materials, staff, and students within the Learning Community.

18. The staff and students use special resources from the local community in learning programs.

19. A variety of data sources is used when learning is assessed by teachers and students, with students becoming increasingly more responsible for self-assessment.

20. Each student (individually, with other students, with staff members, and with his or her parents) plans and evaluates his or her own progress toward educational goals.

21. Teachers and students have a systematic method of gathering and using information about each student which affects his or her learning.

22. The Program Improvement Council formulates schoolwide policies and operational procedures, and resolves problems referred to it involving two or more Learning Communities.

23. The Program Improvement Council coordinates schoolwide in-service programs for the total staff.

24. The school is a member of a League of schools implementing IGE processes and participating in an interchange of personnel to identify and alleviate problems within the League schools.

25. The school as a member of a League of IGE schools stimulates an interchange of solutions to existing educational problems plus serving as a source of ideas for new development.

26. The Learning Community analyzes and improves its operations as a functioning group.

27. Learning Program plans for the Learning Community and for individual students are constructively critiqued by members of the Learning Community.

28. The Program Improvement Council analyzes and improves its operations as a functioning group.

29. Each student can state learning objectives for the learning activities in which she or he is engaged.

30. Each student accepts increasing responsibility for selecting his or her learning objectives.

31. Each student accepts increasing responsibility for selecting or developing learning activities for specific learning objectives.

32. Each student demonstrates increasing responsibility for pursuing her or his learning program.

33. The Program Improvement Council assures continuity of educational goals and learning objectives throughout the school and assures that they are consistent with the broad goals of the school system.

34. Students are involved in decision making regarding schoolwide activities and policies.

35. Teacher performance in the learning environment is observed and constructively critiqued by members of the Learning Community using both formal and informal methods.

APPENDIX B.

INVENTORY OF SELECTED SCHOOL PRACTICES QUESTIONNAIRE

APPENDIX C.

SCHOOL IMPROVEMENT INVENTORY

APPENDIX D.

PRINCIPAL INTERVIEW

PRINCIPAL INTERVIEW

Warm-up questions
Probe -- years in administration?
number of teachers assigned?
curriculum strengths?
teacher appraisal system?
most memorable experience in administration this year?
future plans?

1. Did (_____) School receive school district approval to implement Individually Guided Education?

Probe -- if yes --
available in board minutes?
formal action?
central office position?
when? who provided inservice?
years spent within the Central Iowa League?
value of the league?

-- if no --
what is the policy concerning major program changes?

2. In your estimation, what are/were the IGE program outcomes?

Probe -- list some.
Were you committed to the IGE program outcomes?

Explain.

3. How well do/did your school board members understand IGE?

Probe -- in depth?
very little?
how many?

4. How is (_____) School progressing in the implementation of IGE?

Probe -- Are you aware of any recent developments?

5. What organization of teachers and students do you support and why?

Probe -- How do you feel about Learning Communities (teams)?

6. Do you have any preference as to age grouping patterns?

   Probe -- Is the above preference encouraged or pushed in district schools?

   Explain.

7. What are your feelings about common planning time for groups of teachers within schools?

   Probe -- very important (crucial)?
   negative to it?

8. In your opinion, how important is it for schools to work together to stimulate an interchange of ideas and solutions to problems?

   Probe -- If you feel this arrangement is positive, what does/did the central office do to support or encourage it?

9. Are/Were applicants familiarized with your school program before accepting a position?

   Probe -- How?

   (Are/Were new applicants required to state that they understood and value an IGE school program?)

10. What method is/was used to select team leaders in your assigned school?

    Probe -- How would you describe the relationships among teachers on each team?

    What criteria were used for staff assignment to teams?

11. Did anyone from outside your school help evaluate your progress toward goals?

    Probe -- (facilitator?)
    -- regularly
    -- seldom
    -- never

    What kind of feedback did you get from this source?

12. Were parents and students provided opportunities to examine the rationale and organizational structure of the school?

    Explain.

13. (Def.: Peer observation for my purpose is defined as teacher requesting their peers observe specific activities and give requested feedback.)

How do you feel about this approach to staff development?

Probe -- describe the staff development approach with which you are most comfortable.

APPENDIX E.

TEACHER DATA FORM

STUDY OF SELECTED SCHOOL PRACTICES

TEACHER DATA FORM

Teachers, please respond.

1. Age?

( ) 21-25	( ) 46-50
( ) 26-30	( ) 51-55
( ) 31-35	( ) 56-60
( ) 36-40	( ) 61-65
( ) 41-45	( ) 66-70

2. Sex?
   ( ) Male
   ( ) Female

3. Years of teaching experience?

( ) 0-5	( ) 26-30
( ) 6-10	( ) 31-35
( ) 11-15	( ) 36-40
( ) 16-20	( ) 41-45
( ) 21-25	( ) 46-50

4. Grade level taught?

( ) K	( ) 4
( ) 1	( ) 5
( ) 2	( ) 6
( ) 3	

5.a. Did you receive Individually Guided Education (IGE) training in the district for which you are presently working?
   ( ) Yes
   ( ) No

b. Did you ever receive Individually Guided Education (IGE) training during your teaching career?
   ( ) Yes
   ( ) No

APPENDIX F.

FORM LETTERS SENT BY RESEARCHER

(Letter to Superintendents after telephone conference and/or personal contact.)

Dear Superintendent:

Thank you for your willingness to participate in the research concerning the study of school practices.

My major professor, Richard P. Manatt, Ph.D., and I hope this investigation will provide educators with practical insights toward the improvement of schooling.

In order to complete this study it is necessary to obtain perceptions and opinions of teachers in IGE and non-IGE schools on the use of select school practices. The following schools have been selected to participate in the study:

1. IGE School(s) -

2. Non-IGE School(s) -

For your information a copy of the letter and questionnaire(s) which will be sent to the principals of the above mentioned schools is enclosed. I would appreciate your encouragement for participation in the study with the principals.

Individual teacher information received from schools will remain anonymous and confidential. If clarifications are needed, please call me collect, 1-515-357-8073 day or night before the mailing date to schools which is April 15, 1984.

I am sincerely APPRECIATIVE of your generous efforts and cooperation in this important matter. Progress is made through those who are willing to share their professional expertise and resources. If you are interested in the results of this study, I would be happy upon request to share the summary and conclusions.

Sincerely,

Michael L. Kremer
Box 224
Clear Lake, Iowa 50428
Doctoral Candidate

Richard P. Manatt, Major Professor

Enclosures

March 1984

Dear Colleague: 167

I am in the process of conducting a research study which will be used as part of my doctoral dissertation. I am happy to announce that your school has been selected to participate in this study concerning selected school practices. Your school superintendent has been very cooperative in this matter.

In order to complete this study it is necessary to obtain perceptions and opinions of teachers about specific practices. I hope your school staff will enthusiastically participate in this worthwhile investigation. It is projected that the study will provide educators, both teachers and administrators, with practical insights toward the improvement of schooling.

Individual information received from your school will remain anonymous and confidential. The questionnaires are coded according to schools for the researcher's information only.

Principals, your participation consists of the following:

1. Distribute the "Teacher Data Form", "Inventory of Selected School Practices Questionnaire", and "School Improvement Inventory" to your staff. The (3) forms are paper clipped for easy distribution.

2. Read the 'Directions for Administration of the Two Questionnaires and Teacher Data Form' to the entire staff.

3. Request teachers to return the 'Questionnaires' and 'Teacher Data Form' in the sealed envelope provided to your secretary for mailing. I would suggest the secretary use the building's teacher roster to assure all questionnaires have been returned.

