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Development and testing of an instrument to measure the degree of implementation of Individually Guided Education processes

by

James Richard Halvorsen

A Dissertation Submitted to the

Graduate Faculty in Partial Fulfillment of

The Requirements for the Degree of

DOCTOR OF PHILOSOPHY

Department: Professional Studies
Majors: Education (Administration)
Education (Evaluation)

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For the Graduate College

Iowa State University
Ames, Iowa

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I. INTRODUCTION

Chapter I briefly describes the philosophy underlying development of Individually Guided Education/Multiunit School Elementary (IGE/MUS-E), identifies those responsible for its development and the key events leading to its development, briefly describes the process called IGE/MUS-E, states the problem for and the potential value of this investigation, and lists and defines terms frequently used in this investigation.

A. Philosophy Underlying IGE

The central concept underlying IGE is individualization. This resulted from a philosophy which not only recognized individual differences but also recommended that those differences were to be considered in school planning and instruction. The philosophy held that merely because twenty-five to thirty students were similar in age was not adequate justification for treating them similarly in other areas. Students differ not only in age but also in overall intellectual ability, interests, aptitudes in different subject areas, preferences for various methods of instruction and in their ability to work constructively with different teachers. In many instances these recognized differences had merely been treated with different letter grades. A student weak in one or more of the above areas was labeled below average. The philosophy held that in a technological society it was not adequate to inform a person he was below average and possibly push him out to fend for himself with inadequate social or cognitive skills.

Recognizing and feeling the need to deal with individual differences

in people was supplemented by the belief that these needs could be dealt with without large additional expenditures of money. Changes in organization, method and materials could more effectively meet individual differences given the same dollar support. This belief was predicated by an Institute for the Development of Educational Activities, /I/D/E/A/, survey of innovative programs in 1966 which found their per pupil expenditure to be lower than the national average (39, p. 2).

The philosophy described the ideal school as one which (40, p. 5):

> . . . would meet students' individual differences in at least these basic ways:
>
> By helping each student to progress through his learning program at his own pace;
>
> By varying the medium of instruction (textbooks, audiovisual materials, demonstrations);
>
> By varying the instructional mode (large group, small group, tutorial, independent study);
>
> By varying time, space, and place for learning;
>
> By matching each student with the person best suited to that student for a specific learning task.

Because of this philosophy a plan for individually guided education began to develop.

B. Development and Growth of IGE

The development and growth of IGE was traced to the birth of two organizations in the 1960's. In 1964 the Wisconsin Research and Development Center (Wisconsin R & D Center) was initially funded by the United States Office of Education and in 1965 /I/D/E/A/ was established by the Charles F. Kettering Foundation. These two organizations worked parallel to each other until 1969 when they combined their efforts to encourage

the growth of IGE.

The Wisconsin R & D Center began work on Project Models (Maximizing Opportunities for Development and Experimentation in Learning in the Schools) in 1964-65 with the aim of initiating "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" (64, p. 1-2). It was as a result of this project that the multiunit concept emerged. Experimentation with the concept began in 1965-66 when thirteen nongraded instructional and research units replaced traditional age-graded classrooms in three Wisconsin cities. The number of practicing units increased to nineteen in the 1966-67 school year and by 1967-68 seven schools were completely organized in a multiunit structure. In 1968-69 the Wisconsin State Department of Public Instruction was responsible for establishing eight more multiunit schools bringing the total number to fifteen.

During this time /I/D/E/A/ was concentrating effort on a study of educational change with the purpose of developing new ways to accelerate improvement in education. The study began in 1966 in the League of Cooperating Schools, a group of eighteen elementary schools in southern California. /I/D/E/A/ findings were instrumental in their development of a "Change Program for Individually Guided Education". Briefly stated the findings were (84, pp. 1-3):

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 so 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 a committee 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.

Building both on the development and growth of the multiunit school and the study of change processes, /I/D/E/A/ entered into an agreement with the Wisconsin R & D Center allowing it to use center-developed materials to prepare multimedia inservice materials. In the 1970-71 school year the first schools to use the /I/D/E/A/ materials implemented IGE and the total number of IGE schools grew to 164. Additional state department support in some states and funding by the United States Department of Health, Education and Welfare (HEW) brought the number of IGE schools to above 500 in 1971-72. By 1973 this number grew to more than 1500 elementary schools in 37 states plus American-sponsored schools in 36 other countries. By the 1973-74 school year IGE had been introduced at the junior high/middle school and high school levels.

An additional development on the national level was the creation of a national IGE network known as the Association for Individually Guided

Education. The purpose of the national association was to aid in expansion, maintenance, and refinement of IGE concepts around the nation. In addition to the national network were regional and state networks which were designed to more effectively reach to the grass roots level. A boost was received by creation of the University of Wisconsin/Sears Roebuck Foundation. Two foundation concerns were the establishment of state IGE networks and the development of IGE materials for both undergraduate and graduate programs for teachers, unit leaders, and principals.

C. Description of IGE

It was difficult to accurately describe IGE. The reasons for this difficulty were IGE's development at two centers with sometimes different emphases, the large number of subcriteria involved in the model, and the built-in flexibility designed to meet the needs of individual school districts. This description mentions several innovations included in the model, gives a brief description of the Wisconsin R & D Center recommended components, and presents a list of the thirty-five outcomes recommended by /I/D/E/A/ which were the basis for development of the instrument in this investigation.

1. Innovations incorporated in IGE

Several of the most researched, discussed and suggested innovations of the last few years are either a part of IGE or are encouraged by it. Those which are a definite part of the model are:

team teaching
differentiated staffing
multiage grouping
continuous progress learning
tutoring

Other innovations which are encouraged by the model include:

inquiry directed learning
open classroom
computer assisted instruction
programmed instruction
flexible scheduling

In the /I/D/E/A/ "Study of Educational Change" previously mentioned one conclusion was that the above innovations often fail when attempted without the supporting structure offered by the others. For this reason IGE was meant to replace fragmented efforts of innovation with a total effort of innovation.

2. The Wisconsin R & D Center components

The Wisconsin R & D Center included seven components in its model for IGE. They are:

1. an organization for instruction--the multiunit school,
2. a model for instructional programming,
3. development of measurement tools and evaluation procedures,
4. development of instructional materials,
5. a program of home-school communication,
6. establishment of facilitative environments, and
7. research and development to continuously improve the system.

The first component (an organization for instruction--the multiunit school) required a drastic change in most schools. It included three overlapping yet distinct organizational units: the Systemwide Policy Committee (SPC), the Instructional Improvement Committee (IIC), and the Instructional and Research Unit (I & R Unit). Figure 1 illustrates this structure. At the central office level, the SPC, chaired by the superintendent

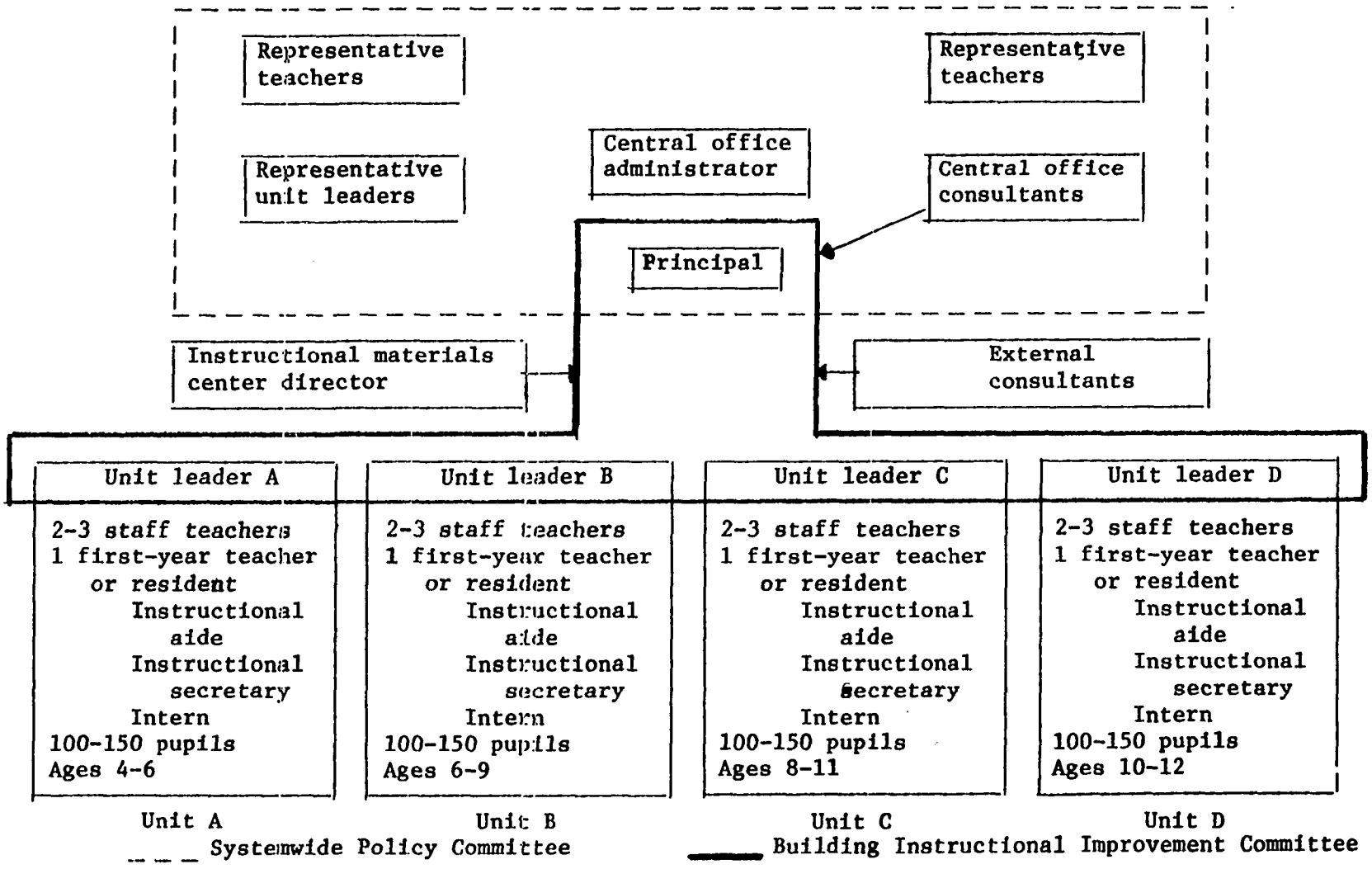

Figure 1. Organization chart of a multiunit school (73, p. 2)

and including representative teachers, unit leaders, and principals from the district, was designed to coordinate system-wide curricular development, inservice, and home-school communication. At the building administrative level, the principal, through chairmanship of the IIC, was to interpret information from the SPC to the building. The IIC was designed to be responsible for developing and coordinating the instructional process in the building. This included interpretation of information both from and to the SPC and from and to the I & R Units. These I & R Units replaced the traditional self-contained classroom and included the only new position called for in the multiunit structure, the unit leader. The unit leader, teachers, aides, interns, student teachers, and a multiage group of students was to make up each I & R Unit. The unit leader chairs the committee of teachers and support personnel which meet regularly to plan and evaluate the instructional program.

The second component is a model for instructional programming which is shown in figure 2.

This model necessitated the third component; development of measurement tools and evaluation procedures. The purpose of these tools and procedures was to assess student needs and progress and to evaluate the effectiveness of schools in meeting their educational objectives.

The Wisconsin R & D Center was concentrating effort on the fourth component at the time of this investigation. This component is development of curricular materials which fit the instructional programming model by including instructional objectives, criterion-referenced tests for evaluation, and schedules for observation.

The fifth component, home-school communication, is important in

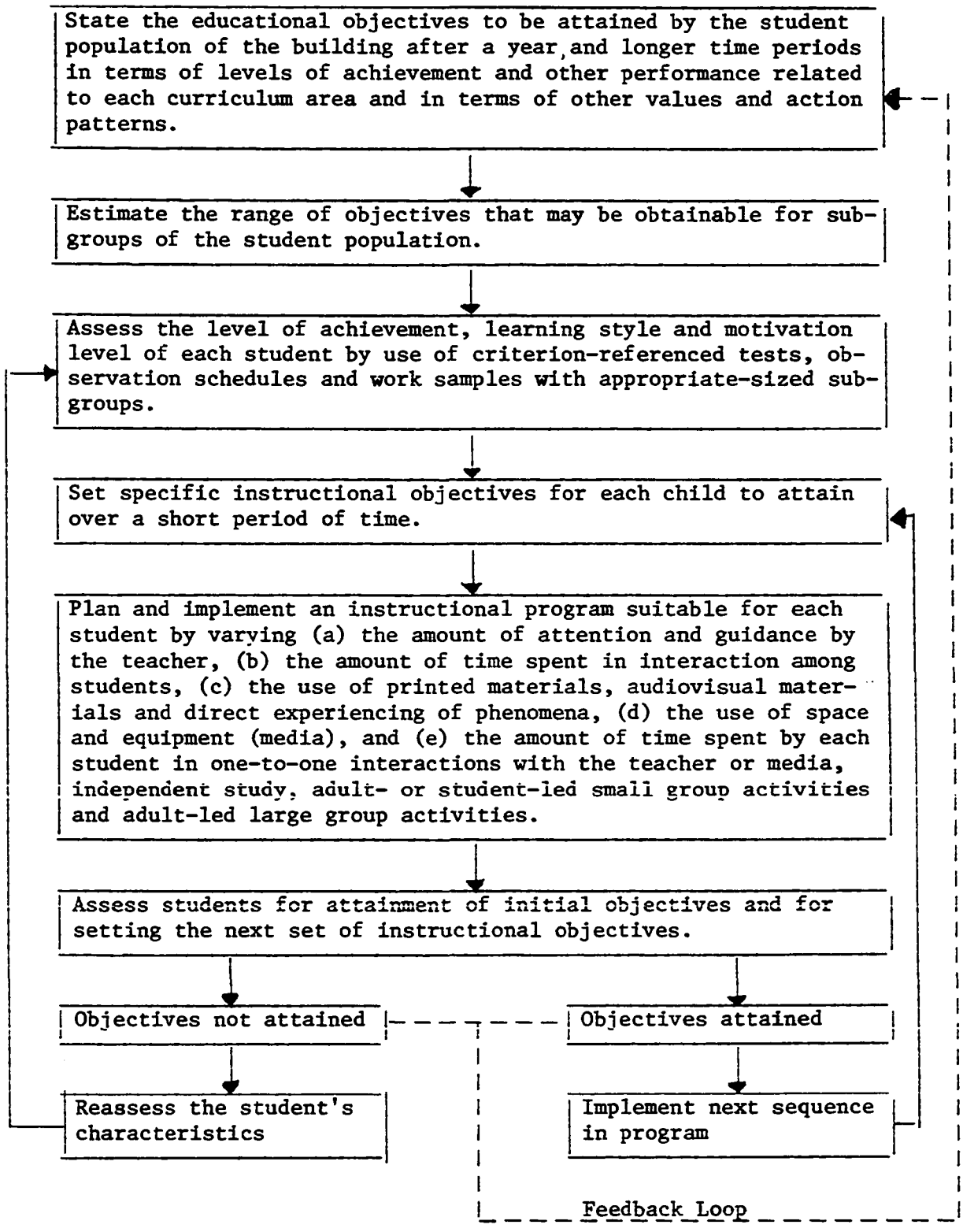

Figure 2: Instructional Programming Model in IGE (73, p. 5)

most educational programs and was stressed in IGE inservice materials. The Wisconsin R & D Center was working on this component at the time of this investigation.

The strength of the implementation effort is enhanced by the sixth component, facilitative environments. The National Association for IGE and the various state networks which included IGE schools, state education agencies, and teacher education institutions were developed to encourage an environment supportive to IGE's growth.

The seventh component, research and development, was designed to be an ongoing process. This component was designed to keep IGE flexible to change, based on knowledge gained from research.

3. /I/D/E/A/'s Change Program for IGE

The /I/D/E/A/ components are most completely defined in the "IGE Implementation Guide" (41). As most recently stated in the April 1974 Interim Report (84, pp. 6-7) the 35 outcomes are:

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 [units] with each Learning Community composed of students, teachers, aides, and a Learning Community Leader.

4. Each Learning Community is comprised of approximately equal numbers of two or more student age groups (ages 5-11).

5. Each Learning Community contains a cross-section of staff.

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

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

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

9. Each student's learning program is based on specified learning objectives.

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

11. Student learning takes place with Learning Community members except when special resources are required.

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

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

14. Students and teachers are involved in continuous assessment of learning programs using a variety of techniques.

15. The following are considered when students are matched to learning activities:

    Peer relationships
    Achievement
    Interest in subject areas
    Self-concept

16. 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.

17. 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.

18. Each student accepts increasing responsibility for selection of his or her learning objectives.

19. Each student accepts increasing responsibility for the selection or development of learning activities for specific learning objectives.

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

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

22. There is a systematic method of gathering and using all information about a student which affects his or her learning.

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

24. The school as a member of a League of IGE schools stimulates an interchange of solutions to existing educational problems and serves as a source of ideas for new development.

25. Staff members are responsive to one another's needs, trust one another's motives and abilities, and have developed the techniques of open communication, thereby leading to an effective working relationship.

26. The Program Improvement Council [Instructional Improvement Committee] analyzes and improves its operations as a functioning group.

27. 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.