4. Please return questionnaires within one week of receipt, or as soon as possible in the enclosed self-addressed stamped envelope.

I would appreciate the participation of all your staff or as many members as possible. If clerifications are needed, please call me collect, day or night at 1-515-357-8073.

That is a tall request from a stranger. However, progress is made through those who are willing to share their professional expertise and resources. Since I am a building principal myself, I recognize how one strives to improve the quality of education with a staff and how we are called upon to "walk the extra mile." With all the many demands placed on you at this time of year, I am especially grateful for your generous efforts and cooperation.

If you are interested in the results of this study, I would be happy, upon request, to share the summary and conclusions.

Sincerely,

Michael L. Kremer
Principal
Central Intermediate School
Clear Lake, Iowa 50428

Richard P. Manatt, Major Professor

Directions for Administration of the Two Questionnaires and Teacher Data Form

1. Teacher Data Form
2. Inventory of Select School Practices Questionnaire
3. School Improvement Inventory

(To be read by the building principal)

I need your assistance in collecting information necessary for the completion of my doctoral dissertation at Iowa State University. The two 'Questionnaires' which you are asked to complete will hopefully provide educators with practical insights toward school improvement. The 'Teacher Data Form' is very general in nature and will give me the necessary information to complete my statistical analysis of recovered data. In order to complete this study it is necessary to obtain perceptions and opinions of teachers on the use of select school practices.

The questionnaires have been tested and revised to obtain all necessary data while requiring a minimum of your time. If you do not choose to participate do not return the questionnaire(s). If you return the questionnaire(s), this will be interpreted as implied informed consent. No individual or school district will be identified in the reporting of these data. The materials are coded for research purposes only. All tables will show only summative data across all respondents.

However, it will be greatly appreciated if you would complete the questionnaire(s) and return both of them in the plain sealed envelope provided to the school secretary (building principal establish date). These instruments will be returned to the researcher immediately upon their completion. Your responses will be tabulated and compiled with others and every effort will be made to keep confidential the specific responses that you provide. Upon completion of this study I would be pleased to send you a summary of the resulting data if you so desire.

Thank you for your cooperation.

Respectfully yours,

Michael L. Kremer

Michael L. Kremer, Researcher

May 1948

Dear

The enclosed Principal's Interview guide is a part of a dissertation project that I am conducting at Iowa State University. The guide asks questions concerned with the IGE principal's perceptions, and understandings, of Individually Guided Education during the past twelve school years. In particular, this study will attempt to recreate what happened to IGE practices within a small area of the United States.

This part of my study will result in a written history of the development of Individually Guided Education within the Central Iowa League. Such a history does not currently exist.

I am particularly desirous of obtaining your responses because, as a representative of the principal's group, your perceptions and experiences are important in understanding how your district/attendance center views the principles of IGE today.

The enclosed guide has been tested and it has been revised to obtain all necessary data while requiring a minimum of your time. It is my hope that you will review the questions in order that I may receive your thorough response through a telephone interview within a two week period of time from today. If you do not choose to participate simply tell me so when you receive my telephone call. If you respond to the questions, this will be interpreted as implied informed consent. No individual or school district will be identified in the reporting of these data. The summary will show only summative data across all respondents. Upon completion of this phase of my study I would be pleased to send you a summary of the survey results if you so desire.

Thank you for your cooperation.

Respectfully yours,

Michael L. Kremer, Researcher

Richard P. Manatt, Major Professor

APPENDIX G.

GRAPHICS OF MEAN RATINGS OF LABELED OUTCOMES FOR IGE AND NON-IGE SCHOOLS AND DISTRICTS

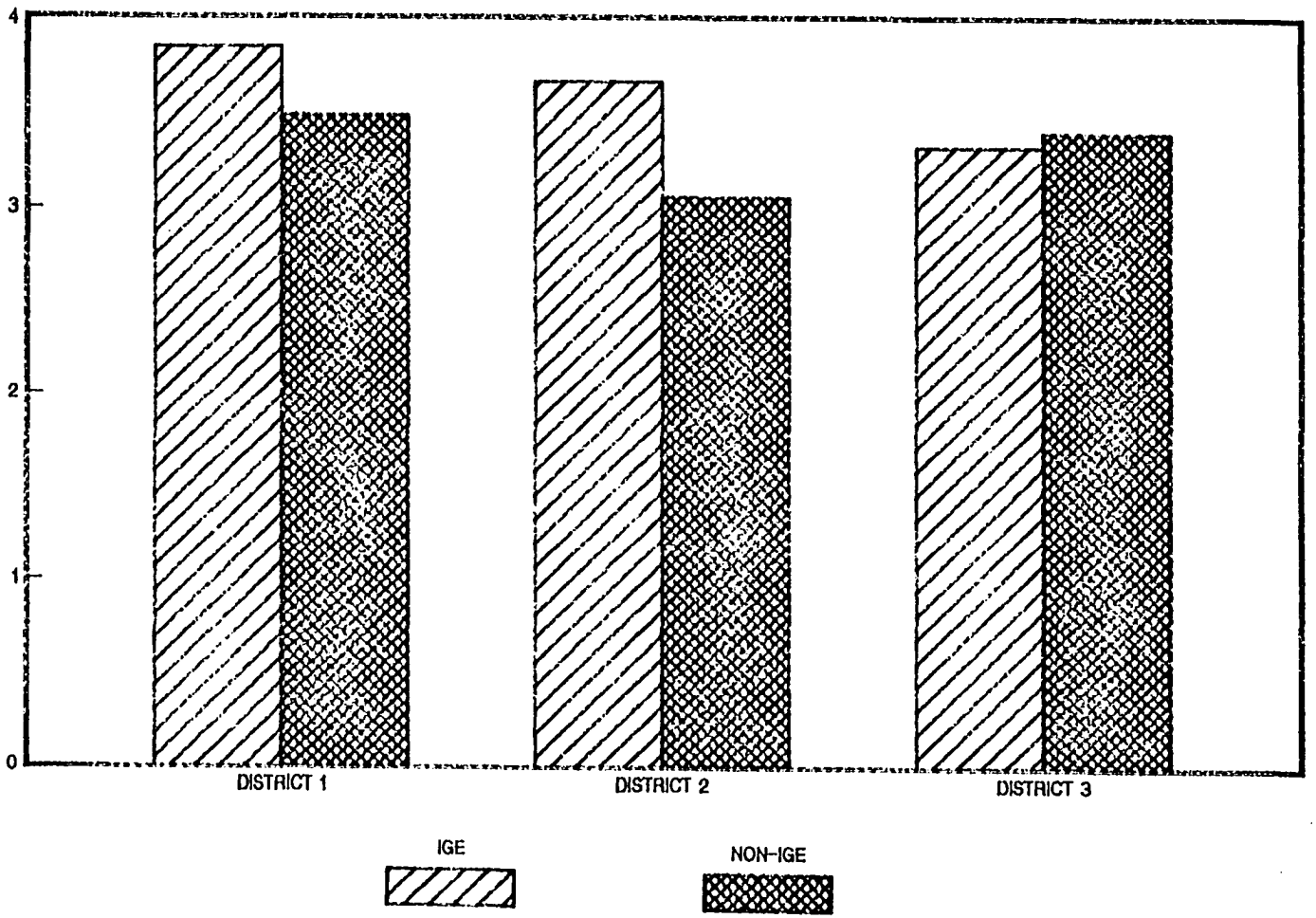

Figure G.1. Mean ratings of School Decisions for IGE and non-IGE schools and districts

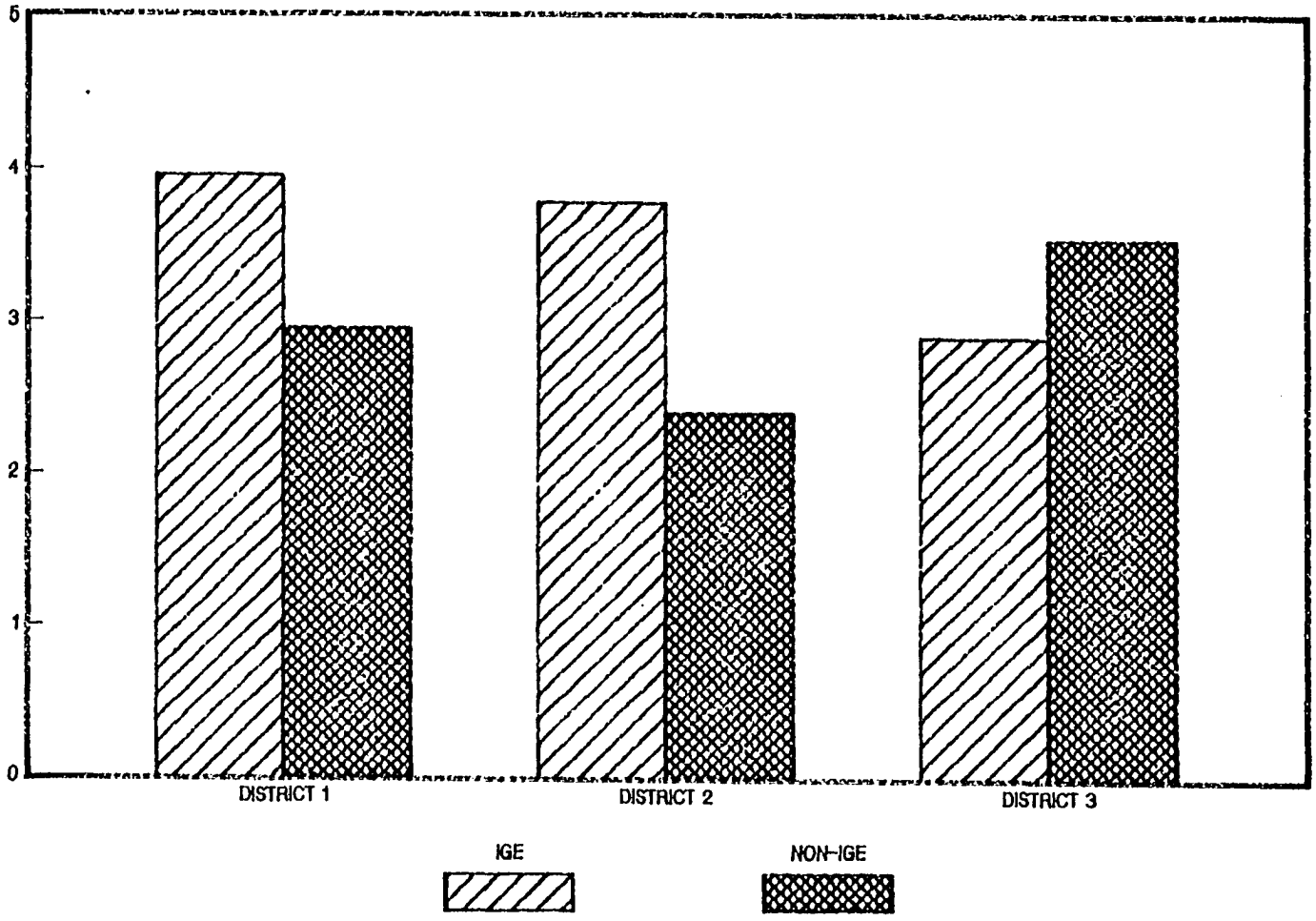

Figure G.2. Mean ratings of School Organization for IGE and non-IGE schools and districts

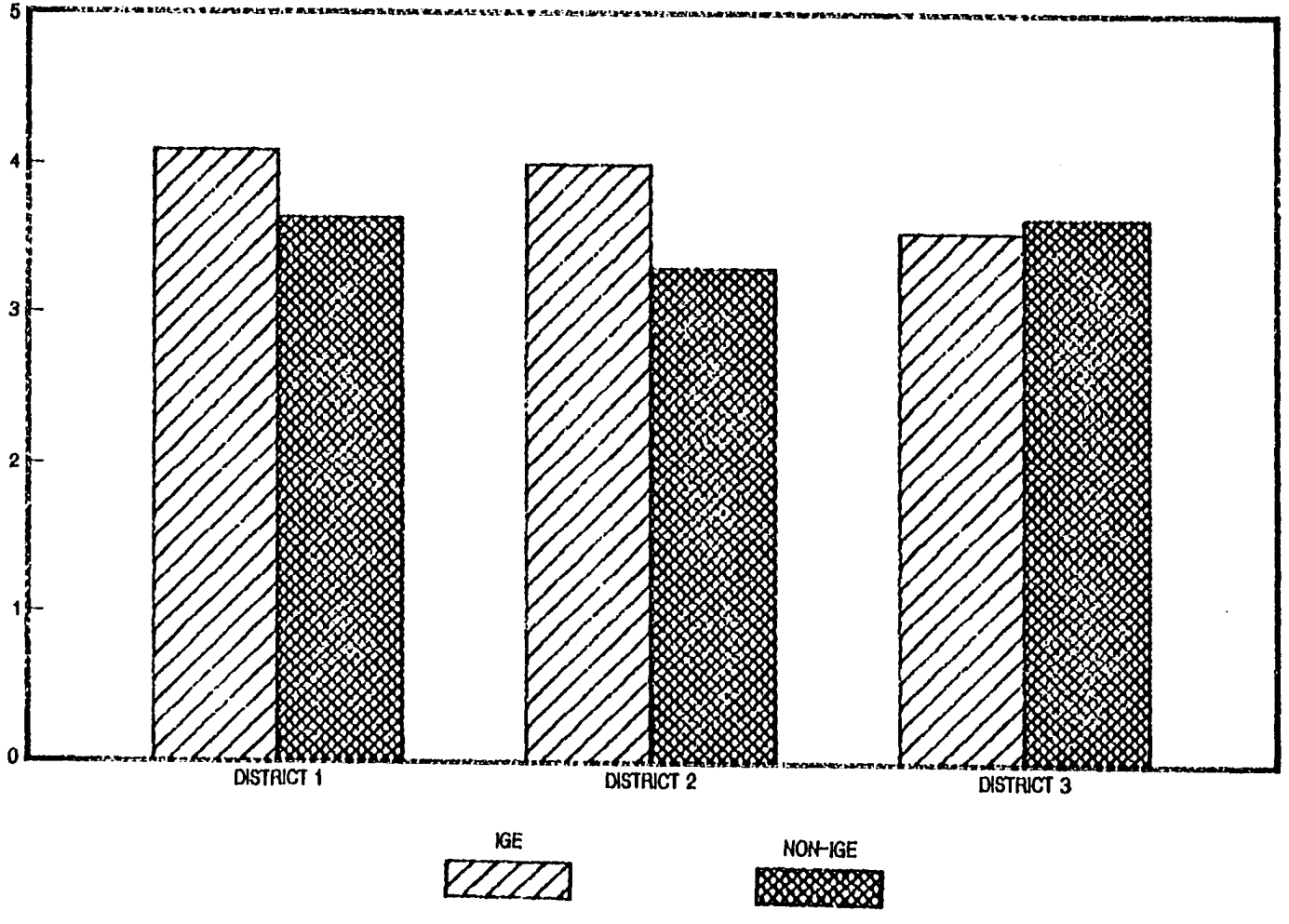

Figure G.3. Mean ratings of Curriculum and Teaching for IGE and non-IGE schools and districts