28. The Program Improvement Council formulates school-wide policies and operational procedures and resolves problems referred to it involving two or more Learning Communities.

29. Students are involved in decision making regarding school-wide activities and policies.

30. The Program Improvement Council coordinates school-wide in-service programs for the total staff.

31. Open communication exists between parents, students, staff, and the community.

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

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

34. Decisions regarding the planning of learning programs for the Learning Community in general and for individual students are constructively critiqued by members of the Learning Community.

35. A personalized in-service program is developed and implemented for each Learning Community staff member.

D. Statement of the Problem

Since the inception of IGE in 1964-65, there has been an ongoing effort to develop means of evaluation. This effort has come from classroom teachers, school districts, state education agencies, teacher training institutions, and national organizations. At the national and international levels both the Wisconsin R & D Center for Cognitive Learning and /I/D/E/A/ have been supportive of evaluation efforts. The emphasis in IGE is for ongoing evaluation at all levels.

The purpose of this investigation is to develop, field test, and establish initial norms for an instrument to measure the degree of implementation of IGE concepts in either IGE or non-IGE elementary schools. The reason for the investigation is to meet the need for a method to measure implementation levels, so that implementation strategies and desired outcomes can be evaluated in relation to actual practices employed.

The investigation will consist of two phases. The first phase is item and subscale selection and weighting for importance. The second phase is instrument field testing to examine subscale homogeneity, to test rater reliability, to test subscale implementation differences, to test the capability of the instrument to discriminate between IGE and non-IGE schools, and to establish initial normative data.

The differences in implementation in IGE schools are discussed in a publication by the National School Public Relations Association on IGE

(64, p. 19).

> Visits to IGE schools show there is no single set of IGE practices in operation. Even with the multiunit organization itself there are a number of variations in structure, policies and practices. A small percentage of the schools in their second year are not completely organized into units and continue partly in units and partly in age-graded classrooms. Also in some schools completely organized into units, the degree of implementation of the instructional programming model is diverse. Thus, some schools are effectively programming for the individual student in only one subject area, even after several years as IGE schools.

The staff in the schools implementing IGE at times became frustrated and discouraged because of the failure to fully implement the desired processes. Establishment of norms for degree of implementation by years of involvement can provide a realistic gauge for implementation self-assessment. Establishing initial norms was another consideration of this study.

E. Potential Value of this Investigation

An instrument which can be used to measure the degree of implementation of IGE processes in elementary schools has potential value for identifying differences between schools for comparative outcomes analysis, and for establishing differences in implementing schools for evaluation of the effectiveness of different approaches to implementation. If an instrument is comparatively easy to administer it will encourage those concerned with IGE evaluation to more adequately define the degree of implementation of the processes they are evaluating. The instrument can also be of value in formulating implementation strategies. The normative data on implementation can be of value to schools implementing IGE as a means of evaluating their progress.

F. Definitions of Abbreviations and Terms

All abbreviations in this dissertation are listed with the complete terms the first time they appear. From that point on only the abbreviation is used. Following is a list of those abbreviations and other terms which may need clarification:

1. "An Objective Measure of Educational Practices" is the instrument developed and tested in this investigation. It was designed to measure the implementation of IGE processes in IGE and non-IGE schools.

2. A Facilitator is a person trained by /I/D/E/A/ to facilitate communication and the cooperative implementation effort in a league of IGE schools.

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

4. IGE is an abbreviation for Individually Guided Education. It is used synonymously with IGE/MUS-E in this dissertation. IGE is an educational process including multiage grouping, team teaching, differentiated staffing, continuous progress learning, and other innovations. See the definition in this chapter.

5. IGE/MUS-E is an abbreviation for Individually Guided Education/Multiunit School-Elementary. It is used synonymously with IGE in this dissertation.

6. IIC is an abbreviation for Instructional Improvement Committee. It is used synonymously with PIC in this dissertation. This committee, made up of the building principal and unit leaders coordinates instructional decision making at the school building level.

7. I & R Unit is an abbreviation for Instructional and Research Unit. It is used synonymously with Unit and Learning Community in this dissertation. The I & R Unit includes a unit leader, teachers, associates, and a multiage group of students. It is the instructional unit in an IGE school.

8. A League is a group of schools which work cooperatively to implement IGE.

9. Learning Community is used synonymously with I & R Unit and Unit in this dissertation.

10. Non-IGE schools are schools which are not associated with IGE either through the Wisconsin R & D Center or /I/D/E/A/. They are labeled non-IGE in this dissertation regardless of their organizational structure or educational practices.

11. PIC is an abbreviation for Program Improvement Council. It is used synonymously with IIC in this dissertation.

12. SPC is an abbreviation for System-wide Policy Committee. The SPC is a central office committee which also includes building principals. The purpose of the SPC is to coordinate system-wide curricular development, inservice, and home-school communication.

13. Unit is used synonymously with I & R Unit and Learning Community in this dissertation.

14. Wisconsin R & D Center is an abbreviation for the Wisconsin Research and Development Center for Cognitive Learning. The Wisconsin R & D Center is supported in part by funds from the United States Office of Education, Department of Health, Education, and Welfare, and is located in Madison, Wisconsin.

II. REVIEW OF LITERATURE

The review of related literature was limited to four major areas. They are investigations relating to A.) IGE, B.) Initiation of Innovations, C.) Implementation of Innovations, and D.) Implementation of IGE. Because of the nature of this investigation, as much of the review was concerned with methodology as with findings.

A. Investigations Related to IGE

Many of the investigations in this area weren't closely related to this investigation but their relation to IGE made mention of them necessary. Because of their limited relationship only summaries of the investigations were presented and not detailed findings.

Pellegrin (69) found a higher degree of decision making by teachers in multiunit schools, and also greater job satisfaction and higher morale. In contrast, Ironside (49) found evidence of teacher morale problems in multiunit schools. These investigations differed in that Ironside looked only at multiunit schools whereas Pellegrin compared multiunit schools with traditional self-contained classroom schools.

Kelley, Wood, and Joekel (51) investigated teacher perceptions of the climate in five hundred forty-five IGE schools using the Organizational Climate Index. 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 yearly monitoring with the IGE Implementation Questionnaire (42). The investigators applied a forced dichotomy between schools in the upper and lower quartiles

on the degree of implementation. Based on their findings they 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 in the upper quartile of implementation and IGE schools in the lower quartile of implementation.

Other studies of the IGE organizational model have investigated schools readiness for organizational change, the social organization in schools, leadership patterns in schools, decision making patterns in schools, league participation, and the activity of the IIC.

Investigations relating to development and testing of curricular materials for pre-reading, reading, math, motivation and environmental education have been completed at the Wisconsin R & D Center.

Boardman & Hudson (10) investigated the cost of implementing IGE and developed a cost analysis model based on the information received.

Nelson (65) investigated student attitudes in multiunit and control schools, and found multiunit students to have more positive attitudes toward both school and self .

Paden (68) found no immediate effect on student achievement with IGE implementation. Morrow, Quilling, and Fox (63) also investigated student achievement and found no differences between student achievement in multiunit schools and student achievement in control schools.

The Belden Associates (8) found that teachers' perceptions of the effect of IGE on children was positive and that teachers felt IGE was successful. They also found parents' perceptions were positive. A University of Missouri investigation (16) yielded results showing similar

positive parental perceptions of IGE.

In summary there have been several investigations relating to the above mentioned topics, but only one of them dealt with the implementation of IGE concepts, and few considered this in determining differences in the degree of IGE implementation in IGE schools. None considered the degree to which non-IGE control schools, if used for comparative analysis, might practice many of the same concepts.

B. Initiation of Innovations

Much has been written in journal articles, books, and research report suggestions concerning methods of successfully implementing innovative educational programs. This section identifies some suggestions on interrelated innovations, on the importance of teacher involvement in innovative programs, and on common weaknesses in evaluation of innovations.

1. Interrelated innovations

Arends and Essig (3) investigated instructional change in unitized, differentiated staffing elementary schools. They suggested initially that educators' attempts to implement too many new ideas and innovative practices had often led to more confusion than to positive changes. After completing their investigation they concluded that in order to be successful, instructional innovations need to be implemented with complimentary organizational innovations and vice versa. Charters (19) found that some structural changes are almost inescapable in innovating schools. He concluded that some changes will occur whether planned or unplanned.

The IGE model recommends that both organizational and instructional changes be implemented simultaneously.

The consensus of findings on interrelated innovations was that mutually supporting instructional and organizational changes should be implemented simultaneously.

2. Teacher involvement

Reynolds (72) in a case study of an elementary school, found three teacher related hinderances to implementation of organizational changes. He identified these hinderances as teacher autonomy, the inability of the staff to reach consensus on group decision making, and a lack of clarity as to the instructional changes expected. Charters (19), in an investigation to measure the implementation of differentiated staffing in elementary schools, found that implementation projects normally have the effect of disrupting teachers and causing them to divert their attention to things which they feel are less important. He suggested that this disruption was a cost that should be recognized and provided for in planning for change. He stated that change efforts can cause staff disaffection.

Other reasons mentioned for teacher rejection of change were crowded schedules, lack of materials, personal factors, and judgement before an adequate trial period has been completed.

IGE has a built in design for teacher involvement aimed at minimizing some of these negative influences. Teachers are to be informed on IGE and are to have a voice in the school's decision to become an IGE school. Teachers are also to have an extensive personalized inservice program so that they adequately understand both the program structure and the program rationale. If they reject the program they are to be allowed honorable transfers to non-IGE schools.

Many investigations of the acceptance or rejection of innovations didn't apply to the teachers unique situation. Teachers can be informed and can have a voice in the decision to enter a program, but because of the interrelatedness of their roles in a team teaching structure, their freedom to reject the innovation is limited by their peers. This limitation has been found to be both helpful and detrimental. It has been helpful in postponing hasty evaluation and premature rejection of innovations. It has been detrimental in some situations by causing staff disaffection.

3. Weaknesses in evaluation

Two weaknesses were evident in many of the investigations related to innovation. The first was failure to measure implementation of the innovations under investigation. The second was to consider the change agents perception as an indication of successful implementation.

Carbone (14), in discussing criteria for evaluating nongraded programs, stated that many were nongraded in name but not in practice. He found that there was no such thing as the nongraded school and no clear cut definition of the innovation. He also found that many evaluations of nongraded programs had been carried out to vindicate decisions previously made. He stated that perceptions under such circumstances may be biased. He argued that in order to evaluate the implementation of an innovation, it must be defined.

IGE was quite well defined, thus allowing measurement of the degree to which it was practiced.

C. Implementation of Innovations

One recommendation emphasized in many investigations was the importance of measuring the degree of implementation of innovations. Gross, Giaquinta, and Bernstein (32, p. 35) stated that: "The importance of obtaining an accurate measure of the dependent variable in any study cannot be overstressed." Stake (79) warned of the danger of making inferences of cause and effect between treatment and outcome without sufficient examination of the implementation of the treatment. Whether used as the dependent variable in evaluations of means of initiation or as the independent variable in evaluations of outcomes, the implementation of the innovation needs to be measured. A disturbing finding relating to this recommendation was that degree of implementation was often considered from a very subjective viewpoint or was not considered at all.

Gross, Giaquinta, and Bernstein (32) also stated that many investigations had used data about effects as indices of successful implementation. In their investigation, which involved measuring the implementation of a new teacher role, information gathered in planned observations of teacher behavior was used to determine the degree of implementation. An instrument was developed for use in gathering the implementation data.

Solomon, Ferritor, Haenn, and Myers (78) also developed an observation instrument to measure the degree to which a program innovation was implemented. As in the Gross, Giaquinta, and Bernstein (32) study, information was gathered during planned observations. The investigators in developing their instrumentation were concerned with content validity, the ability of the instrument to discriminate between experimental and control

classrooms, and rater reliability. Content validity was established by having the items and subscore formulas examined and modified by the staff which created the program. The analysis of the instruments ability to discriminate between experimental and control classrooms was done by using the instrument in both situations and comparing the results. Reliability was examined by looking at interscorer agreement on joint ratings, classroom consistency on ratings done over a short period of time, and correlation of items within each subscale.

The methods used in these studies were helpful in answering questions relative to the degree to which the innovations were implemented and the difficulty of implementing the various components. The findings on implementation were used to evaluate the success of training efforts and the success of the program to achieve desired outcomes.

D. Implementation of IGE

There have been two major efforts to measure the degree of implementation of IGE. One of these is the yearly monitoring of implementation by /I/D/E/A/ and the other was an evaluation of IGE/MUS-E implementation completed by Ironside (48)(49).

The /I/D/E/A/ evaluation effort resulted from their monitoring of information received from schools responding to the /I/D/E/A/ IGE Implementation Questionnaire (42). This instrument was initially used only to report descriptive data to schools but based on input from /I/D/E/A/ personnel and an analysis of teacher responses to items, the instrument was

Divided into seven subscales:

1. Adoption and Implementation
2. School Decisions
3. Unit Organization
4. Unit Planning and Improvement
5. Relationships
6. The Learning Program
7. Student Responsibilities

Degree of implementation scores are given each learning community based on the combined responses of the teachers in that learning community. These scores are reported for each subscale and for total IGE implementation.

Paden conducted a study in which /I/D/E/A/ staff members conducted observations in twenty-nine learning communities in twenty-one IGE schools. These observations were carried out by pairs of staff members so that the reliability of observers could be evaluated. Following these observations they completed the questionnaire as did principals, teachers, facilitators, and learning community leaders. The major findings were (Paden quoted in 84, pp. 16-17):

1. There is a positive correlation (R=.731) between the perceptions of /I/D/E/A/ staff members assessing the degree to which Learning Communities have achieved the 35 outcomes of the program.

2. There is a positive correlation (R=.622) between the perceptions of /I/D/E/A/ staff and Facilitators.

3. There is no significant relationship between the perceptions of /I/D/E/A/ staff and Learning Community Leaders assessing the degree to which the IGE outcomes have been achieved in those schools visited.

4. There is significant agreement (R=.673) between the perceptions of principals and Learning Community Leaders within the monitored school.

5. There is not significant agreement (R=.065) between the perception of principals and /I/D/E/A/ staff judging the degree to which schools have implemented the 35 outcomes.

6. While the differences are not predictable, Learning Community Leaders rated their schools an average of 21% higher than did /I/D/E/A/ staff members monitoring the school.

A second reliability study was conducted the following year. Responses from teachers in three different stages of implementation were compared. The findings were (Paden quoted in 84, p. 17):

1. Teachers in first-year IGE schools feel that their principals are using instructional and self-improvement processes to a greater degree than do teachers before they participate in Individually Guided Education.

2. Teachers in first-year IGE schools feel that Learning Community Leaders install instructional and self-improvement processes to a greater degree than do 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 do 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 do teachers who have not yet participated in the program, the IGE outcomes are only partially implemented during the first year.

In another analysis of teacher responses to the IGE Implementation Questionnaire, Paden found that teacher perceptions on implementation were very similar whether they had been involved with IGE for three months or fifteen months. He offered the following explanations (Paden quoted in 84, p. 18):

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 35 outcomes, they may have a tendency to judge themselves more critically. This phenomenon would yield 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 extensive effort to evaluate the implementation of IGE concepts in schools was completed by Ironside (48)(49). The investigation was nationwide in scope. Separate questionnaires were completed by principals, unit leaders, teachers, instructional media center directors, and district consultants. The data received from questionnaires were checked against data received from on-site visits to twenty-five of the schools. These visits were used to interview those who completed the questionnaires, aides, interns, student teachers, students and others. The investigators gathered copies of IIC agendas, logs, inservice training agendas, letters to parents, overviews of IGE/MUS-E for teachers and parents, school schedules, reports or feedback to coordinators, pupil record forms, report card forms, local evaluation forms or plans, outline of the units (including personnel, students, grades, etc.) and curricular content and/or objectives for the year. Observers attended IIC and unit meetings, visited classes in action, visited the library or IMC, and viewed the building for physical characteristics.

The major purpose of the visits was to verify the information received from the questionnaires. It was reported that "In most all respects the visits served to amplify and verify what questionnaire responses had indicated" (49, p. 187). In discussing the general features of the schools

visited the study reported the same range of similarities and differences as among the schools responding to the detailed questionnaire. Some of the discrepancies which did exist between visit and questionnaire data were related to staff involvement in becoming an IGE school, the amount or type of multiage grouping, the activity of the IIC, definitions of inservice meetings, and some aspects of the unitized structure including the placement of kindergarten. One aspect which the visits identified to a greater degree was the spirit or commitment to IGE/MUS-E. The study reported that this was an important factor in successful implementation.

The Ironside study made no attempt to measure the worth of the IGE concepts, did not measure student achievement or learning, and measured implementation of the organizational structure identified as MUS-E and the learning model identified as IGE but not the other components. Major findings of the visitations which, because of the similarity of questionnaire responses were inferred to all schools, were(49, pp. 210-214):

1. Across the visit schools, it was the more common practice for principals and unit leaders to remain somewhat separate by year's end. . . .

2. Related to this, there was a continuing concern with communication between principal and staff, even in schools where MUSE and IGE progressed fairly smoothly. Teachers in many cases felt cut off from the principal, with unit leaders in some cases reluctantly becoming the go-betweens. . . . The general effect of all this was that the situation improved by year's end.

3. An almost universal concern at all levels was the lack of inter-unit communication on personal, professional, IGE, or general school matters. The feeling was that MUSE (potentially) could be a divisive force, and this was fought against.