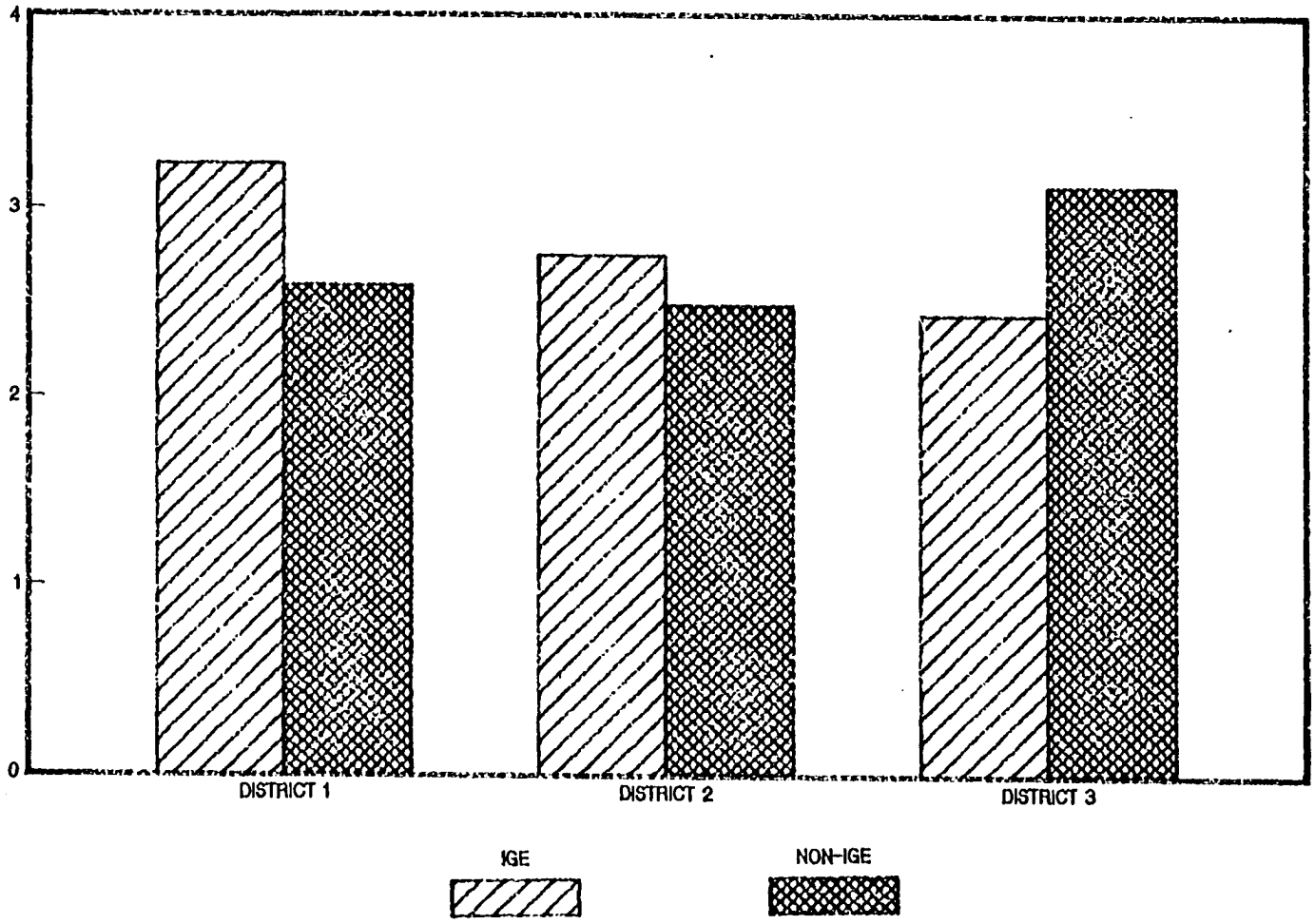

Figure G.4. Mean ratings of Student Responsibility for IGE and non-IGE schools and districts

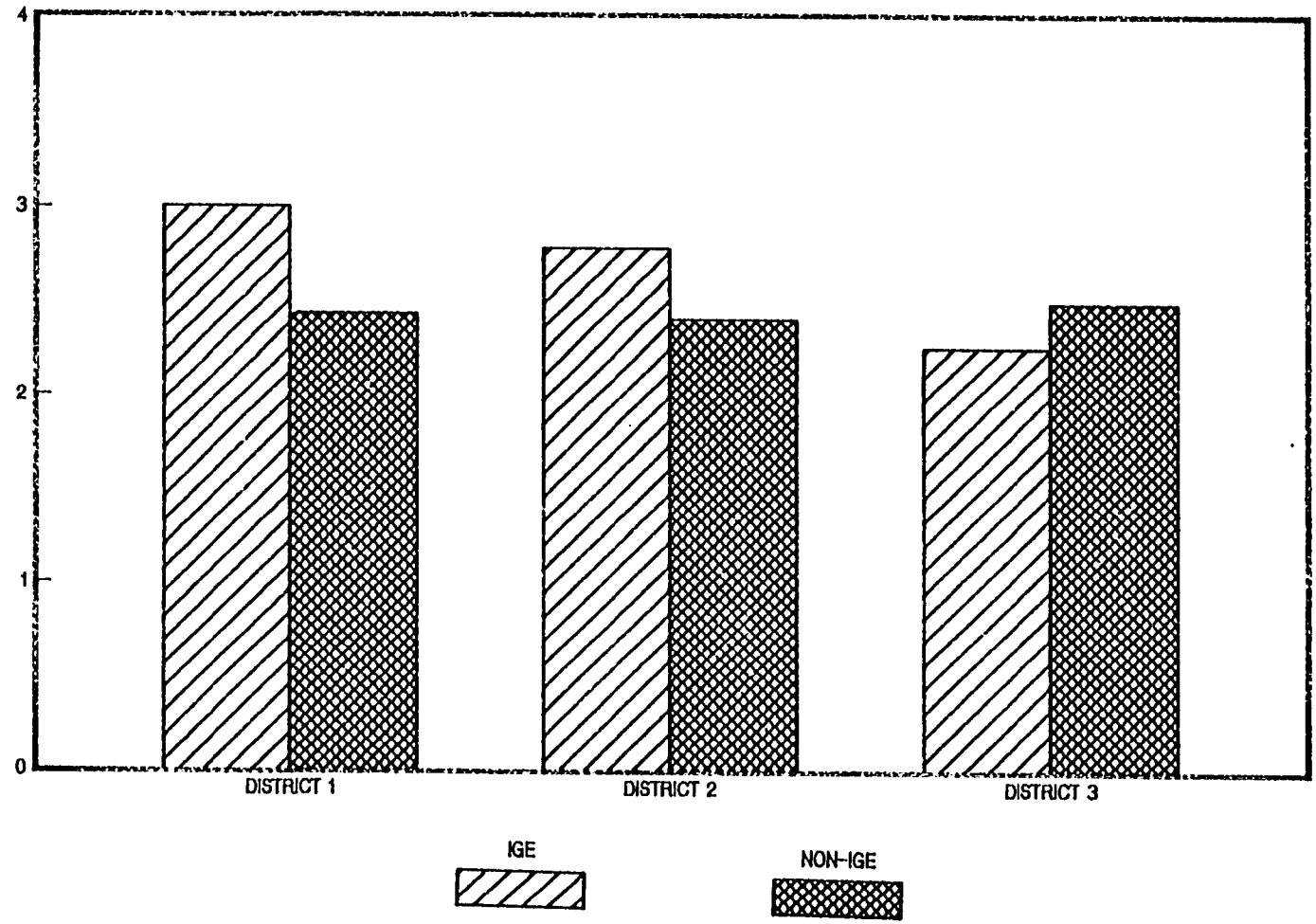

Figure G.5. Mean ratings of Planning, Analyzing, and Improving for IGE and non-IGE schools and districts

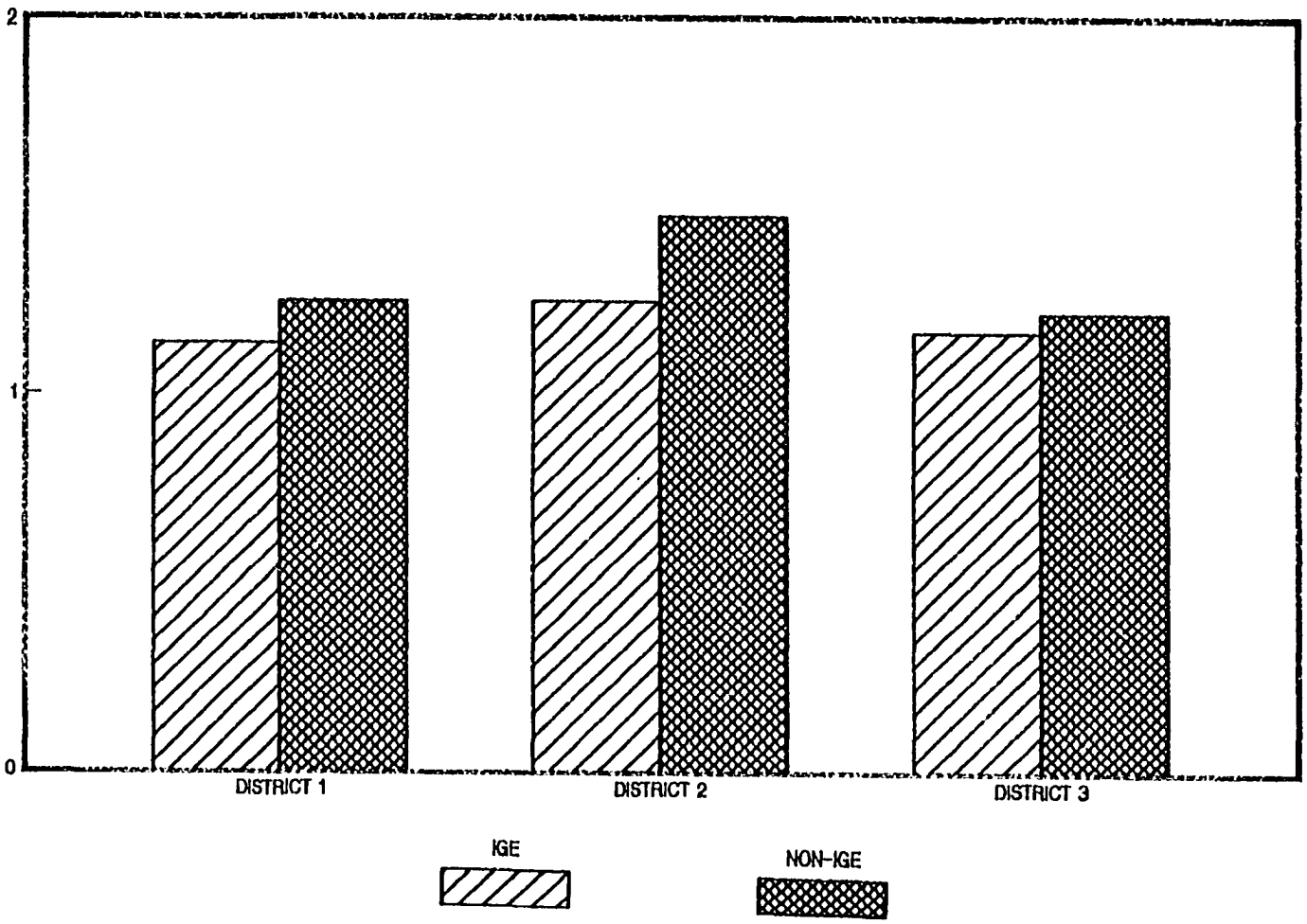

Figure G.6. Mean ratings of School Decisions by respondents' perception of effectiveness

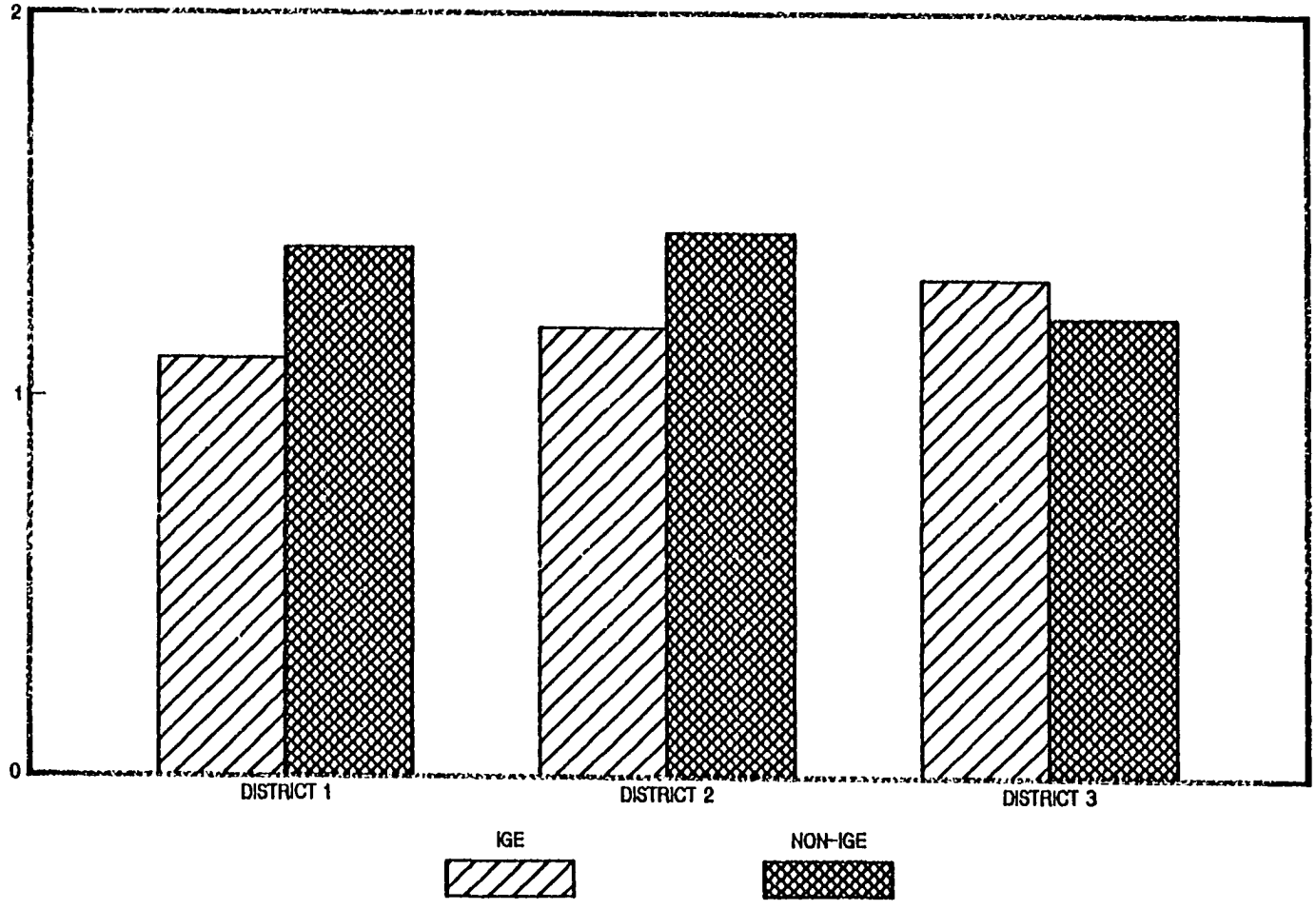

Figure G.7. Mean ratings of School Organization by respondents' perceptions of effectiveness