4. Many IIC's grew through the year, as observed, in handling more substantive matters, in developing assurance in their roles, and in managing the instructional program. Even so, it was typical that the IIC spent a good deal of its effort in running the school

rather than monitoring or aiding in the IGE instructional process. . . .

8. Generally speaking, schoolwide inservice left something to be desired. . . . in the few instances where unit inservice was observed, the outcomes appeared to be more beneficial and lasting.

9. The principal, in virtually all schools, was the driving force behind MUSE/IGE adoption. . . . Thus there was a wide spectrum of morale and morale problems, . . .

10. . . . there was no pattern by which the two [IGE and MUSE] marched hand in hand through the year and continued to help the other to develop.

11. . . . Several schools attempted to go IGE in 2 or even 3 subject-areas, and found this more difficult than anticipated. The pattern was to fairly well accomplish IGE programing in one subject during the year.

12. On that subject, there was general difficulty in internalizing the instructional programing model in all its related parts. Staffs, on the whole, did not receive sufficient training or background . . .

13. What staffs generally did accomplish, and appreciate, was team-work. . . . on the whole the attitude was positive toward the concepts and realities of unit structure. This was more frequently evidenced in planning and sharing and deciding together than in teaching together; as noted, even in units with "good feeling", much instruction was carried on in self-contained classrooms and with self-contained attitudes.

14. A recurring and almost universal bugaboo was scheduling, . . . However, there was improvement noted where an IGE subject was implemented at a fairly high competency level; . . .

16. There was fairly shallow use of the film and print training materials, . . .

17. The District . . . was frequently seen as a deterring factor to implementation. . . .

18. A very frequent observation was that staff teachers were not exposed to as much training as were the school leaders. . . . many principals and unit leaders did not feel equal to the task of training or guiding staff teachers. A great need existed for expertise from the outside.

19. An encouraging number of structural changes were made . . .

20. Few schools set up detailed implementation schedules. . . .few schools made detailed use of the implementation guides. . . .

21. Overall, there was an attitude of commitment to the MUSE/IGE concepts and changes. Along with this, there developed through the year a growing recognition that implementation would no doubt take 2 or 3 years.

The investigators concluded that several of the problems stemmed from failure to fully inform staff members of the IGE process previous to implementation, failure to obtain staff agreement and commitment to the process, and failure to establish adequate inservice during implementation. Many of the resultant problems were in building and district communication breakdowns and were serious not only in hindering IGE implementation but also in causing divisiveness among staff members.

Recommendations resulting from the study included the need to sequence implementation criteria and to improve the implementation guides.

Another recommendation was that subcriteria and their interrelationships be evaluated. It was found inadequate to know that a school had an IIC, a subject in which they were implementing the instructional programing model, multiage units, or other broad concepts. The subcriteria were the real substance needed to determine a school's status or progress toward implementation. It was also found that it was difficult for schools to implement the subcriteria of even some of the most basic outcomes during the first year.

During the middle of the second year of implementation, Ironside conducted a follow-up study. The major findings which related to the current investigation were (48, pp. 4-5):

1. Most schools polled--including the 9-72 group, appear to meet to an extent the four basic criteria set by the R & D Center: an active

IIC, multiage grouping, IGE instruction, and full unitization. However, even among the 1971-72 groups, there are schools reporting no IIC or indicating multiage unit grouping without necessarily having multiaged instruction. A few schools reported having no specific IGE subject, and not all are fully unitized.

3. . . . all schools which identified themselves with MUSE/IGE in 1971-72 continue to do so at midyear. There are a few indications of decreased commitment or less certain practices, but no instances of outright attrition. At the same time, it must be recognized that "identifying with MUSE/IGE" has different meanings to different schools and indeed there are cases where the labels are more evident than actual changes in school practice.

4. There were wide variations (within groups and within states) in the implementation practices engaged in, as had been true in 1971-72. In practice, there is no single definition of "an active IIC" or of "fully unitized school" or of instructional programing--although of course conceptually these features have been clearly defined.

5. There continue to be diverse definitions of what constitutes the initial steps involved in adopting MUSE/IGE.

6. A considerable need for technical assistance was expressed, . . .

7. Schools indicated a wide range of obstacles to effective implementation, with all groups particularly noting lack of "time available for planning, grouping, preparation...in the units." . . .

8. As perceived by principals, staff attitudes at midyear were primarily positive toward both MUSE and IGE, . . .

Some conclusions of the study which had implications for this investigation were (48, pp. 5-6):

> . . . MUSE/IGE organizational and instructional changes have taken hold in the majority of schools responding to the follow-up. Apparently attrition has been slight if existent at all, and many schools have come closer to institutionalizing the two areas of innovation. . . . "success" in one arena does not imply success in the other. The expressed needs for assistance with appropriate instructional programing are so numerous as to suggest that this is a difficult thing for schools to adopt and put into practice, even in the second year. The organizational and facilitating aspects of MUSE, on the other hand, appear to have been more generally implemented in all groups.

> . . . the fulfillment of even the basic criteria is difficult to ascertain in absolute terms . . . it is no more easy this year than last to determine "which schools have really installed the patterns." . . .
>
> . . . There are some schools--based upon questionnaire data and/or visits--which appear at midyear to be at about the same level of operation and expectation as during the 1971-72 school year. . . .

E. Summary

The review of literature covered investigations in four areas. The first was investigations relating to IGE. Few of them considered the degree of implementation of IGE components in IGE schools and none considered the degree to which non-IGE schools, if used as a control group, might have implemented the same components. The second area related to initiation of innovations and as in the IGE investigations little substantive evidence supported the degree to which innovations were implemented so that means of initiation could be evaluated. It was common either to have no measure of implementation at all or to accept the perception of the change agent. The third area reviewed two studies in which instruments were developed to measure the degree of implementation of innovations and briefly examined the methodology. The method used in both was to develop instruments for rating by on-site observers. The observation method was quite reliable but cumbersome. The fourth area dealt specifically with two investigations of IGE implementation and examined in depth the methodology used, findings, and recommendations. Both dealt with only the implementation of IGE concepts in IGE schools and consequently were not useful in establishing differences in practice between IGE and non-IGE schools.

Based on the compilation of suggestions in this review, this

investigation dealt with the development and testing of an instrument to measure the degree of implementation of IGE components.

III. METHODS AND PROCEDURES

The threefold purpose of this investigation was to develop an instrument to measure the degree of implementation of IGE processes in elementary schools, to pilot test the instrument, and to present normative data for non-IGE schools and for IGE schools by years of experience.

The Statistical Package for the Social Sciences (SPSS) (66) and the Statistical Analysis System (SAS) (76) were used to analyze much of the data. The computer analysis was completed at the Iowa State University Computation Center.

This chapter is divided into three major sections corresponding to the above three purposes of the investigation. The three sections are: A. Instrument Development, B. Instrument Testing, and C. Instrument Norming.

A. Instrument Development

The review of literature revealed a need for measurement of the degree of implementation of innovative programs as a prerequisite to evaluation of implementation strategies and program outcomes. Based on this finding it was decided to develop and test an instrument to measure the implementation of IGE processes in elementary schools.

1. Item and terminology selection

It was decided that the most comprehensive definition of IGE by subcriteria was presented in the suggested tips and activities listed under each of the 35 outcomes recommended in the IGE Implementation Guide (41).

The instrument was needed to test processes in both IGE and non-IGE schools; therefore, any reference to IGE or terminology which was commonly associated with IGE was removed or changed to terminology more commonly associated with the innovations apart from IGE. The instrument was given the title: "An Objective Measure of Educational Practices". The list below contains IGE terms and the corresponding terms used in this instrument.

IGE Terms	Terminology Used in this Instrument
Multiunit structure (MUS-E)	Teaming and student grouping
IIC or PIC	Committees to improve instruction
League	School to school interaction

After removing references to IGE from the instrument, the items were grouped into logical subscales and sequenced. The purpose in subscaling was to allow the respondent to concentrate on one aspect of the school program at a time. The purpose of sequencing was to allow progression of thought throughout the total instrument.

2. Item weighting

In its initial form the instrument was sent to IGE trained facilitators listed by /I/D/E/A/ (47). Twenty-four useable responses were returned. The facilitators were asked first to rate the importance of each item to overall implementation of the IGE model and second to suggest a reasonable time to expect that a school implementing IGE should be practicing each item.

An example of the scale used is shown below.

Relative Importance				Time To Be Implemented					
Important	Very Important	Essential		Immediately	4 Months	8 Months	2 Years	3 Years	
1	2	3	Item #1	1	2	3	5	7	
1	2	3	Item #2	1	2	3	5	7	
1	2	3	Item #3	1	2	3	5	7	
1	2	3	Item #4	1	2	3	5	7	
1	2	3	Item #5	1	2	3	5	7	

All items were part of the IGE model suggested by /I/D/E/A/ and therefore the importance scale was assigned a range of important to essential. The implementation time line was assigned a range of immediately to three years because of suggestions for gradual implementation. Copies of the cover letter and instructions to facilitators are included in Appendix 2. The responses of the facilitators were averaged to establish weights for each item.

3. Initial field test

The instrument was initially field tested in seven IGE and seven non-IGE schools in Iowa. Data were received from the fourteen schools along with suggestions for instrument modification.

The most common suggestion concerned item clarity. On some items

the respondents expressed difficulty in determining the exact practice to be rated. Among the suggestions offered to clarify the items were use of educational terms more commonly understood by all teachers and definitions of some terms at the place of their appearance in the instrument.

4. Instrument refinement

The results of the pilot test were reviewed with consultants in measurement. To correct a structural weakness in the instrument it was decided to place subscales at the beginning of the instrument which would be answered positively by most teachers (IGE and non-IGE). This was done to establish the relevance of the instrument for teachers in all situations.

It was decided that the problem of item clarity would be best resolved by having both teachers familiar with IGE and unfamiliar with IGE read and recommend changes in the items. This process was done by first having a non-IGE teacher evaluate each item checking those items which were unclear. The items checked were discussed with the investigator and changes were made in wording without changing the meaning. When the non-IGE teacher was satisfied that all items were understandable and could be evaluated by teachers in non-IGE schools, the reworded items were given to an IGE teacher and the process repeated. When both non-IGE and IGE teachers were satisfied with the clarity of the items the final copy of the instrument was drafted. It is shown in Appendix 1.

B. Instrument Field Testing

1. Participants

The Des Moines Independent Community School District, Des Moines,

Iowa, was extremely cooperative in allowing the instrument to be field tested in both IGE and non-IGE schools. A total of three hundred seven responses were received from teachers, principals, and auxiliary personnel in twelve IGE and four non-IGE schools.

2. Subscale homogeneity

The first consideration was to test the subscales for homogeneity. Three statistical procedures were used to analyze the subscales:

1. Cronbach's coefficient "Alpha" (22, pp. 160-61)
2. Pearson inter-item correlations
3. Jöreskog and Thillo's unrestricted maximum likelihood factor analysis (50)

Cronbach's coefficient "Alpha" was used to examine the reliability of subscales. This coefficient is a measure of the internal consistency of each subscale. Pearson correlations were run for all inter-item combinations. The examination of the correlation matrices for the items in each subscale was especially useful. Because of the effect weighted responses have on the variance of the items and consequently on the above procedures, all responses were multiplied by the corresponding item weights to establish weighted responses. These weighted responses were used to compute both the inter-item correlations and the reliability coefficients. The unweighted responses were used to run an unrestricted maximum likelihood factor analysis. Because eleven subscales had been identified in the instrument, eleven factors were requested of the factor analysis solution.

3. Interrater reliability

Interrater reliability was examined in two ways. The first was

through Spearman rank order correlations between teachers' rankings of the eleven subscales within each school. The rank order correlation ignored the effect of the person who rated consistently high or low and considered only the rank of each subscale. The second measure of interrater reliability was an analysis of variance among teachers within each school. This measure was used to examine the overall instrument mean differences among teachers in each school. Since each teacher was asked to rate the same thing, their school, the similarity of their responses was a measure of interrater reliability. The general form of the null hypothesis as stated in hypothesis 1 below, was tested for each of the sixteen schools.

Hypothesis 1: There are no significant differences in teacher means as measured by their responses to "An Objective Measure of Educational Practices".

A randomized block design was selected as the appropriate analysis of variance model to test hypothesis 1. In the model, teachers were designated as the blocking factor with subscales designated as main effects.

Either of the above methods used alone would be incomplete but used together yield an estimate of rater reliability. The first ignored high and low ratings overall, while the second averaged all subscales ignoring rank.

4. Subscale differences

Using the same randomized block design mentioned above, an analysis of variance was computed among differences in subscale scores within each school. The general form of the null hypothesis, as stated in hypothesis 2,

was tested for each of the sixteen schools.

Hypothesis 2: There are no significant differences in subscale means within each designated school as measured by teacher responses to "An Objective Measure of Educational Practices".

The following hypotheses were tested to determine if subscale differences existed in all non-IGE schools taken as a group or in all IGE schools taken as a group.

Hypothesis 3: There are no significant differences in subscale group means over all non-IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 4: There are no significant differences in subscale group means over all IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

5. Discrimination between non-IGE and IGE schools

The capability of the instrument to discriminate between non-IGE and IGE schools by both subscale and total scores was investigated. Pooled variance t tests were computed to test the following hypotheses. Hypothesis 5 is written in its general form.

Hypothesis 5: There is no significant difference in group means between non-IGE and IGE schools in the degree of implementation of the designated subscales, as measured by teacher responses to "An Objective

Measure of Educational Practices".

Hypothesis 6: There is no significant difference in group means between non-IGE and IGE schools in the degree of implementation of IGE, as measured by teacher responses to "An Objective Measure of Educational Practices".

C. Instrument Norming

Only teacher and unit leader responses were used to estimate the implementation level in each school. Their responses were multiplied by item weights to obtain weighted responses. These weighted responses were totaled for each subscale for each respondent. The total obtained was divided by the highest total possible for the given subscale (the total if all items had been marked 3). This division yielded the decimal equivilant of the percentage degree of implementation for each teacher on each subscale. The average of the percentages, for all teachers in each school, became the estimate of the degree of implementation for each subscale in each school.

The subscale implementation estimates for each school were multiplied by the subscale percentage weights and summed. This yielded an estimate of total IGE implementation in each school.

The percentage degree of implementation for each subscale score and for total scores were averaged for non-IGE schools, for IGE schools with two years experience, and for IGE schools with three years experience. These averages were presented as norms for the three groups.

D. Summary

The Methods and Procedures were presented under three major headings: A. Instrument Development, B. Instrument Field Testing, and C. Instrument Norming.

In the instrument development stage, methods were used to assure content validity, item clarity, IGE anonymity, and weighting accuracy, IGE facilitators as program experts, teachers as potential respondents, and consultants in measurement all had input in the instrument development stage.

The instrument field testing stage included three major procedures: testing for subscale homogeneity, testing for interrater reliability, testing for subscale implementation differences, and testing the capability of the instrument to discriminate between non-IGE and IGE schools.

In the instrument norming stage, normative data were compiled for non-IGE schools, IGE schools with two years experience, and IGE schools with three years experience.

IV. FINDINGS

A. Facilitator Responses for Weighting

One of the major concerns in the development of this instrument was the importance of each item as it related to implementing IGE. It was decided to have facilitators, trained in IGE processes by /I/D/E/A/, rate the relative importance of the items. Copies of the instrument were sent to all facilitators listed by /I/D/E/A/ (47). Twenty-four useable returns were received. The average of the twenty-four responses to each item is shown in Table 1.

Two facilitators who responded to the questionnaire suggested the importance of subscale weighting in addition to item weighting. Based on that suggestion ten facilitators were asked to weight the eleven subscales giving each a percentage weight and making the sum of the eleven subscales equal to one hundred per cent. Of the ten facilitators who were ask to weight the subscales, eight responded. The averages of the eight responses are shown as the subscale weights in Table 1. The percentage subscale weights are represented in the form of their decimal equivilants.

Table 1 . Individual item weights and subscale weights for "An Objective Measure of Educational Practices", derived from averaging facilitator responses

Subscale	Item no.	Item weight[a]	Subscale weight[b]
Home-school communication	1	2.75	.0575
	2	2.75	
	3	2.09	
	4	2.68	
	5	2.46	
	6	1.92	
	7	2.54	
	8	1.79	
	9	1.88	
Goals and Objectives	10	2.58	.1500
	11	2.61	
	12	2.73	
	13	2.79	
	14	2.50	
	15	1.88	
	16	1.63	
	17	2.67	
	18	1.58	
	19	2.00	

[a]Item weights are expressed as a number ranging from 1.00 (important) to 2.00 (very important) to 3.00 (essential).

[b]Subscale weights are expressed as a percentage of the total instrument score.

Table 1 . (continued)

Subscale	Item no.	Item weight[a]	Subscale weight[b]
	20	2.46	
	21	2.33	
	22	2.58	
	23	2.83	
	24	2.40	
	25	2.25	
Learning Activities	26	2.33	.1000
	27	2.63	
	28	1.67	
	29	1.88	
	30	2.63	
	31	2.46	
	32	2.54	
	33	2.42	
	34	2.70	
Auxiliary Personnel	35	2.63	.0675
	36	2.25	
	37	2.74	
	38	1.92	

Table 1 . (continued)

Subscale	Item no.	Item weight[a]	Subscale weight[b]
	39	2.96	
	40	2.96	
	41	2.29	
	42	2.83	
	43	2.43	
	44	2.29	
	45	1.92	
	46	2.09	
	47	1.67	
	48	2.38	
	49	2.56	
Teaming	50	2.25	.1625
	51	2.20	
	52	2.83	
	53	2.46	
	54	2.18	
	55	2.42	
	56	2.58	
	57	2.22	
	58	2.54	
	59	2.26	
	60	1.50	
	61	2.22	
	62	2.05	

Table 1 . (continued)

Subscale	Item no.	Item weight[a]	Subscale weight[b]
	63	2.00	
	64	2.58	
	65	2.58	
	66	2.58	
Decision Making	67	2.40	.0925
	68	2.67	
	69	2.83	
	70	2.42	
	71	2.00	
	72	2.96	
	73	2.57	
	74	2.26	
Instructional Improvement	75	2.35	.0700
	76	2.57	
	77	1.65	
	78	2.43	
	79	2.39	
	80	2.48	
	81	1.78	
School to School Interaction	82	1.87	.0425
	83	2.26	
	84	2.13	
	85	2.13	

Table 1 . (continued)

Subscale	Item no.	Item weight[a]	Subscale weight[b]
Student Grouping	86	2.50	.1175
	87	2.17	
	88	2.33	
	89	2.41	
	90	2.83	
	91	2.33	
	92	2.75	
	93	2.42	
	94	2.54	
	95	2.38	
Teacher-Advisor	96	2.75	.0675
	97	2.58	
	98	2.33	
	99	2.67	
Inservice	100	2.43	.0675
	101	1.78	
	102	2.25	

It is evident from the average responses that facilitators don't see all items as equally important. Six items received 1.67 or below on the scale which ranged from 1) important to 2) very important to 3)essential. The items which received low weights were:

16. During the elementary years students are increasingly encouraged to write their own learning objectives in relation to broad educational goals.

18. Students are increasingly provided opportunities to decide what it is they would like to learn.

28. During the elementary years students are increasingly encouraged to plan their own learning activities pertaining to achieving learning objectives.

47. Team members have a specific subject area in which they act as a resource person to the team.

60. Submitting joint team plans replaces submitting individual lesson plans.

77. Teachers are encouraged to participate in at least one [IIC] committee meeting each year.

Three items received facilitator weightings of 2.96 out of the possible 3.00. These items were rated as essential by most facilitators:

39. Percent of time our staff practices team teaching (0%-33% seldom, 33%-66% sometimes, 66%-100% often).

40. In most cases teaming is practiced for (subjects: none or one-seldom; two or three-sometimes; four or more-often).

72. A committee of teachers and the principal works on instructional improvement.

Five items received facilitator weightings of 2.83. Those items were also rated essential by most facilitators.

23. Learning activities are coordinated to be consistent with learning objectives agreed upon by teachers.

42. Teams have a designated leader.

52. Team members have sufficient time (at least 3 hours weekly) in which to conduct team meetings.

69. Decisions made by individual teachers are consistent with the planned program of instruction.

90. Scheduling flexibility allows for varied teaching-learning environments.

Examination of these weighted items showed that items relating to student involvement in decision making received the lowest facilitator weightings overall. Items relating to the organizational aspects of teaming and the use of instructional improvement committees, closely followed by items relating to the coordination of learning activities and flexibility in learning environments, were weighted as most essential.

The differences in importance were further evidenced in subscale weighting. Subscale 5, Teaming, was seen as most important, receiving 16.25% of the total implementation score. Subscale 2, which deals with the importance of goals and objectives in developing learning programs, received 15%. The IGE concepts of the unit structure, represented by subscale 5, and the learning cycle, represented in part by subscale 2, Goals and Objectives, received nearly one-third of the total implementation score.

Subscale 8, School to School Interaction, received the lowest subscale weighting of 4.25% and subscale 1, Home-School Communication, received 5.75%. The total of these two subscales was 10% compared to the highest two which received 31.25%.

Item and subscale weights were used in arriving at a total IGE implementation score for each school on "An Objective Measure of Educational Practices".

Weighting items results in greater variance among responses and consequently weighted responses were used for sections of the statistical analysis which were effected.

B. Subscale Homogeneity

1. Inter-item correlations

Pearson product-moment inter-item correlations were computed to examine subscale homogeneity. The correlations were computed using weighted responses. Separate matrices were computed for non-IGE and IGE respondents. The correlation matrix for each subscale for both non-IGE and IGE schools are presented in Appendix 4.

Examination of the matrices for subscales 2, 3, 7, 8, 9, 10, and 11, showed positive correlations between most pairs of items in both non-IGE and IGE schools. Most of these correlations were different from zero at the .05 level (significant) or .01 level (highly significant).

Inter-item correlations for subscales 1, 4, 5, and 6 were not as consistently positive.

Subscale 1, Home-School Communication, had several positive inter-item correlations but for the most part these weren't consistent for both non-IGE and IGE schools. In examining both matrices no single item or group of items appeared different from the others but there was an overall lack of consistency.

Subscale 4, Auxiliary Personnel, items inter-correlated quite positively with the exception of item 38. Examination of the correlation of responses to item 38 with the responses to every other item, showed no subscale with which the item correlated consistently in both non-IGE and

IGE schools. Further examination of the responses to item 38 indicated that it had one of the lowest overall means, making it, in teachers' perceptions, one of the least practiced items in all schools.

Subscale 5, Teaming, was the largest subscale (24 items) and examination of the responses to the items indicated a lack of internal consistency. There were several significant negative correlations but no definite pattern was evident in both non-IGE and IGE schools.

Subscale 6, Decision Making, showed a definite inter-item correlation pattern in both non-IGE and IGE schools. Items 64 through 70 were positively correlated. Responses to items 63 and 71 were inconsistent with the responses to the rest of the subscale. Further examination of the correlations of these two items with all others in both non-IGE and IGE schools showed no other subscale with which they consistently correlated.

The overall examination of inter-item correlations showed a lack of internal consistency in some subscales but it was not evident what subscale item changes, if any, needed to be made.

2. Subscale reliability

The second statistical procedure used to examine subscale homogeneity was computation of Cronbach "alpha" coefficients (22) for each subscale. The results are presented in Table 2. The "alpha" coefficients in this case should be considered on a dynamic scale that may change with time. The number of cases differed because only questionnaires with responses to all items in a subscale were used to compute the reliability coefficients.

Table 2 . Reliability coefficients for subscales of non-IGE and IGE schools using teacher and unit leader weighted responses

Subscales	Non-IGE schools		IGE schools	
	No. of cases	coefficient "alpha"	No. of cases	coefficient "alpha"
Home-school communication	53	.738	158	.626
Goals and objectives	55	.850	167	.757
Learning activities	52	.868	152	.772
Auxiliary personnel	43	.730	133	.532
Teaming	10	.815	130	.751
Decision making	54	.846	170	.776
Instructional improvement	34	.854	162	.775
School to school interaction	38	.902	146	.816
Student grouping	54	.884	161	.807
Teacher-advisor	52	.832	168	.637
Inservice	55	.672	169	.652

The reliability coefficients were above 0.75 for both non-IGE and IGE schools on subscales 2, 3, 5, 6, 7, 8, and 9. Subscales 1 and 4 had reliability coefficients which were especially low when computed using IGE school respondents. These subscales had also appeared to lack consistency by the examination of inter-item correlations. As previously discussed, no potential item changes in the subscale structure were evident from the inter-item correlations. These items did seem to logically belong and did not inter-correlate with any other subscale.

Reliability coefficients for subscales were in all cases higher for non-IGE schools than for IGE schools, indicating greater internal consistency of responses within subscales in non-IGE schools.

3. Factor analysis

The third statistical procedure utilized to test subscale homogeneity was an unrestricted maximum likelihood factor analysis with varimax rotation (50). Teacher and unit leader unweighted responses were used to compute the factor analysis. The total number of responses was 257. Item means were supplied for the few cases where responses were missing in order to derive the correlation matrix. Because the items were logically grouped into eleven subscales on the questionnaire, eleven factors were requested of the factor analysis solution. A Tucker's reliability coefficient of 0.77 was obtained for these eleven factors where χ^2=5378.06, (df=4084, $p < .000$). The varimax-rotated factor loadings are presented in Table 3. The factor on which the item loaded most heavily was underlined for ease of examination.

Examination of the residual correlations from the factor analysis

Table 3. Rotated factor loadings for "An Objective Measure of Educational Practices"

Items	Factors I	II	III	IV	V	VI	VII	VIII	IX	X	XI
1	.31	.08	.14	-.01	.07	.26	.06	.12	.12	.18	.16
2	.01	.12	.08	.08	.02	.20	.04	.16	.02	.29	-.00
3	.01	.05	.05	.01	-.04	.19	.19	.22	.06	.26	.05
4	.01	-.03	.02	.03	-.05	.27	.00	.03	.15	.18	.05
5	-.03	.02	.12	-.03	.08	.14	.05	.02	.29	.02	.02
6	.02	.13	.06	.03	.01	.16	.02	.09	.26	.15	.03
7	.16	.07	.05	-.00	-.13	.18	.06	.06	.34	.11	-.00
8	.03	.13	.12	-.04	-.01	-.02	-.13	-.01	.16	.19	.10
9	.03	.10	-.01	.07	-.07	.21	-.02	.07	.19	.36	.08
10	.29	.10	.09	.07	-.07	.10	.01	.25	.29	.29	.13
11	.58	.00	.04	.07	-.02	.19	.07	.24	.16	.19	.09
12	.47	.03	.07	-.06	-.11	-.02	.12	.22	.09	.22	.03
13	.57	.10	.07	-.06	-.09	.11	.10	.27	.04	.12	.06
14	.36	.06	.11	.07	-.02	.09	.09	.12	.05	.21	.08
15	.14	-.04	.06	.10	-.05	.05	.08	-.04	-.01	.62	-.02
16	.12	.02	.02	.06	-.05	-.15	-.07	.04	-.05	.57	.10
17	.34	.04	.02	.22	-.00	.20	-.04	.01	.03	.19	.08
18	.30	.03	.11	.21	.13	-.03	.08	-.03	.11	.44	.03
19	.36	.07	.13	.09	-.11	-.07	.05	.23	-.01	.34	-.10
20	.16	.06	.07	-.05	.02	.15	.08	.08	.01	.21	.02
21	.30	.23	.01	.11	.03	.06	-.01	-.02	.15	.34	.05

Table 3. (Continued)

Items	Factors I	II	III	IV	V	VI	VII	VIII	IX	X	XI
22	.55	.04	-.04	.10	-.02	.10	-.04	-.01	.08	.25	.07
23	.66	.08	-.03	.15	-.09	.18	.08	.13	.03	.09	-.01
24	.60	.04	-.06	.18	-.10	.12	.05	.04	.11	.16	-.02
25	.46	-.01	.01	.22	-.05	.02	-.01	-.05	.10	.46	-.07
26	.47	.11	.09	.14	-.10	-.03	-.13	.08	.11	.16	-.10
27	.51	.05	.06	.11	-.01	.11	-.08	.01	.04	-.02	.05
28	.29	-.03	.12	.13	.04	-.05	.08	.01	.10	.56	-.02
29	.10	.00	.72	-.01	.02	.08	.11	.13	.04	.07	.01
30	.11	.00	.78	.13	-.04	.15	.06	-.01	.09	.09	-.01
31	.11	-.02	.72	.16	-.01	.12	.02	.10	.07	.17	-.00
32	.12	-.01	.69	.15	-.12	.14	.06	.03	.12	.11	.03
33	.29	.11	.17	-.06	.06	.01	.02	.02	.12	-.12	.02
34	.12	-.05	.08	.07	.03	-.02	.11	-.03	.15	.04	.01
35	.35	-.01	.15	.13	-.06	.04	.12	.15	.24	-.08	.14
36	.33	.03	.21	.03	.02	.05	.01	.11	.15	-.06	.14
37	.33	.02	.29	.03	.03	-.08	-.08	.02	.03	.00	.16
38	-.01	.04	.10	.18	.09	-.04	-.02	.09	-.05	.14	.01
39	.08	.13	.16	-.12	.01	.08	.76	.06	.11	.03	.10
40	.11	.11	.10	-.02	-.00	.08	.80	.06	.13	.04	.10
41	-.05	-.16	.08	.02	-.31	.15	.19	.22	.07	.00	.06
42	-.04	-.07	.03	-.00	-.67	.07	.12	.27	-.04	.02	.06

Table 3. (Continued)

Items	Factors I	II	III	IV	V	VI	VII	VIII	IX	X	XI
43	-.11	.02	-.05	.21	-.29	.11	.11	.25	.19	.18	.34
44	.11	-.00	-.04	.06	.06	.14	.02	.16	.13	.06	.47
45	.11	.02	-.03	.08	-.18	.22	.04	.04	.09	.24	.48
46	-.15	.10	-.02	-.05	-.25	.11	.14	-.01	-.01	.22	.20
47	.10	.18	.09	.06	-.44	.17	.07	.01	.11	-.02	.03
48	.00	-.04	-.00	-.03	-.08	.23	.34	.15	-.07	-.04	-.29
49	.08	.01	-.01	.11	-.22	.28	.26	.02	.11	-.07	-.14
50	.06	.06	-.04	.03	-.05	.09	.24	.05	.07	.06	-.31
51	-.07	-.09	-.00	.14	-.06	.02	.37	.05	-.02	.12	-.05
52	-.07	.15	.17	.14	-.15	.10	.01	.02	.24	-.01	.16
53	.15	-.05	-.05	-.05	-.55	-.06	.02	-.01	.22	.02	.23
54	.05	.10	.01	-.01	-.38	.01	.04	.02	.09	.20	.35
55	.24	.07	.11	.04	-.32	.07	.11	.03	.04	-.06	.56
56	.24	.05	.07	.14	-.29	-.01	.06	.02	.18	.04	.54
57	-.04	.15	.06	.07	-.08	.20	.01	-.01	-.02	.07	.20
58	.21	.12	.08	.21	-.21	.13	-.02	.06	.08	.09	.34
59	.02	.16	-.01	-.08	-.73	.06	-.14	.05	.13	-.08	.06
60	.02	.13	-.01	.06	-.19	.01	.13	-.06	-.00	.25	.04
61	.16	.05	.02	.08	-.44	-.14	-.05	-.05	.19	.08	.02
62	.04	.15	-.11	.14	-.20	-.17	.11	.02	.24	.18	.10
63	.03	.03	-.02	-.06	.17	.06	-.04	-.07	.03	.20	.11

Table 3. (Continued)

Items	Factors I	II	III	IV	V	VI	VII	VIII	IX	X	XI
64	.15	.05	.08	.04	.03	.55	.13	.12	.24	-.00	-.06
65	.22	.04	.14	.08	.01	.52	.12	.07	.22	.01	.06
66	.23	-.06	.14	.08	-.07	.66	.06	.03	.11	-.06	.10
67	.25	.00	.09	.05	-.10	.61	.04	.10	.11	-.00	.12
68	.31	.09	-.00	.23	.01	.48	.06	-.02	.15	.20	.06
69	.37	.02	.07	.13	.07	.33	-.08	.05	.15	.04	.13
70	.59	.09	-.05	.19	-.11	.32	.06	.01	.14	-.07	-.01
71	-.03	.21	.03	.06	-.10	-.00	.22	-.09	.14	.24	.08
72	.14	.15	.05	.07	-.14	.08	.11	.34	.30	-.01	.03
73	.24	.06	.02	.08	-.13	.10	.02	.11	.63	-.07	.09
74	.17	.18	.08	.14	-.12	-.03	-.09	.10	.55	.09	.13
75	.08	.07	.04	-.04	-.11	.12	.08	-.01	.44	.12	.04
76	.16	.04	.03	.09	-.18	.15	.07	.04	.59	-.06	.06
77	.06	.12	-.00	.03	-.12	.12	.05	.15	.34	.08	-.12
78	.15	.05	-.01	.09	-.06	.03	-.03	.15	.65	.04	.06
79	.19	.34	.02	.12	-.03	.14	.17	.19	.15	.14	.10
80	.10	.51	.13	.04	-.03	.01	.10	.36	.16	-.09	-.04
81	.01	.54	-.10	.06	-.05	-.02	.10	.29	.20	.12	-.02
82	.08	.44	-.01	-.12	-.05	-.05	.15	.29	.18	-.02	.03
83	.08	.71	-.02	.16	.04	.08	-.05	.10	.13	.15	.01
84	.16	.78	.04	.07	-.10	.07	-.08	.02	.08	.02	.11

Table 3. (Continued)

Items	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
85	.14	.65	-.03	.09	-.08	-.00	-.01	.00	.03	.11	.02
86	.05	-.04	-.05	.17	-.10	.07	.15	.19	.21	.06	.08
87	.10	-.01	.08	.23	-.11	.03	.05	.28	.13	.00	.03
88	.09	.00	.03	.16	-.09	.05	.02	.45	.06	-.03	.01
89	.12	.03	.07	.27	-.03	.16	.01	.37	.02	.05	.00
90	.08	.07	.11	.39	.03	.11	.06	.25	.20	.32	-.02
91	.25	.11	.01	.42	-.09	.15	.02	.25	.04	.08	.09
92	.17	.01	.13	.74	-.03	.04	.05	.17	.07	.09	.20
93	.20	.09	.11	.77	-.03	.04	.01	.07	.16	.17	.06
94	.23	.13	.06	.80	-.03	.11	.05	.15	.07	.09	.06
95	.21	.13	.07	.66	-.02	.12	-.01	.23	.10	.06	-.02
96	.09	.20	.12	.05	-.10	.01	.10	.59	.11	.05	-.13
97	.18	.16	-.04	.10	-.01	-.04	-.09	.62	.06	.02	.09
98	.08	.00	.00	.27	.03	.14	-.04	.42	.06	.22	.03
99	.13	.12	.04	.09	.08	.06	.08	.60	.07	-.07	.12
100	.26	.16	-.01	-.00	-.03	.26	-.14	.24	.23	.01	.06
101	.23	.06	.00	.10	.01	.15	.02	.19	.20	.01	.01
102	.20	.17	.05	.22	.08	.23	-.07	.12	.36	.08	.15

solution indicated four item groupings in which the correlation had not been adequately explained. These groupings were: items 4 through 7 in subscale 1, items 34 through 37 in subscale 4, items 86 through 89 in subscale 9, and items 100 to 102 in subscale 11.