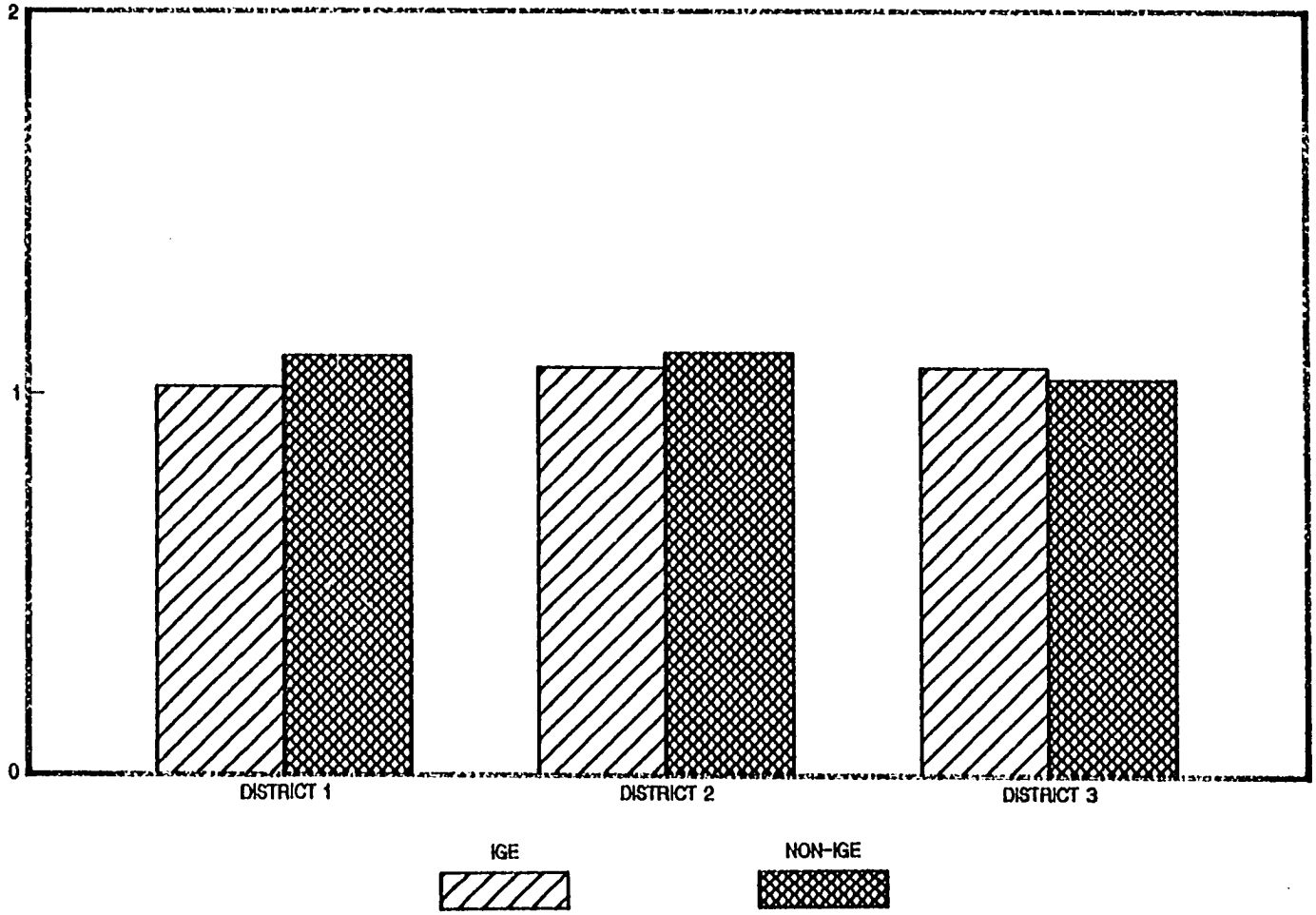

Figure G.8. Mean ratings of Curriculum and Teaching by respondents' perceptions of effectiveness