Subscales 1 and 4 appeared to lack homogeneity in all three analyses (inter-item correlations, reliability coefficients, and factor analysis). The factor analysis solution indicated that there may have been an additional subscale within both of the previously defined subscales.

Subscale 9 had positive inter-item correlations and reliability coefficients above 0.8 for both non-IGE and IGE respondents. The factor analysis solution indicated that even with the positive evidence of subscale homogeneity, another subscale may have been present in subscale 9.

Subscale 11 had positive inter-item correlations when either non-IGE or IGE responses were used. However, the subscale reliability coefficients were below 0.7 for both computations and the eleven factor factor analysis solution didn't adequately account for the correlations among the items.

The total analysis of subscale homogeneity indicated that improvement was possible by the addition of four or five subscales. The original subscales were used to complete the remainder of the analyses.

C. Rater Reliability

1. Spearman rank-order correlations

The first statistical procedure used to examine rater reliability

was the computation of Spearman rank-order correlations on the eleven weighted subscale scores between teachers within schools. A high positive correlation would indicate teacher agreement on the relative degree of implementation of the eleven subscales. The person who rated consistently high or consistently low had no effect on these correlations because only the rank order was considered. The between teacher correlation matrices for all sixteen schools are presented in Appendix 5. The mean Spearman rank order correlation for each school is presented in Table 4. None of the mean correlations were significantly different from zero. This indicated that teachers didn't see the relative implementation of the eleven subscales in the same way. Examination of the correlation matrices for each school showed that in most schools there was a group of teachers who responded similarly resulting in positive correlations. In most cases, however, from one to three teachers correlated negatively with the others. Whatever the reason for the low correlations, it was evidence of a lack of rater reliability.

2. Analysis of variance

The second statistical procedure used to test rater reliability was an analysis of variance among teachers, within schools, across all subscales. A randomized block design was the analysis of variance model used. Subscales were designated as main effects and teachers were designated as the blocking factor. In order to test rater reliability, the design was used to test the the following null hypothesis in all 16 schools.

Table 4. Interrater reliability estimates by mean Spearman rank-order correlations and computed F values among teachers within schools

School	Correlations	F values
1	.471	13.829**
2	.507	20.592**
3	.357	10.848**
4	.384	10.008**
5	.297	4.427**
6	.341	5.985**
7	.351	7.067**
8	.416	7.547**
9	.104	1.855**
10	.294	6.413**
11	.168	2.781**
12	.169	4.142**
13	.285	5.103**
14	.234	4.596**
15	.426	7.390**
16	.363	7.375**

** Designates significance at the .01 level for this table and for all other tables in this dissertation. A single asterisk (*) designates significance at the .05 level throughout this dissertation.

Hypothesis 1: There are no significant differences in teacher means as measured by their responses to "An Objective Measure of Educational Practices".

The analysis yielded F values which were highly significant in all schools and consequently all hypotheses were rejected. The results of the analysis are presented in Table 4. The results indicated that there were differences in teacher perceptions of the overall implementation of IGE processes in their schools.

There was a noticeable difference in F values between non-IGE and IGE schools which indicated that there was more agreement on the level of implementation among IGE teachers than among their non-IGE counterparts.

Examination of the Spearman rank order correlations and the analysis of variance among teacher responses within schools, indicated a lack of rater reliability in all sixteen schools.

D. Subscale Differences

The randomized block design was also used to test for subscale differences. An analysis of variance was computed to test the following general form of the null hypothesis in all sixteen schools.

Hypothesis 2: There are no significant differences in subscale means within each designated school as measured by teacher responses to "An Objective Measure of Educational Practices".

The results are presented in Table 5. The null hypothesis was rejected for each school. Highly significant differences did exist in subscale implementation mean scores. Examination of the subscale mean scores in

Table 5 . Summary table of F values among subscales within schools, among subscales for all non-IGE schools, and among subscales for all IGE schools

School	F values
1	5.274**
2	4.101**
3	6.902**
4	4.711**
All non-IGE	37.707**
5	9.398**
6	16.021**
7	10.420**
8	13.003**
9	10.797**
10	2.932**
11	8.636**
12	6.804**
13	3.108**
14	12.281**
15	21.745**
16	6.528**
All IGE	113.765**

each school showed no consistent pattern of high and low subscale implementation. One exception was subscale 5, Teaming, which had consistently low means in non-IGE schools. The means and standard deviations are reported in Tables 6, 7, and 8.

The following null hypotheses were tested to see if subscale differences existed over all non-IGE schools or over all IGE schools.

Hypothesis 3: There are no significant differences in subscale group means over all non-IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 4: There are no significant differences in subscale group means over all IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

Both null hypotheses were rejected based on computed F values which were highly significant. Differences existed in the degree of implementation of the eleven subscales in both non-IGE and IGE schools. The computed F values are reported in Table 5.

E. Discrimination Between Non-IGE and IGE Schools

The mean degree of implementation scores for non-IGE and IGE schools are presented in Table 9. Pooled variance t tests were computed to test for mean differences. The following null hypotheses were tested to determine the ability of the instrument to discriminate between non-IGE and IGE schools. Hypothesis 5 is written in its general form.

Hypothesis 5: There is no significant difference in group means

Table 6 . Means and standard deviations of subscale scores and total scores on "An Objective Measure of Educational Practices" for non-IGE schools

	School 1		School 2		School 3		School 4	
Subscale	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Home-school communication	.705	.091	.848	.075	.825	.071	.693	.113
Goals and objectives	.669	.125	.755	.133	.826	.088	.656	.139
Learning activities	.763	.104	.844	.109	.882	.074	.742	.130
Auxiliary personnel	.738	.114	.547	.216	.820	.074	.447	.162
Teaming	.428	.140	.377	.112	.493	.087	.380	.087
Decision making	.676	.123	.775	.101	.841	.074	.715	.147
Instructional improvement	.472	.189	.832	.117	.736	.206	.527	.199
School to school interaction	.398	.105	.724	.165	.686	.194	.462	.149
Student grouping	.744	.139	.903	.096	.850	.135	.743	.176
Teacher-advisor	.737	.183	.861	.197	.807	.210	.718	.212
Inservice	.768	.107	.896	.112	.929	.090	.765	.200
Percentage total implementation	.640	.064	.734	.073	.774	.061	.617	.081

Table 7 . Means and standard deviations of subscale scores and total scores on "An Objective Measure of Educational Practices" for IGE schools 5 through 10

	School 5		School 6		School 7		School 8		School 9		School 10	
Subscale	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Home-school communication	.762	.113	.734	.097	.729	.124	.692	.088	.777	.095	.747	.082
Goals and objectives	.783	.082	.816	.112	.661	.107	.709	.108	.754	.091	.701	.118
Learning activities	.849	.083	.806	.096	.760	.126	.782	.099	.812	.086	.800	.109
Auxiliary personnel	.745	.100	.730	.096	.662	.099	.776	.106	.729	.101	.705	.126
Teaming	.809	.063	.751	.086	.729	.113	.785	.048	.790	.088	.771	.067
Decision making	.805	.084	.724	.114	.696	.179	.781	.088	.743	.111	.814	.089
Instructional improvement	.928	.095	.792	.118	.715	.148	.872	.101	.754	.147	.814	.087
School to school interaction	.683	.130	.696	.076	.705	.156	.745	.135	.743	.142	.541	.105
Student grouping	.832	.135	.841	.096	.787	.132	.838	.112	.761	.112	.806	.110
Teacher-advisor	.764	.168	.862	.171	.936	.076	.912	.095	.849	.121	.814	.129
Inservice	.823	.150	.865	.127	.790	.190	.874	.109	.838	.143	.766	.179
Percentage total implementation	.805	.061	.787	.083	.734	.097	.792	.060	.777	.066	.760	.050

Table 8 . Means and standard deviations of subscale scores and total scores on "An Objective Measure of Educational Practices" for IGE schools 11 through 16

	School 11		School 12		School 13		School 14		School 15		School 16	
Subscale	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.	mean	S.D.
Home-school communication	.739	.093	.761	.089	.687	.097	.660	.101	.830	.112	.864	.080
Goals and objectives	.759	.097	.802	.089	.754	.122	.791	.077	.795	.122	.753	.083
Learning activities	.779	.108	.857	.072	.753	.074	.831	.090	.817	.105	.835	.061
Auxiliary personnel	.660	.110	.743	.086	.751	.078	.758	.098	.718	.084	.691	.097
Teaming	.763	.048	.801	.058	.695	.095	.777	.049	.785	.103	.784	.092
Decision making	.720	.106	.817	.057	.713	.123	.753	.082	.783	.117	.816	.095
Instructional improvement	.760	.084	.846	.106	.691	.164	.754	.136	.818	.164	.847	.099
School to school interaction	.713	.144	.707	.142	.617	.090	.703	.157	.762	.152	.737	.072
Student grouping	.786	.124	.872	.100	.825	.108	.832	.111	.896	.101	.892	.095
Teacher-advisor	.847	.095	.794	.116	.860	.112	.823	.158	.919	.132	.864	.120
Inservice	.779	.147	.746	.196	.736	.089	.827	.126	.875	.136	.840	.115
Percentage total implementation	.759	.062	.805	.063	.740	.057	.782	.069	.817	.098	.810	.059

Table 9. Comparison of subscale implementation mean scores and total implementation mean scores between non-IGE schools and IGE schools using pooled variance t-tests

Subscale	Non-IGE Schools		IGE Schools		t Value
	Mean	S.D.	Mean	S.D.	
Home-school communication	.760	.110	.747	.109	0.84
Goals and objectives	.726	.138	.757	.107	1.81
Learning activities	.806	.118	.807	.097	0.05
Auxiliary personnel	.664	.201	.721	.106	2.86**
Teaming	.428	.118	.773	.080	26.07**
Decision making	.750	.131	.763	.110	0.79
Instructional improvement	.620	.232	.805	.136	7.64**
School to school interaction	.549	.206	.701	.138	6.57**
Student grouping	.800	.153	.827	.117	1.44
Teacher-advisor	.773	.202	.853	.134	3.57**
Inservice	.835	.149	.819	.146	0.73
Percentage total implementation	.689	.095	.782	.072	8.10**

between non-IGE and IGE schools in the degree of implementation of the designated subscales as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 6: There is no significant difference in group means between non-IGE and IGE schools in the degree of implementation of IGE as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 5 was rejected for subscale 4, Auxiliary Personnel, subscale 5, Teaming, subscale 7, Instructional Improvement, subscale 8, School to School Interaction, and subscale 10, Teacher-Advisor. These subscales all dealt with organizational aspects of the IGE model and the findings suggested that organizational differences did exist between non-IGE and IGE schools. Hypothesis 6 was also rejected. The total degree of IGE implementation was greater in IGE schools.

The findings failed to substantiate rejection of null hypothesis 5 for subscale 1, Home-School Communication, subscale 2, Goals and Objectives, subscale 3, Learning Activities, subscale 6, Decision Making, subscale 9, Student Grouping, and subscale 11, Inservice. The instrument failed to discriminate between IGE and non-IGE schools on these six subscales.

F. Normative Data

1. Percentage of implementation

The means and standard deviations for the percentage of implementation of each subscale score and for total scores were presented in

tables 6, 7, and 8. The percentage degree of implementation scores were represented in the form of their deciminal equivilents. The percentage total implementation in non-IGE schools ranged from 62% in school 4 to 77% in school 3. In IGE schools the range for percentage total implementation was from a low of 73% in school 7 to a high of 82% in school 15.

2. Implementation by years of involvement

Figures 3 and 4 represent the eleven subscale degree of implementation scores and total degree of implementation scores for non-IGE schools, IGE schools with two years experience, and IGE schools with three years of experience. On some subscales the average non-IGE implementation scores were higher than the average IGE implementation scores, however, percentage total implementation scores indicated a progression toward greater implementation of IGE with increased experience.

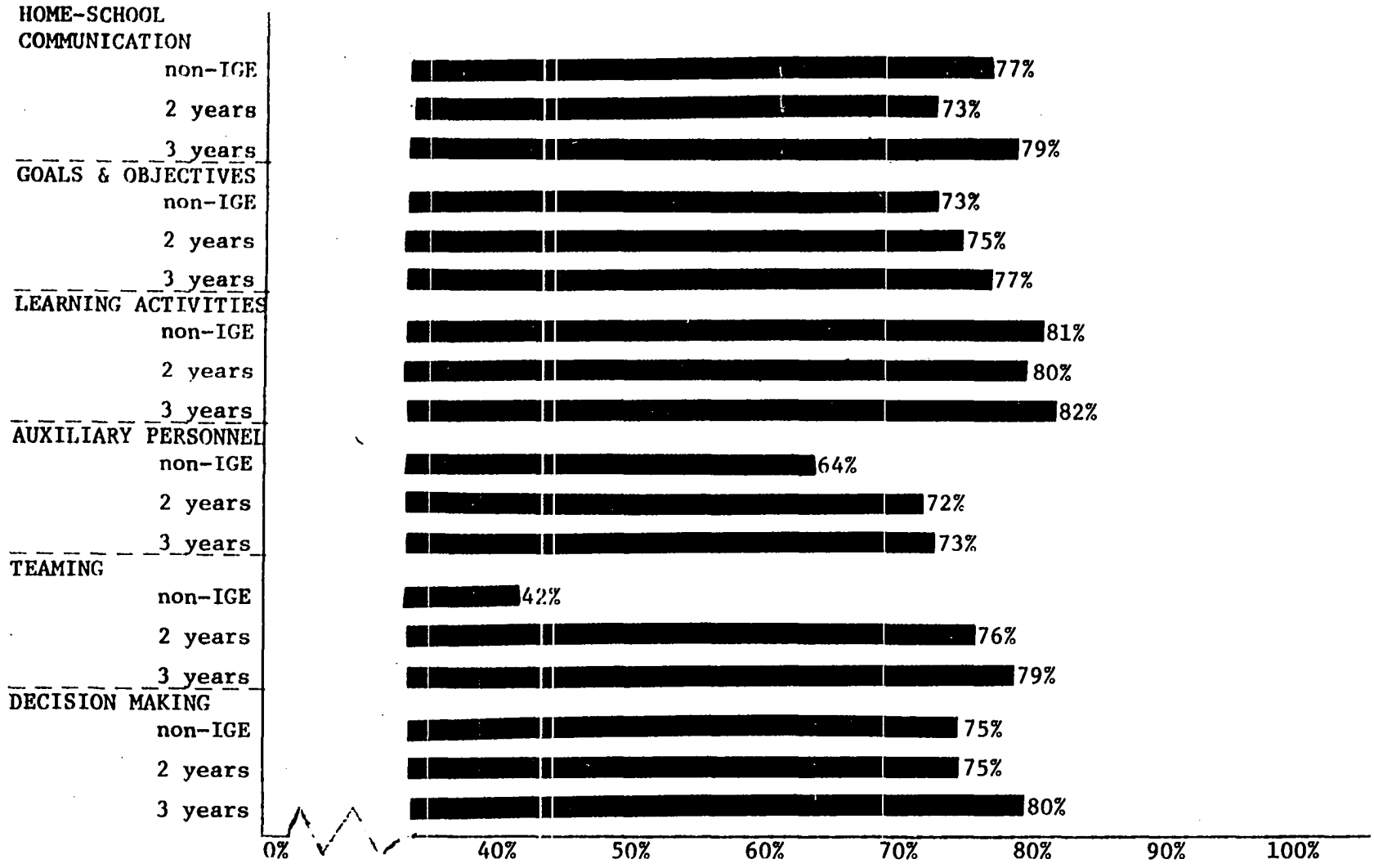

Figure 3 . Graphical representation of the percentage of implementation of subscales 1 through 6 in non-IGE schools and IGE schools with 2 and 3 years experience

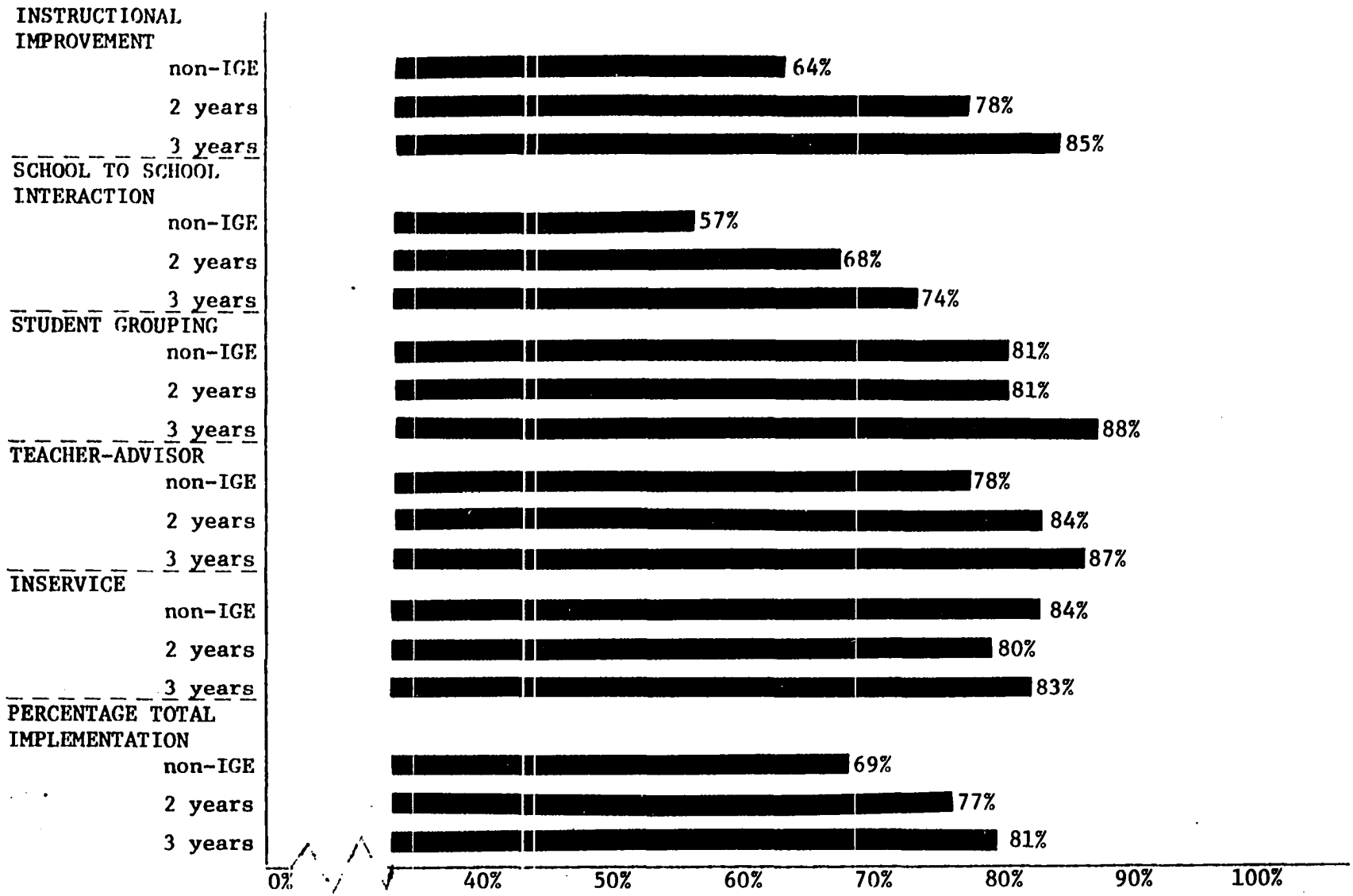

Figure 4 . Graphical representation of the percentage of implementation of subscales 7 through 11 and total implementation in non-IGE schools and IGE schools with 2 and 3 years experience

V. DISCUSSION

A. Instrument Development

The major concerns in the instrument development stage were content validity, IGE anonymity, item clarity, and a scaling procedure which would allow percentage representation of the innovation implementation level. The purpose was to develop an instrument which would measure the degree of implementation of IGE processes in both non-IGE and IGE elementary schools. The reason for this investigation was to meet the much expressed need of a methodology for measurement of the implementation of innovations. This need was evidenced in the number of investigations which discussed the relative value of various approaches in bringing about change, without adequately measuring the degree of implementation of the desired change. It was even more noticeably evidenced in many investigations which compared the outcomes of innovative programs with the outcomes of traditional programs without any measurement of the degree of implementation of the innovations or with measurement by the perception of the change agent only. Reasoning also included the assumption that the average perception of the teachers in a school was a meaningful estimate of the processes employed in that school.

IGE is an innovation which is more adequately defined than many. Extensive guidelines for implementation and varied inservice materials made definition by subcriteria possible. As with most innovative programs many of the recommended processes were being practiced in many schools. In order to adequately evaluate their effectiveness, the degree to which they were practiced needed measurement. Most efforts to evaluate imple-

mentation of innovations had been attempted by on-site visits by trained observers. The observation method had many advantages, but one disadvantage, the difficulty of its use, caused it to be used too seldom.

These thoughts were prominent in the rationale for developing "An Objective Measure of Educational Practices".

The methods used in item selection and revision seemed adequate. The inputs of the facilitators as experts and the teachers as potential respondents were helpful.

The response scale should be changed to five points from the three used for this investigation. In arriving at percentage implementation scores for subscales and total, a response of never (0) is needed to make the total one hundred percent range possible. The one through three scale used in this investigation allowed only percentage scores from 33.33 through 100.00 to be reported.

The weighting of the items was important and seen as valuable, but a different methodology would have been more adequate. Weighting items as a percentage of the subscale total as the subscales were weighted as a percentage of total implementation would have been a more acceptable method.

B. Subscale Homogeneity

The methods used to test subscale homogeneity were adequate. The results indicated that some of the logically grouped items may not have been the real implementation subscales in the participating schools. Further investigation is needed for subscale development.

C. Rater Reliability

The reliability of individual teachers as raters was not substantiated. This means that to use the responses of any one teacher as an estimate of the implementation of IGE processes in his or her school would be an unreliable procedure. The usefulness of this instrument is dependent on acceptance of the assumption, previously stated, that the average response of the teachers in a school is a meaningful estimate of the processes employed in that school. The normative data for the participating schools was presented based on the investigators acceptance of that assumption. It should be interpreted only for what it is; average teacher perceptions of the practices employed in their school.

The computed F values among teachers within schools were consistently lower in IGE schools than in non-IGE schools. This may be an indication of better communication in IGE schools, making for more homogenious teacher responses, or it may be an indication of more consistency in practice among teachers, if they rated the school from the standpoint of their experience.

D. Discrimination Between Non-IGE and IGE Schools

The instrument did discriminate between non-IGE and IGE schools on five subscale implementation scores and on total implementation scores. This indicated that in the participating schools any comparison of outcomes should be related to the five areas of difference in practice and not to total versus negligible IGE implementation. The fact that one non-IGE school had a higher total implementation score than four of the IGE schools indicated that caution should be exercised in labeling schools IGE or

non-IGE without measurement of the processes utilized in the schools. The finding that the average degree of implementation for schools with three years implementation experience was higher on all subscales than that for schools with two years experience, may be initial evidence that implementation is increasing over time.

E. Recommendations for Further Study

The experience of carrying out this investigation and the findings of the investigation indicate a need for the following areas to be studied further:

1. Investigations to further determine the importance of the separate components as they relate to total implementation of IGE.

2. Investigations including factor analyses with larger numbers of respondents to establish subscales which are both logical and homogenious.

3. Investigations comparing the implementation levels derived by this instrument with those derived by the /I/D/E/A/ monitoring system.

4. Investigations to determine correlates of more rapid and more successful implementation.

5. Investigations of the value of implementation of the components in achieving desired student, teacher, parent, and organizational outcomes.

6. Investigations to further estimate the reliability of teachers as raters of the processes in their schools, by using levels (lower and upper elementary) or by using other instrument administration methods.

7. Investigations comparing the average teacher responses with the school administrator's responses to determine the degree of agreement and to facilitate discussion of implementation level in the school.

8. Investigations to add further normative data for implementation by years of experience.

9. Investigations replicating this investigation in middle schools

and high schools when sufficient numbers of schools are implementing IGE at those levels.

10. Investigations comparing IGE and non-IGE responses to each item using a chi square analysis.

VI. SUMMARY

A. Purpose

The purpose of this investigation was to develop an instrument to measure the degree of implementation of IGE concepts in elementary schools. The investigation consisted of two phases. The first was item and subscale selection and weighting for importance. The second was instrument field testing to examine subscale homogeneity, to test rater reliability, to test subscale implementation differences, to test the capability of the instrument to discriminate between non-IGE and IGE schools, and to establish initial normative data.

B. Methodology

Items selected were the subcriteria of the thirty-five IGE outcomes listed by /I/D/E/A/ (41). These items were reworded to eliminate reference to IGE and also to make for greater clarity for respondents.

Twenty-four facilitators trained in IGE by /I/D/E/A/ assigned importance levels to each item and eight assigned importance levels to each subscale. The averages of their responses were used as weights.

The instrument was field tested in four non-IGE and twelve IGE elementary schools. The responses obtained were used to compute inter-item correlations, subscale reliability coefficients, and a factor analysis to test subscale homogeneity. They were also used to compute an analysis of variance and correlations to test rater reliability. Pooled variance t tests were computed to test the usefulness of the instrument in discriminating between non-IGE and IGE schools. An analysis of variance was

computed to test differences in the level of implementation of the eleven subscales. Means and standard deviations were computed to report descriptive data on degree of implementation.

C. Summarized Findings

1. Facilitator response

Facilitator responses indicated that they placed greater relative importance on teaming and the organization of goals and objectives and lesser importance on between school interaction and home-school communication as they related to IGE implementation.

2. Subscale homogeneity

Pearson inter-item correlations showed most subscales to have positive inter-item consistency. Some subscales had weaker inter-item correlations, but no definite pattern requiring subscale changes was found.

Cronbach "alpha" coefficients were computed to test subscale reliabilities for both non-IGE and IGE respondents. Seven subscales had reliability coefficients above 0.7 for both non-IGE and IGE schools. No subscale reliability coefficients were below 0.5 in either non-IGE or IGE schools.

A factor analysis was computed to compare the factor loadings based on the responses of the field test with those established during the development of this instrument. Four of the eleven subscales loaded on one factor. In some cases, subsets of the items in a subscale loaded on two factors. The items from some subscales were scattered across factors and the group of items loading on some factors didn't make a logical

subscale. One subscale didn't load on any factor. Examination of residual correlations indicated that four or five additional factors might better account for the correlation in some subscales.

The conclusion on subscale homogeneity was that some subscale changes would be beneficial. Further investigation is needed to determine subscale groupings.

3. Rater reliability

Computed Spearman rank order correlations between teachers, on subscale degree of implementation scores within schools, were low, indicating different subscale rankings among the teachers in each school.

The following general form of the null hypothesis was tested in all sixteen schools.

Hypothesis 1: There are no significant differences in teacher means as measured by their responses to "An Objective Measure of Educational Practices".

An analysis of variance among teacher responses within schools yielded highly significant F values, resulting in rejection of all the null hypotheses. This indicated that there were highly significant differences in teacher perceptions of the overall level of implementation of IGE in all sixteen schools.

These two analyses indicated that teachers lacked reliability as raters.

4. Subscale implementation differences

The following null hypotheses were tested to determine differences

in the implementation of the eleven subscales.

Hypothesis 2: There are no significant differences in subscale means within each designated school as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 3: There are no significant differences in subscale group means over all non-IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 4: There are no significant differences in subscale group means over all IGE schools as measured by teacher responses to "An Objective Measure of Educational Practices".

The analyses of variance among subscales within each school, among all non-IGE schools, and among all IGE schools, revealed highly significant F values in all cases, resulting in rejection of all null hypotheses. Within each school the eleven subscales were being implemented to different degrees.

5. Discrimination between schools

The percentage degree of implementation estimates were averaged for non-IGE schools and for IGE schools and t tests run on group mean differences. The following general form of the null hypothesis (hypothesis 5) was tested for all eleven subscales.

Hypothesis 5: There is no significant difference in group means between non-IGE and IGE schools in the degree of

implementation of the designated subscales, as measured by teacher responses to "An Objective Measure of Educational Practices".

Hypothesis 6 was tested for total implementation differences.

Hypothesis 6: There is no significant difference in group means between non-IGE and IGE schools in the degree of implementation of IGE, as measured by teacher responses to "An Objective Measure of Educational Practices".

The IGE schools scored higher (.01 significance level) on implementation of subscales 4 (Auxiliary Personnel), 5 (Teaming), 7 (Instructional Improvement), 8 (School to School Interaction), 10 (Teacher-Advisor), and on percentage total implementation score. There were no significant differences in group mean scores between non-IGE and IGE schools on subscales 1 (Home-School Communication), 2 (Goals and Objectives), 3 (Learning Activities), 6 (Decision making), 9 (Student Grouping), and 11 (Inservice).

6. Progress toward full implementation

Comparative data on non-IGE schools, IGE schools with two years experience, and IGE schools with three years experience, showed a higher degree of implementation with increased years of experience.

D. Conclusions

"An Objective Measure of Educational Practices" was effective in discriminating between non-IGE and IGE schools on the degree of implementation of IGE processes. The evidence from this field test indicated that

the instrument may also be effective in discriminating between IGE schools with different amounts of experience.

Because of low rater reliability, individual teacher responses should be reported with caution. However, the mean of responses for all teachers in a school does provide a meaningful estimate of the implementation level in that school. Anyone using the instrument should consider the recommendations for administration on page 94a.

The absence of differences in implementation between non-IGE and IGE schools on several subscales should serve as a precaution in labeling schools as non-IGE and IGE for purposes of comparative analysis. The real process differences should be identified and resultant outcomes should be seen as a product of these differences and not hypothetical differences assumed because of association with an innovative program title.

In conclusion, the instrument developed in this investigation is recommended as a practical approach to obtain comparative data on non-IGE schools and on IGE schools with different amounts of IGE implementation experience.

VII. BIBLIOGRAPHY

1. Ahrens, Maurice R. "How to Make Innovations Succeed -- or Fail." Childhood Education 49, pt. 4 (January 1973): 170-3.

2. Anderson, Robert H. Opting for Openness. Washington, D.C.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED082368, 1973.

3. Arends, Richard I.; Essig, Don M. Instructional Change in the Unitized, Differentiated Staffing, Elementary School. Washington D.C.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED060515, 1972.

4. Arends, Richard I., and Don M. Unitized Structure and Differentiated Staffing in the Elementary School. Washington, D.C.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED060511, 1972.

5. Barocas, Ralph. "Intervention in the Primary Grades as a Mental Health Strategy." School Intervention. Edited by William L. Claiborn and Robert Cohen. New York: Behavioral Publications, 1973.

6. Bartlett, Guilford, H., Jr. Analysis of the Introduction and Implementation of Curriculum Innovations. Final Report. Washington, D.C.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), 8D054540, 1973.

7. Becker, Richard E., and Harris, Linda. "A School That Grew." School Intervention. Edited by William L. Claiborn and Robert Cohen. New York: Behavioral Publications, 1973.

8. Belden Associates. "Individually Guided Education Program: National Evaluation Study, 1972-1973", Dallas, Texas: Belden Associates.

9. Bentzen, Mary M., and Tye, Kenneth A. "Effecting Change in Elementary Schools." National Society for the Study of Education Yearbook, 72 pt. 2, (1973): 350-79.

10. Boardman, G. R., and Hudson, C. C. "Development of A Cost Analysis Model Which Schools May Use to Determine Budget Needs for Implementing Individually Guided Education." Teachers College, University of Nebraska, Lincoln, 1973.

11. Bremer, John, and Michael von Moschzisker. The School Without Walls; Philadelphia's Parkway Program. New York: Holt, Rinehart and Winston, 1971.

12. Brenner, Avis Manno. "Self-directed t Groups for Elementary Teachers: Impetus for Innovation." Journal of Applied Behavioral Sciences 7, pt. 3 (1971): 327-341.

13. Carbone, Robert F. "A Comparison of Graded and Nongraded Elementary Schools." Elementary School Journal 62 (2) (November, 1961): 82-88.

14. Carbone, Robert F. "Criteria for Evaluating a Nongraded School Program." The Nongraded School. Edited by Richard I. Miller. New York: Harper and Row, 1967.

15. Carlson, Richard O. "Adoption of Educational Innovations." Eugene, Oregon: Center for the Advanced Study of Educational Administration, 1965.

16. Center for Educational Improvement, College of Education, University of Missouri. "A Friend Needs a Friend: A Case Study of IGE Implementation at the John Ridgeway Public School, Columbia, Missouri." Columbia, Missouri: Author, 1973.

17. Chadwick, Ruth E., and Anderson, Robert H. "The School Reorganization Project in Newton, Massachusetts." Perspectives on Educational Change. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

18. Charters, W. W., Jr. Contrasts in the Process of Planned Change of the School's Instructional Organization. A Symposium. Washington, D.C.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED072511, 1973.

19. Charters, W. W., Jr. Measuring the Implementation of Differentiated Staffing: A Comparison of Two Elementary Schools. Washington D.D.: U. S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED082369, 1973.

20. Charters, W. W., Jr. The Process of Planned Change in the Schools Instructional Organization. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED082348, 1973.

21. Cremin, Lawrence A. The Transformation of the School. New York: Random House, Inc.,1961.

22. Cronbach, Lee J. Essentials of Psychological Testing. New York: Harper & Row, Inc., 1970.

23. Dalin, Per. Innovation in Education--Norway. Technical Report. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED069572, 1971.