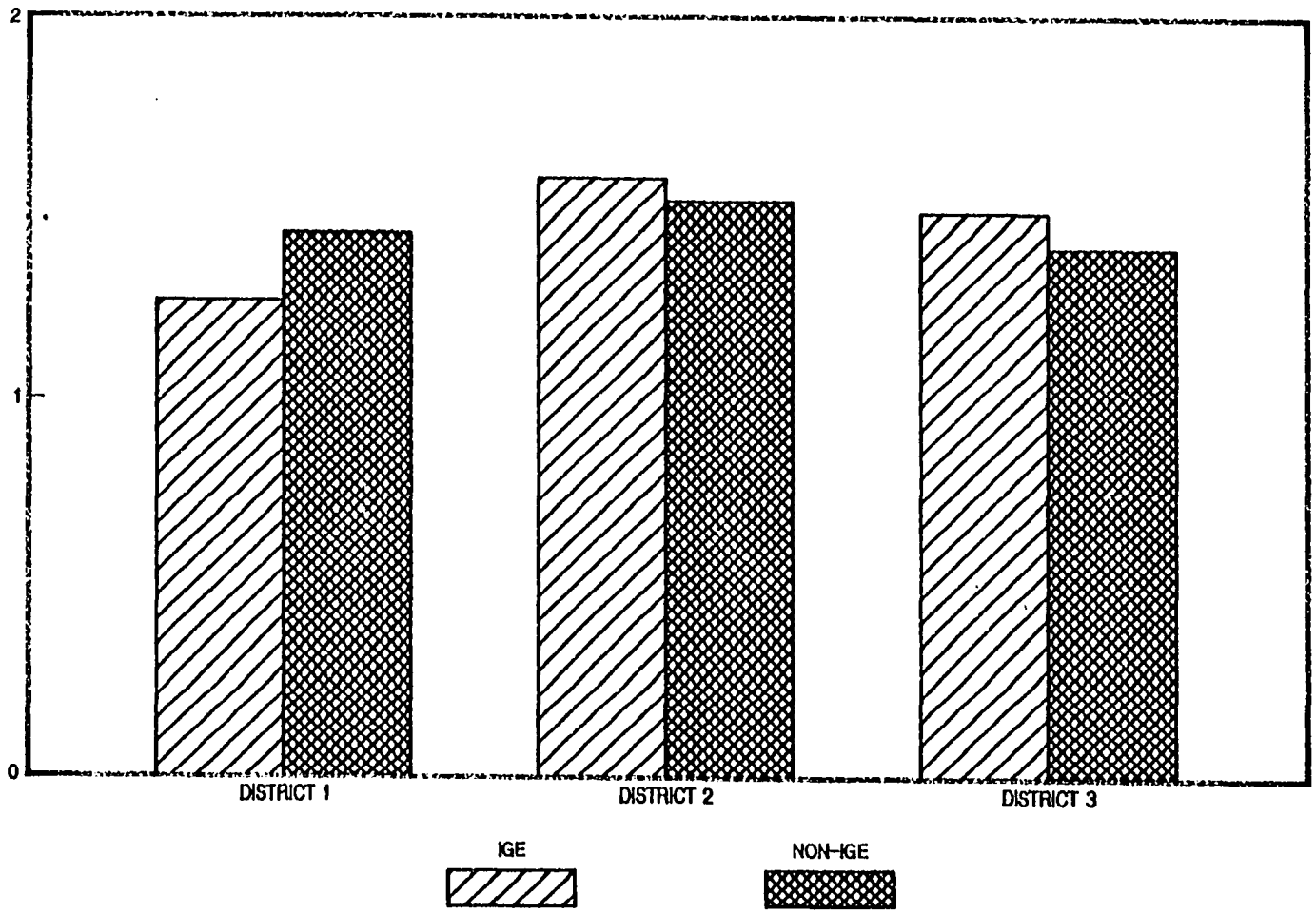

Figure G.9. Mean ratings of Student Responsibility by respondents' perceptions of effectiveness

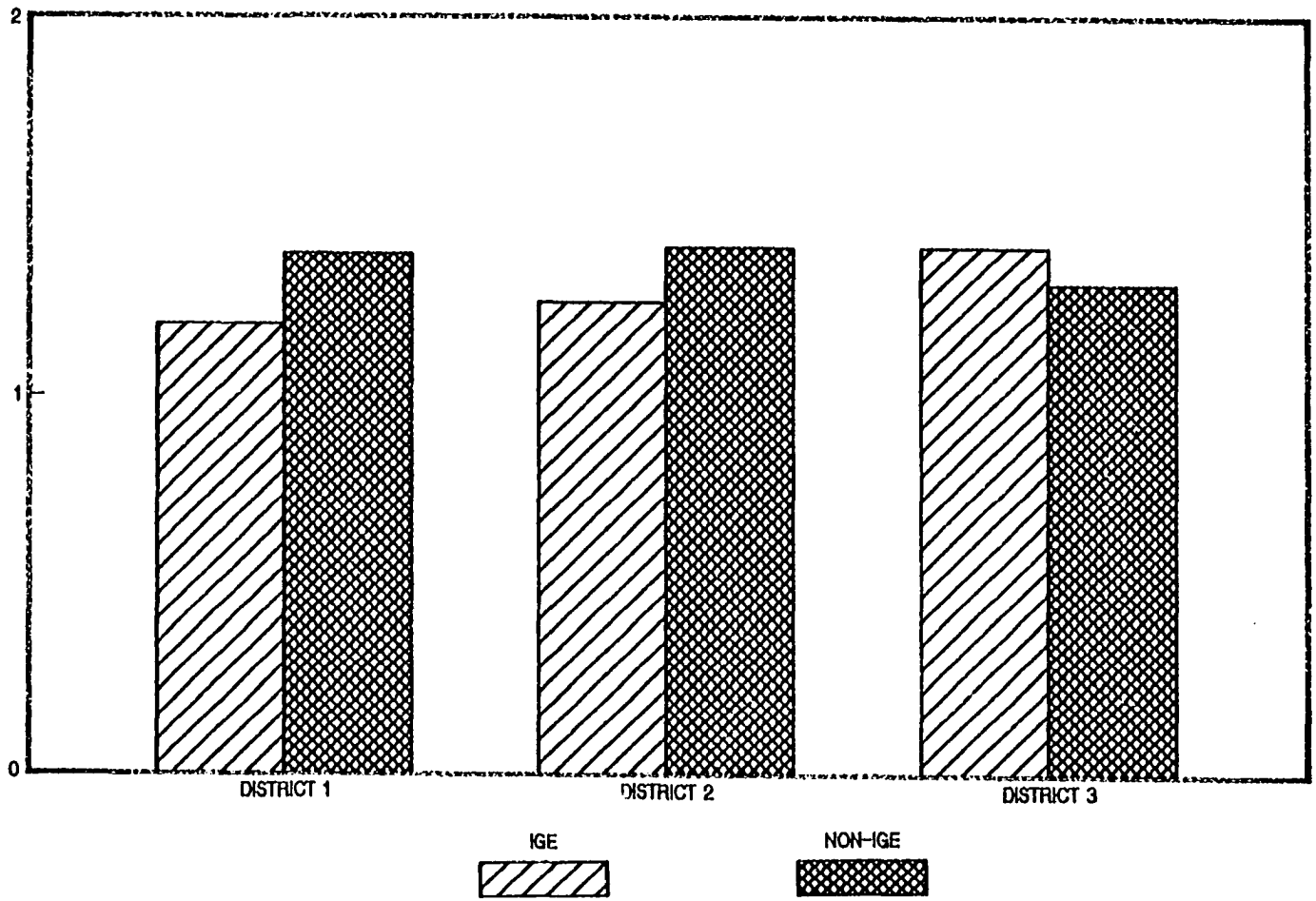

Figure G.10. Mean ratings of Planning, Analyzing, and Improving by respondents' perceptions of effectiveness

APPENDIX H.

DEFINITION OF TERMINOLOGY

DEFINITION OF TERMINOLOGY

Six Major Building Administrator Functions

Human Resource Management: Assists teachers to motivate, challenge, and excite students to learn at the optimal level, and assists staff in obtaining maximum use of their human potential for reaching personal and organizational goals.

Instructional Leadership: Enhances student learning through updating of curriculum and instructional materials, evaluating staff for the purposes of improvement, and evaluating educational program and student progress.

Learning Environment Management: Develops and maintains discipline standards which provide students with a clear understanding of expectations for behavior inside and outside the classroom and provides an educational atmosphere conducive to learning.

Non-instructional Management: Schedules all routine and special activities, supervises logistical matters and the school plant.

Pupil Personnel: Meets with students individually and in groups to address their problems and concerns, and promotes student involvement in co-curricular and extracurricular activities.

School-Community Relations: Communicates with parents and promotes the school through advisory committees, parent-teacher organization, needs assessment, and the media.

School Climate Measures

Goal Orientation: The extent to which teachers are committed to "making a difference."

Esprit: The extent to which teachers experience a sense of accomplishment in their work.

Cohesiveness: The extent to which teachers are able to work together on important school matters.

Teacher Expectations: The extent to which teachers expect students to do their best.

Administrator Dedication and Enthusiasm: The extent to which building administrators are dedicated and enthusiastic.

Student Attitudes: The extent to which students display a positive general attitude.

Supports Teachers: The extent to which building administrators communicate with teachers about goals and procedures.

Evaluates Pupil Progress: The extent to which building administrators set expectations for the entire school and check to make sure those expectations are being met.

Coordinates Instruction/Curriculum: The extent to which the building administrator interrelates what goes on in the classroom with the overall goals and program of the school.

Instructional/Curriculum Emphasis: The extent to which the building administrators convey to teachers their commitment to achievement.

Learning Environment Provision: The extent to which teachers perceive the school environment to be conducive to learning.

APPENDIX I.