24. DeCharms, Richard. "Intervention is Impossible: A Model for Change from Within.: School Intervention. Edited by William L. Claiborn and Robert Cohen. New York: Behavioral Publications, 1973.

25. Erunetti, Frank A. "Studies of Team Teaching in the Open-Space School." Interchange 3, pt. 2-3 (1972): 85-101.

26. Gallessich, June. "Team Teaching: A Study of Team Development and Interpersonal Functioning." National Elementary Principal 51, pt. 2 (October 1971): 20-25.

27. Gallessich, June. The Team-Teaching Problem Checklist. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED055335, 1971.

28. Goodlad, John I., and Anderson, Robert H. The Nongraded Elementary School. New York: Harcourt, Brace & World, 1963.

29. Goodlad, John I. "Meeting Children Where They Are." Saturday Review (March 20, 1965): 57-59.

30. Graper, Norm. Individually Guided Education in A Multiunit Organization: IGE. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED077077, 1972.

31. Gresso, Donn W. "The Relationship of I.G.E. Schools and Their Organizational Climate." Ph.D. dissertation, University of Missouri-Columbia, 1974.

32. Gross, Neal; Giaquinta, Joseph, B.; and Bernstein, Marilyn; Implementing Organizational Innovations. New York: Basic Books, 1971.

33. Gumpper, David C. Nongraded Elementary Education: Individualized Learning--Teacher Leadership--Student Responsibility. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED057440, 1971.

34. Heathers, Glen. "Influencing Change at the Elementary Level." Perspectives on Educational Change. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

35. Holzman, Seymour. IGE: Individually Guided Education and the Multiunit School. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED067869, 1972.

36. Horn, Mary, ed., IGE News, Vol. 5, No. 1. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1973.

37. Horn, Mary, ed., IGE News, Vol. 5, No. 2. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1974.

38. Indianapolis, Indiana. State Department of Public Instruction. "A Report of a Curriculum Evaluation", 1973.

39. Institute for Development of Educational Activities, Inc. I/D/E/A/ Reporter. Melbourne, Florida: Institute for the Development of Educational Activities, Inc., Special Issue, 1971.

40. Institute for the Development of Educational Activities, Inc. /I/D/E/A/'s Guide to an Improvement Program for Schools. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

41. Institute for the Development of Educational Activities, Inc. IGE Implementation Guide. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

42. Institute for Development of Educational Activities, Inc. IGE Implementation Questionnaire. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

43. Institute for the Development of Educational Activities, Inc. IGE Publications Kit. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

44. Institute for Development of Educational Activities, Inc. Outcomes Questionnaire. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

45. Institute for Development of Educational Activities, Inc. Principal Implementation Questionnaire. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

46. Institute for Development of Educational Activities, Inc. Pupil Interview Schedule. Dayton, Ohio: Institute for the Development of Educational Activities, Inc., n.d.

47. Institute for the Development of Educational Activities, Inc. Where to Write for Information About the /I/D/E/A Change Program for Individually Guided Education. Dayton, Ohio: Institute for the Development of Educational Activities, Inc.,n.d.

48. Ironside, Roderick A. A Process Evaluation: The Fall 1972 Follow-Up. A Supplement to the 1971-72 Nationwide Installation of the Multiunit/IGE Model for Elementary Schools. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED073569, 1973.

49. Ironside, Roderick A. The 1971-72 Nationwide Installation of the Multiunit/IGE Model for Elementary Schools. A Process Evaluation. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED066623, 1972.

50. Joreskog, Karl G., and Marielle Van Thillo, "New Rapid Algorithms for Factor Analysis by Unweighted Least Squares, Generalized Least Squares, and Maximum Likelihood," Research Memorandum, Educational Testing Service, Princeton, New Jersey, May, 1971.

51. Kelley, Edgar A.; Wood, Fred H.; and Joekel, Ronald. Teacher Perceptions of School Climate and the Implementation of Individually Guided Education (IGE). Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED083229, 1973.

52. Klausmeier, H. J. Individually Guided Motivation and the Multiunit Elementary School: Guidelines for Implementation. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1971.

53. Klausmeier, H. J. "The Multiunit Elementary School and Individually Guided Education." Phi Delta Kappan (November, 1971): 181-184.

54. Klausmeier, Herbert J., and Pellegrin, Roland J. "The Multiunit School: A Differentiated Staffing Approach." Planned Change in Education, pp. 107-126. Edited by D. S. Bushnell and D. Rapaport. New York: Harcourt, Brace, & Jovanovich, Inc., 1971.

55. Klausmeier, Herbert J.; Quilling, Mary R.; and Sorenson, J. S. The Development and Evaluation of the Multiunit Elementary School, 1966-1970. Report from the Project on Variables and Processes in Cognitive Learning. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED051589, 1971.

56. Klausmeier, H. J.; Sorenson, J. S.; and Quilling, M. R. "Instructional Programming for the Individual Pupil in the multiunit Elementary School." The Elementary School Journal 72 (2) (1971): 88-101.

57. Lawler, Marcella R. Strategies for Planned Curricular Innovation. New York: Teachers College Press, Columbia University, 1970.

58. Lighthall, Frederick F. "Multiple Realities and Organizational Nonsolutions: An Essay on Anatomy of Educational Innovation." School Review 81, pt. 2 (February 1973): 254-93.

59. Mahan, James M. "Frank Observations on Innovation in Elementary Schools." Interchange 3, pt. 2-3 (1972): 144-60.

60. Matula, Franklin V. Factors Contributing to the Willingness of Elementary Teachers to Try Selected Classroom Innovations. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED066404, 1972.

61. Miller, Richard I. "A Summing Up." The Nongraded School. Edited by Richard I. Miller. New York: Harper and Row, 1967.

62. Miller, Richard I. "Some Observations and Suggestions." Perspectives on Educational Change. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

63. Morrow, R. G.; Quilling, Mary R.; and Fox, Frank. Student Achievement and Attitudes in Instruction and Research Units in Two Elementary Schools in Janesville, Wisconsin, 1967-68. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED064657, 1973.

64. National School Public Relations Association. Individually Guided Education and the Multiunit School. Arlington, Virginia: National School Public Relations Association, [1972].

65. Nelson, Richard G. An Analysis of the Relationships of the Multiunit School Organizational Structure and Individually Guided Education to the Learning Climate of Pupils. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED077148, 1973.

66. Nie, Norman H.; Bent, Dale H.; and Hull, C. Hadlai. Statistical Package for the Social Sciences. New York: McGraw-Hill, Inc., 1970.

67. Oldridge, O. A. Overlander; A Study of Instructional Innovation Involving Beginning Teachers Attempting to Nongrade an Open-Area Elementary School. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED068442, 1972.

68. Paden, Jon S. "Study of the Possible Effect of the Early Stages of Implementing IGE upon Standardized Achievement Scores." Dayton, Ohio: Institute for the Development of Educational Activities, 1973.

69. Pellegrin, Roland. Professional Satisfaction and Decision Making in the Multiunit School. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED049552, 1969.

70. Peterson, Carl H. Effective Team Teaching: The Easton Area High School Program. West Nyack, New York: Parker Publishing Company, Inc., 1966.

71. Primmer, Glenn Estus, Jr. "School District Assessment of Public Opinion Toward Selected School Practices: An Exploratory Study." Ph.D dissertation, Iowa State University of Science and Technology, 1972.

72. Reynolds, Larry. Problems of Implementing Organizational Change in the Elementary School: A Case Study. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED062716, 1972.

73. Rossmiller, Richard A. "Individually Guided Education." Madison, Wisconsin: Research and Development Center for Cognitive Learning, University of Wisconsin, n.d.

74. Scanlon, Robert G. Bringing About Change in the Schools. A Case Study: Lake Park Elementary School, Lowndes County School District, Georgia. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED081096, 1973.

75. School Information and Research Service, King County. "Some Research Findings in the State of Washington." The Nongraded School. Edited by Richard I. Miller. New York: Harper and Row, 1967.

76. Service, Jolayne. A Users Guide to the Statistical Analysis System. Raleigh, North Carolina: Student Supply Stores, North Carolina State University, 1972.

77. Smith, Louis M., and Keith, Pat M. Anatomy of Educational Innovation: An Organizational Analysis of an Elementary School. New York: John Wiley & Sons, Inc., 1971.

78. Solomon, Warren; Ferritor, Daniel; Haenn, Joseph; and Myers, Edwin. "The Development, Use, and Importance of Instruments that Validly and Reliably Assess the Degree to Which Experimental Programs are Implemented." Paper presented at the American Educational Research Association Convention, New Orleans, Louisiana, February, 1973.

79. Stake, R. E. "Toward a Technology for the Evaluation of Educational Programs." Perspectives of Curriculum Evaluation. Edited by R. W. Tyler; R. M. Gagne; and M. Scriven. Chicago: Rand McNally, 1967.

80. Stein, D. David. "A Community School Intervention Model of a Community Mental Health Center." School Intervention. Edited by William L. Claiborn and Robert Cohen. New York: Behavioral Publications, 1973.

81. Walter, James. "The Relationship of Organizational Structure to Organizational Adaptiveness in Elementary Schools." Ph.D. dissertation, University of Wisconsin, 1973.

82. Walter, James E., and Horn, Mary. Dissemination of the Multiunit Elementary School. Final Report. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED062727, 1972.

83. Wilke, Raymond A. "Garden Springs Elementary Schools: A Case Study of Educational Innovation." Perspectives on Educational Change. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

84. Willis, Charles L. What We Have Learned About the /I/D/E/A/ Change Program for Individually Guided Education . . . an Interim Report. Dayton, Ohio: Institute for Development of Educational Activities, Inc. (/I/D/E/A/), [1974].

85. Wisconsin Research and Development Center for Cognitive Learning An Analysis of the Relationship of the Multi-Unit School Organizational Structure and Individually Guided Education to the Learning Climate of Pupils. Technical Report No. 213, [1972].

86. Wisconsin Research and Development Center for Cognitive Learning. Individually Guided Education, Eighth Annual Report. Madison, Wisconsin: Wisconsin Research and Development Center for Cognitive Learning, 1972.

87. Wisconsin Research and Development Center for Cognitive Learning. Individually Guided Education in the Multiunit Elementary School. Washington, D.C.: U.S. Department of Health, Education, and Welfare: Educational Resources Information Center (ERIC), ED062728, 1972.

VIII. ACKNOWLEDGMENTS

It would be unfair to complete this dissertation without acknowledging the help and encouragement given me by several people. Dr. Trevor Howe, Dr. Ray Bryan, Dr. George Hohl, Dr. Rex Thomas, Dr. Richard Manatt, and Dr. Richard Warren were not only a great help during the writing of this dissertation but also a source of encouragement throughout my graduate program. A special thanks goes to each one of them.

I also want to thank John Wagner for the special help he gave me.

My wife Judy was more than a typical wife putting up with a husband through the writing of a dissertation. Not only was she patient in that respect but she typed, helped proof read, and gave assistance in other numerous ways toward its completion. An extra special thanks is due her.

IX. APPENDIX 1. "AN OBJECTIVE MEASURE OF EDUCATIONAL PRACTICES"

AN OBJECTIVE MEASURE OF EDUCATIONAL PRACTICES

RECOMMENDATIONS FOR ADMINISTRATION

"An Objective Measure of Educational Practices" is recommended as a practical approach to obtain comparative data on non-IGE schools and on IGE schools with different amounts of IGE implementation experience.

Estimates of a school's implementation level should be obtained from averages of the responses of all teachers responding in that school. At least five responses should be obtained for averaging. Individual teacher responses should not be used for estimating a school's implementation level.

AN OBJECTIVE MEASURE OF EDUCATIONAL PRACTICES

INSTRUCTIONS

In order to assess the value of educational practices it is necessary to measure the degree to which they are being practiced. That is the purpose of this instrument.

The following items are designed to measure the activities in your school as you see them. The instrument is not intended to produce a positive or negative rating but is merely an attempt to measure what exists. Your scores will not be used individually but will be averaged with others from your school to yield an estimate of total school practice.

Answer the items not as you yourself practice them but rather as you perceive they are being practiced in your school. In some cases you may feel you don't know the answer for the total school. Answer these items with your best guess. Your perceptions are important in arriving at the best estimate of the practices in your school.

Some items are grouped together so that a "never" answer to the first makes several following items irrelevant. In these cases if your school definitely ranks "never" on the first item skip to the item indicated.

The instrument should take approximately thirty minutes to complete. Thank you for your participation.

AN OBJECTIVE MEASURE OF EDUCATIONAL PRACTICES

GENERAL INFORMATION (Circle correct response)

My position is:	- Classroom Teacher
	- Team Leader
	- Principal
	- Non-classroom teacher (special area teacher)
	- Paraprofessionals
	- Volunteers
	- Other _____ List
Sex:	- Male
	- Female
Years of Teaching Experience:	- 1-2
	- 3-5
	- 6-10
	- 11-20
	- 20-or more
Education Level:	- Less than BA/BS
	- BA/BS
	- MA/MS +
	- Ph.D
Level Taught:	- Kindergarten
	- Early Childhood (1-2)
	- Middle Childhood(3-4)
	- Late Childhood (5-6)

AN OBJECTIVE MEASURE OF EDUCATIONAL PRACTICES

	Seldom/Never	Sometimes	Always Often/Usually
HOME-SCHOOL COMMUNICATION			
1. School open-houses are held to explain the educational program to parents.	1	2	3
2. Conferences are held with parent, pupil and teacher present.	1	2	3
3. Team-parent group meetings are held. (If not teamed mark seldom/never)	1	2	3
4. Parents are asked (by letter, announcements at meetings, or other method) to visit school during instructional time.	1	2	3
5. Parents are asked to serve as volunteer aides.	1	2	3
6. Parent groups meet to discuss the educational program.	1	2	3
7. Letters describing the educational program are sent home.	1	2	3
8. Pupil activities are reported in local newspapers.	1	2	3
9. Use of the school facility for parent activities is encouraged.	1	2	3
GOALS & OBJECTIVES			
10. Committees coordinate curricular development to insure continuity of educational goals and learning objectives throughout the school building.	1	2	3
11. Based upon discussion of students' previous accomplishments, teachers decide on broad goals to be emphasized.	1	2	3
12. Teachers collect written lists of objectives to use when making plans.	1	2	3
13. Teachers select and/or develop curricular materials in which specific objectives are written out.	1	2	3
14. Teachers are aware of what other teachers are teaching.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
15. During the elementary years, students are increasingly given the opportunity to schedule the order in which they will work on objectives in areas where such choices are possible.	1	2	3
16. During the elementary years students are increasingly encouraged to write their own learning objectives in relation to broad educational goals.	1	2	3
17. Teachers take time to discuss with students the reasons for activities and assignments.	1	2	3
18. Students are increasingly provided opportunities to decide what it is they would like to learn.	1	2	3
19. Students keep a personal record of objectives achieved.	1	2	3
LEARNING ACTIVITIES			
20. Instructional time is programmed into large blocks.	1	2	3
21. Subject area resource teachers identify learning activities to help achieve proper goals.	1	2	3
22. Teachers select and/or develop curricular materials which include a variety of learning activities using varied media.	1	2	3
23. Learning activities are coordinated to be consistent with learning objectives agreed upon by teachers.	1	2	3
24. Teachers compile collections of possible pupil learning activities.	1	2	3
25. During the elementary years students are increasingly encouraged to select from collections of learning activities.	1	2	3
26. There are schedules for implementing learning activities.	1	2	3
27. Learning activities are consistent with students' previous knowledge.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
28. During the elementary years students are increasingly encouraged to plan their own learning activities pertaining to achieving learning objectives.	1	2	3
29. Large groups are provided as optional learning modes.	1	2	3
30. Small groups are provided as optional learning modes.	1	2	3
31. Paired situations are provided as optional learning modes.	1	2	3
32. Independent study is provided as an optional learning mode.	1	2	3
AUXILIARY PERSONNEL (For this section Auxiliary Personnel includes aides, volunteers, student teachers, interns, etc.)			
33. Teachers and/or teams utilize auxiliary personnel. (If never skip to #39)	1	2	3
34. Auxiliary personnel are available (seldom-less than one full time/six teachers, sometimes-one full time/three to six teachers, often-one full time/one or two teachers).	1	2	3
35. The roles for auxiliary personnel are well defined.	1	2	3
36. Auxiliary personnel are provided with job descriptions.	1	2	3
37. Auxiliary personnel are provided with training.	1	2	3
38. Teachers interview and recommend auxiliary personnel to be employed.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
TEAMING (For this section teaming is defined as two or more teachers working together in planning and implementation of learning programs.)			
39. Percent of time our staff practices team teaching (0% - 33% seldom, 33% - 66% sometimes, 66% - 100% often).	1	2	3
40. In most cases teaming is practiced for (subjects: none or one - seldom; two or three - sometimes; four or more - often).	1	2	3
If you are not a member of a team skip to #63.			
41. The number of teachers on a team is at least 3 but no more than 6.	1	2	3
42. Teams have a designated leader.	1	2	3
43. Criteria for the selection of team leaders are established.	1	2	3
44. Team members are personally compatible.	1	2	3
45. Team members professionally compliment each other in subject area strength.	1	2	3
46. Team-parent group meetings are held.	1	2	3
47. Team members have a specific subject area in which they act as a resource person to the team.	1	2	3
48. Team members teach in more than one subject area.	1	2	3
49. Team members work with more than one group of pupils daily.	1	2	3
50. Team members teach in the same area of the building. (example - adjoining rooms)	1	2	3
51. Team members teach in the same common spaces. (share rooms)	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
52. Team members have sufficient time (at least 3 hours weekly) in which to conduct team meetings.	1	2	3
53. Teams have an agenda before meeting.	1	2	3
54. Team members submit written plans for review by the team.	1	2	3
55. Team members examine and improve team decisions.	1	2	3
56. The team devotes time to analyzing and improving its own operation.	1	2	3
57. The team has complete decision-making responsibility for staff assigned to it.	1	2	3
58. Team members are aware of each others roles in constructing learning programs.	1	2	3
59. Teams record minutes of their decisions.	1	2	3
60. Submitting joint team plans replaces submitting individual lesson plans.	1	2	3
61. Team members receive minutes of team meetings.	1	2	3
62. The principal attends a planning meeting of each team monthly.	1	2	3
DECISION MAKING			
63. Teachers recommend replacements or additions to the professional staff as a result of interviewing available teachers.	1	2	3
64. Teachers (individually or in teams) have complete decision-making responsibility for pupils assigned to them.	1	2	3
65. Teachers (individually or in teams) have complete decision-making responsibility to select the materials they use.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
66. Teachers (individually or in teams) have complete decision-making responsibility to utilize their space.	1	2	3
67. Teachers (individually or in teams) have complete decision-making responsibility to utilize scheduled blocks of time.	1	2	3
68. Strengths of teachers are utilized in teaching-learning environments.	1	2	3
69. Decisions made by individual teachers are consistent with the planned program of instruction.	1	2	3
70. Teachers select and/or develop curricular materials which include a system for keeping track of student performance.	1	2	3
71. Teacher performance is evaluated by other teachers.	1	2	3
INSTRUCTIONAL IMPROVEMENT			
72. A committee of teachers and the principal works on instructional improvement. (If never skip to #79)	1	2	3
73. Teachers work cooperatively with the committee to solve instructional problems.	1	2	3
74. Teachers submit topics for the committee agenda.	1	2	3
75. Before committee meetings are held, a copy of the agenda is given to all staff members soon enough so they will have time to study it and submit any opinions.	1	2	3
76. The committee resolves instructional problems involving two or more teachers and/or teams.	1	2	3
77. Teachers are encouraged to participate in at least one committee meeting each year.	1	2	3
78. The committee devotes time to analyzing and improving its own operation.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
SCHOOL TO SCHOOL INTERACTION			
79. Our school cooperates with others for exchange of educational ideas. (If never skip to #86)	1	2	3
80. A committee of teachers and principals represents the cooperating schools.	1	2	3
81. A list of resources within the cooperating schools is maintained.	1	2	3
82. A newsletter is distributed among the cooperating schools.	1	2	3
83. There is school staff interaction among the cooperating schools.	1	2	3
84. Special meetings are arranged for staff of the cooperating schools.	1	2	3
85. Teachers in the cooperating schools are asked to evaluate the interaction.	1	2	3
STUDENT GROUPING			
86. Students are grouped so that approximately equal numbers of two or more grade levels (age groups) are together.	1	2	3
87. Students are grouped to insure that there are always at least two sections to which a pupil can be assigned.	1	2	3
88. Student records are considered in assigning students to groups.	1	2	3
89. Teacher knowledge of students is considered in assigning students to groups.	1	2	3
90. Scheduling flexibility allows for varied teaching-learning environments.	1	2	3
91. Achievement is considered when pupils are directed to learning activities.	1	2	3