ITEMS FROM THE INVENTORY OF SELECTED SCHOOL PRACTICES QUESTIONNAIRE

ITEMS FROM THE INVENTORY OF SELECTED SCHOOL PRACTICES QUESTIONNAIRE

Five Major Clusters

School Decisions:

1. Staff members develop written statements of agreement concerning their educational beliefs.
2. Staff members examine the goals of a new program before using the new program.
3. When a new program is being considered, staff members examine their own goals and the new program's goals for consistency.
4. Central office administration reviews new programs and gives approval of programs through financial and central office support for its use.
5. Central office administration approves the staff's decision to adopt a new program before it is implemented.
6. Teachers make decisions that affect the scheduled blocks of time for teaching and learning.
7. Teachers make decisions that affect the flexible use of space assigned to them.
8. Teachers make decisions that affect the selection of materials they use.
9. As a result of interview, teachers affect recommended placements and additions to professional staff.
10. Teachers make most decisions that affect the students assigned to them.
11. Students are involved in decision making regarding many schoolwide activities.
12. Students are involved in decision making regarding schoolwide policies that affect them.

School Organization:

13. Your school is organized in teams.

14. A team includes teachers and students.

15. A team includes teachers, students, and aides.

16. One teacher of a team acts as the coordinator and representative of the group.

17. Teachers who team together possess collectively a diversity of strengths, backgrounds, and ideas.

18. Team members are professionally compatible.

19. Team members are personally compatible.

20. Teachers who team together serve students whose ages span at least two years.

21. Teachers who team together each share in planning of students' learning program according to teachers' talents.

22. Teachers who team together agree on what content areas each will teach and an evaluation of this teaching arrangement is conducted.

23. Teachers who team together share in the planning of content.

24. Teachers who team together share in the teaching and assessing of the learning program.

25. Ordinarily, students are taught by a small group of teachers except when unique learning needs of students can only be met by others within the school building.

26. Ordinarily, students are taught by a small group of teachers except when unique learning needs of students can only be met by out-of-school learning opportunities.

27. Teacher-to-student relationships evidence trust, respect for one another, and open communication.

28. Student-to-student relationships evidence trust, respect for one another, and open communication.

29. Teachers cultivate open communication with parents.

30. Teachers cultivate open communication with community.

31. Student evaluation conferences are held with parent, student, and teacher participating.

32. A steering committee makes school building policies.

33. A steering committee formulates schoolwide operation and all procedures.

34. The steering committee resolves school building problems referred to it.

Curriculum and Teaching:

35. Each student identifies with a specific teacher who is viewed as a warm, supportive person concerned with the student's self-concept.

36. Each student identifies with a specific person who shares accountability for the student's learning program.

37. The staff participates in inservice programs concerned with supportive role.

38. Teachers select or establish broad educational goals to emphasize with students.

39. A student's learning program is based on specific behavioral objectives.

40. For each behavioral objective, there is a variety of alternative learning activities.

41. Learning programs include alternative learning activities that use diverse media.

42. Students have opportunities to learn in various sizes of groups.

43. Teachers and/or students consider peer relationships when selecting a student's learning activities.

44. Teachers and/or students consider achievement when selecting a student's learning activities.

45. Teachers and/or students consider learning styles when selecting a student's learning activities.

46. Teachers and/or students consider interest in subject areas when selecting learning activities.

47. Teachers and/or students consider self-concept when selecting a student's learning activities.

48. People in the local community are used as learning resources.

49. Places in the local community are used as learning resources.

50. Useful information about each student's interests, abilities, and achievements is recorded.

51. There exists a systematic method of gathering useful information about students.

52. Useful student information is used when personalized learning programs are planned.

53. The steering committee insures that educational goals of the school are consistent with those of the school system.

54. The steering committee insures that the learning objectives of the school are consistent with those of the school system.

Student Responsibility:

55. When evaluating what a student has learned, a variety of sources are used.

56. Students increasingly demonstrate greater ability for self-assessment of their learning.

57. Learning is assessed by teachers and students.

58. Students evaluate and plan their programs toward educational goals.

59. Students and teachers are included in the process of evaluating and planning toward each student's learning goals.

60. Students, teachers, and parents evaluate and plan progress toward each student's learning goals.

61. Students can state the learning objective for the activity in which they are engaged.

62. Students select their learning/behavioral objectives.

63. Students increasingly accept more responsibility for selecting their learning objectives.

64. Students select their learning activities.

65. Students increasingly accept more responsibility for selecting or developing learning activities.

66. There are a number of learning activities available for each objective.

67. Students know the parts of the learning program.

68. The degree of student decision making increases according to demonstrated ability.

Planning, Analyzing, and Improving:

69. Teachers develop and implement a plan for inservice experience.

70. Each staff member plans and implements a plan for inservice based upon professional needs.

71. Staff members plan and implement inservice programs based upon school goals or goals of a new program.

72. Teachers who work together have common time to plan and work together.

73. Teachers who work together have sufficient time to plan and work together.

74. The steering committee coordinates schoolwide inservice programs for total staff.

75. The school has a formal procedure to exchange ideas and resolve problems with each other, and resolve problems with other schools in the district.

76. Consultants from central office assist in the school.

77. Schools in the district that are working on the same project meet to exchange ideas or resolve problems.

78. Teachers in the district have opportunities for exchange of ideas and/or of participation in workshops.

79. Teachers constructively critique/evaluate the way they function and make decisions as a group.

80. Teachers who work together constructively critique the group's learning program plans.

81. Teachers constructively critique learning program plans for individual students.

82. The steering committee periodically analyzes and improves the way its members work together.

83. Teachers observe each other informally during instruction time and provide feedback to each other.

84. Teachers observe one another using formal procedures and constructively critique performance.

85. Teachers from other schools observe at the school during instruction time.

86. Students provide feedback/evaluation of the learning program.

INFORMATION ON THE USE OF HUMAN SUBJECTS IN RESEARCH
IOWA STATE UNIVERSITY
(Please follow the accompanying instructions for completing this form.)

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(1.) Title of project (please type): Effectiveness of individually guided education schools as measured by teacher opinion and the school improvement inventory

(2.) I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are properly protected. Additions to or changes in procedures affecting the subjects after the project has been approved will be submitted to the committee for review.

Michael L. Kremer — Typed Named of Principal Investigator
2/15/84 — Date
Michael L. Kremer — Signature of Prihcipal Investigator

E005 Quad — Campus Address
294-5521 — Campus Telephone

(3.) Signatures of others (If any) | Date | Relationship to Principal Investigator

[signature]	2-14-84	[signature]

(4.) ATTACH an additional page(s) (A) describing your proposed research and (B) the subjects to be used, (C) indicating any risks or discomforts to the subjects, and (D) covering any topics checked below. CHECK all boxes applicable.

- ☐ Medical clearance necessary before subjects can participate
- ☐ Samples (blood, tissue, etc.) from subjects
- ☐ Administration of substances (foods, drugs, etc.) to subjects
- ☐ Physical exercise or conditioning for subjects
- ☐ Deception of subjects
- ☐ Subjects under 14 years of age and(or) ☐ Subjects 14-17 years of age
- ☐ Subjects in institutions
- ☒ Research must be approved by another institution or agency

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(5.) ATTACH an example of the material to be used to obtain informed consent and CHECK which type will be used.

- ☐ Signed informed consent will be obtained.
- ☒ Modified informed consent will be obtained. (implied)

(6.) Anticipated date on which subjects will be first contacted: Month 4 Day 15 Year 84

Anticipated date for last contact with subjects: Month 6 Day 1 Year 84

(7.) If Applicable: Anticipated date on which audio or visual tapes will be erased and(or) identifiers will be removed from completed survey instruments: Month ___ Day ___ Year ___

(8.) Signature of Head or Chairperson — Date — Department or Administrative Unit
[signature] — 2/20/84 — Professional Studies

(9.) Decision of the University Committee on the Use of Human Subjects in Research:

☒ Project Approved ☐ Project not approved ☐ No action required

George G. Karas — 3/5/84 — [signature]