	Seldom/Never	Sometimes	Always Often/Usually
92. Learning styles are considered when pupils are directed to learning activities.	1	2	3
93. Interests are considered when pupils are directed to learning activities.	1	2	3
94. Self-concept is considered when pupils are directed to learning activities.	1	2	3
95. Peer relationships are considered when pupils are directed to learning activities.	1	2	3
TEACHER-ADVISOR			
96. Teachers have specific students to whom they act as advisor.	1	2	3
97. Teachers study records of the students for whom they assume primary responsibility.	1	2	3
98. Students are helped to understand their decision-making responsibility.	1	2	3
99. Teachers share information about students so their perceptions are available to the teacher primarily responsible.	1	2	3
INSERVICE			
100. Committees coordinate building and/or district inservice educational programs.	1	2	3
101. Lists of community resources that might be used to assist the instructional program are available.	1	2	3
102. Staff members are individually helped to understand and implement the educational program.	1	2	3

X. APPENDIX 2. COVER LETTER AND INSTRUCTIONS TO FACILITATORS

College of Education
Professional Studies
201 Curtiss Hall
Ames, Iowa 50010

IOWA STATE
UNIVERSITY

Telephone: 515-294-4143

May 8, 1973

Dear Friend of IGE:

The enclosed questionnaire is an attempt to measure the degree to which a school approximates the IGE model proposed by the Institute for the Development of Educational Activities. The items were derived from a breakdown of the "Outcomes" found in the Implementation Guide. /I/D/E/A/ proposes that the "Outcomes" are chronologically arranged in the Guide. However, we would like your thought as to the amount of time needed to implement them. The importance of the items also varies and your evaluation of relative importance would greatly aid us in establishing initial weights for the items.

This instrument is part of a statewide IGE evaluation model being developed at Iowa State University. Your assistance in helping us develop the model is much appreciated. We will be happy to supply you with copies of the model upon completion.

Sincerely,

James R. Halvorsen

approved by

George W. Hohl
Associate Professor

JRH/jah

IGE IMPLEMENTATION QUESTIONNAIRE
(Special Form)

INSTRUCTIONS

The following items are to be marked in two ways. The first has to do with the relative importance of the item in achieving total implementation of the IGE model, as developed by the Institute for the Development of Educational Activities. Because all of these items are part of the suggested outcomes they are considered at least important for implementation but some may be essential (impossible to be considered an IGE school without them). Please rate them as you see their relative importance. The second considers the time factor. "Immediately" means the item should be evidenced the first month as an IGE school. Four months may be needed for some items. Eight months indicates items to be achieved the first year. Some items may take two or three years as indicated by the remaining choices. Please indicate a suggested maximum time when you feel the item should be in evidence.

You may find it easier to complete one scale at a time rather than jumping from importance to time.

Thank you for helping us establish some initial weights for these items.

XI. APPENDIX 3. COVER LETTER TO FIELD TEST PARTICIPANTS

DES MOINES PUBLIC SCHOOLS
Department of Elementary Education

April 30, 1974

TO: Elementary Principals of following schools -

Brooks	Mann	Willard
Findley	Oak Park	Greenwood
Hanawalt	Park Avenue	Windsor
Jackson	Pleasant Hill	Logan
Jefferson	Stowe	Wright
Lovejoy	Studebaker	

FROM: James E. Bowman, Director of Elementary Education

SUBJECT: An Objective Measure of Educational Practices

We are asking you to help in a survey being conducted by Mr. James Halvorsen, graduate assistant at Iowa State University.

Please have each member of your faculty, including associates, volunteer mothers and yourself fill out this form.

This should be done on an individual basis rather than as a team and can be completed either at school or at home.

The completed forms should be sent back to the Elementary Department no later than Thursday, May 9, 1974.

If you have any further questions, please contact Marie Cardamone.

Please put the survey forms on Mrs. Hutchison's desk by May 8, 1974.

XII. APPENDIX 4. SUBSCALE INTER-ITEM CORRELATIONS

Table 10. Inter-item correlations for subscale 1 (HOME-SCHOOL COMMUNICATION) in non-IGE schools

Items	1	2	3	4	5	6	7	8	9
1									
2	.343**								
3	.152	.341**							
4	.261*	.107	.271*						
5	.143	-.214*	.040	.353**					
6	.295**	.056	-.006	.082	.242*				
7	.646**	.176	.143	.224*	.103	.429**			
8	.354**	.273*	.131	.373**	.295**	.175	.287*		
9	.303**	.390**	.123	.130	-.157	.177	.403**	.212	

Table 11. Inter-item correlations for subscale 1 (HOME-SCHOOL COMMUNICATION) in IGE schools

Items	1	2	3	4	5	6	7	8	9
1									
2	.124								
3	.189**	.270**							
4	.179**	.114	.316**						
5	.103	.120	.055	.346**					
6	.157*	.110	.112	.283**	.375**				
7	.162*	.073	.113	.341**	.361**	.413**			
8	.059	.106	.050	.015	-.103	.021	.254**		
9	.237**	.145*	.191**	.153*	.152*	.245**	.272**	.178**	

Table 12. Inter-item correlations for subscale 2 (GOALS & OBJECTIVES) in non-IGE schools

Items	10	11	12	13	14	15	16	17	18	19
10										
11	.627**									
12	.553**	.580**								
13	.466**	.765**	.421**							
14	.379**	.317**	.090	.254*						
15	.414**	.533**	.430**	.263*	.115					
16	.364**	.368**	.409**	.129	.040	.594**				
17	.292**	.398**	.220*	.348**	.258*	.435**	.191			
18	.564**	.400**	.332**	.348**	.271*	.470**	.461**	.308**		
19	.491**	.464**	.451**	.428**	.005	.565**	.408**	.242*	.529**	

Table 13. Inter-item correlations for subscale 2 (GOALS & OBJECTIVES) in IGE schools

Items	10	11	12	13	14	15	16	17	18	19
10										
11	.449**									
12	.275**	.398**								
13	.342**	.361**	.575**							
14	.342**	.415**	.446**	.484**						
15	.038	.095	.080	.061	.198**					
16	.157*	.121	.116	.025	.139*	.468**				
17	.180**	.314**	.219**	.194**	.227**	.072	.102			
18	.128*	.194**	.169**	.097	.165*	.445**	.431**	.245**		
19	.078	.183**	.313**	.260**	.298**	.248**	.232**	.145*	.339**	

Table 14. Inter-item correlations for subscale 3 (LEARNING ACTIVITIES) in non-IGE schools

Items	20	21	22	23	24	25	26	27	28	29	30	31	32
20													
21	.149												
22	.418**	.484**											
23	.391**	.398**	.659**										
24	.406**	.378**	.679**	.604**									
25	.343**	.410**	.598**	.590**	.645**								
26	.245*	.521**	.397**	.578**	.452**	.447**							
27	.194	.378**	.564**	.523**	.563**	.451**	.573**						
28	.185	.326**	.421**	.382**	.373**	.582**	.342**	.323**					
29	.005	.088	.045	.208	-.078	-.039	.233*	.098	.292**				
30	.008	.153	.308**	.143	.100	.215*	.059	.040	.236*	.406**			
31	.172	.237*	.176	.323**	.181	.196	.218*	.035	.142	.406**	.708**		
32	.114	.210	.165	.277*	.197	.353**	.206	.171	.145	.336**	.591**	.786**	

Table 15. Inter-item correlations for subscale 3 (LEARNING ACTIVITIES) in IGE schools

Items	20	21	22	23	24	25	26	27	28	29	30	31	32
20													
21	.156*												
22	.034	.255**											
23	.032	.286**	.489**										
24	.146*	.275**	.337**	.507**									
25	.097	.356**	.333**	.263**	.432**								
26	.150*	.263**	.362**	.360**	.364**	.400**							
27	.048	.162*	.326**	.426**	.316**	.279**	.415**						
28	.164*	.229**	.302**	.227**	.266**	.455**	.266**	.173**					
29	.117	.062	.041	.109	.005	.028	.051	.119	.178**				
30	.110	.074	.102	.094	.127*	.168**	.133*	.202**	.197**	.737**			
31	.006	.053	.127*	.156*	.159*	.190**	.217**	.149*	.215**	.570**	.645**		
32	.033	.097	.130*	.127*	.156*	.182**	.174**	.127*	.249**	.528**	.652**	.694**	

Table 16. Inter-item correlations for subscale 4 (AUXILIARY PERSONNEL) in non-IGE schools

Items	33	34	35	36	37	38
33						
34	.351**					
35	.577**	.301*				
36	.473**	.179	.636**			
37	.517**	.133	.649**	.640**		
38	-.042	.229	.050	.030	.132	

Table 17. Inter-item correlations for subscale 4 (AUXILIARY PERSONNEL) in IGE schools

Items	33	34	35	36	37	38
33						
34	.000					
35	.142*	.171*				
36	.157*	.201**	.463**			
37	.208**	.113	.355**	.410**		
38	-.009	-.018	-.004	-.109	.093	

Table 18. Inter-item correlations for subscale 5 (TEAMING) in non-IGE

Items	39	40	41	42	43	44	45	46	47	48	49
39											
40	.588**										
41	-.303	.196									
42	-.374	-.146	.164								
43	-.443	-.131	.233	.000							
44	-.076	.029	.232	.452	.452						
45	-.143	-.117	.438	.684**	.684**	.700**					
46	-.052	-.090	-.134	.526*	.526*	-.069	.279				
47	.736**	.549*	-.346	-.211	-.211	-.261	-.271	.386			
48	.089	.313	.496*	-.234	-.263	.089	.232	-.527*	-.223		
49	.374	.496*	.139	-.551*	-.532*	-.038	-.015	-.098	.211	.502*	
50	.000	.395	.426	-.190	-.156	.064	.309	-.198	-.095	.832**	.696**
51	.000	.126	.462	.383	.538*	.155	.358	.275	.223	-.217	-.383
52	.418	.194	-.219	.131	.111	-.333	-.156	.408	.667*	-.115	-.130
53	-.225	.204	.239	.608*	.615*	.092	.447	.554*	.165	-.167	-.159
54	.408	.218	-.201	.111	.111	-.333	-.156	.408	.667*	-.128	-.111
55	-.211	.301	.054	.681**	.681**	.487	.300	.336	.130	-.431	-.393
56	-.143	.396	.209	.684**	.684**	.404	.283	.279	.060	-.358	-.350
57	.270	.762**	.243	.083	.083	.356	.051	-.152	.328	.348	.178
58	.101	.196	-.017	.466	.443	.633*	.368	.341	.198	-.226	-.164
59	-.102	-.055	-.075	.667*	.667*	.250	.430	.919**	.250	-.608*	-.111
60	-.064	.307	.188	-.191	-.191	.156	-.220	-.064	.156	.220	.191
61	.123	.395	-.364	.369	.369	.000	.188	.739**	.452	-.232	.302
62	.908**	.667**	-.220	-.290	-.343	-.203	-.307	.052	.821**	-.045	.290

schools

50	51	52	53	54	55	56	57	58	59	60	61
-137											
-221	.069										
.063	.383	-032									
-207	.128	1.000**	-035								
-310	.431	-048	.680**	-048							
-257	.554*	-111	.611*	-111	.918**						
.360	.264	.089	.012	.089	.350	.423					
-085	.299	-179	.239	-201	.599*	.593*	.605*				
-310	.288	.167	.583*	.167	.607*	.583*	-134	.490			
.097	-220	.364	-381	.364	-067	-156	.543*	.188	-156		
.187	-154	.302	.416	.302	.345	.302	.161	.318	.678*	-047	
-085	.136	.516*	-063	.509	.018	.143	.430	.187	.055	.034	.263

Table 19. Inter-item correlations for subscale 5 (TEAMING) in IGE

Items	39	40	41	42	43	44	45	46	47	48	49
39											
40	.768**										
41	.113	.213**									
42	-.060	-.009	.320**								
43	.096	.203**	.224**	.156*							
44	.178*	.119	.035	.032	.280**						
45	.142*	.187**	.031	.108	.351**	.490**					
46	.192**	.168*	.129	.132*	.218**	.113	.245**				
47	.079	.075	.012	.116	.068	.032	.218**	-.033			
48	.249**	.244**	.118	.056	-.058	.005	-.072	-.026	.076		
49	.137*	.295**	.364**	.141*	.186**	.025	.106	.075	.232**	.283**	
50	.186**	.184**	-.029	-.025	.002	-.011	.018	.019	.089	.321**	-.011
51	.235**	.303**	.050	-.114	.041	.047	.013	.063	-.105	.214**	.095
52	.088	.058	.097	-.005	.149*	.169*	.194**	.131*	.192**	-.035	.169*
53	.024	.095	.057	.020	.218**	.032	.167*	.053	.234**	-.086	.000
54	.093	.033	.069	.178**	.341**	.089	.285**	.211**	.188**	-.173*	.035
55	.258**	.219**	.138*	.059	.139*	.242**	.302**	.118	.203**	-.038	.135*
56	.127	.194**	.076	.113	.248**	.269**	.320**	.153*	.252**	-.134*	.117
57	.117	.113	.054	.031	.097	-.021	.081	.107	.183**	-.126	.081
58	.074	.068	.071	.108	.230**	.225**	.337**	.066	.267**	-.054	.163*
59	-.139*	-.238**	.035	.246**	.078	-.002	.083	.117	.200**	-.035	.039
60	.163*	.114	.093	.027	.058	.078	.130	.202**	.085	.017	.023
61	-.046	-.064	-.014	-.041	.076	-.031	.086	.012	.019	-.130*	-.041
62	.063	.082	.127	.090	.140*	.225**	.160*	.145*	.139*	-.166*	-.020

schools

50	51	52	53	54	55	56	57	58	59	60	61
.260**											
-.015	-.091										
-.073	.039	.113									
-.216**	-.072	.117	.264**								
-.032	.026	.189**	.248**	.372**							
-.055	.058	.176*	.264**	.321**	.605**						
-.145*	-.100	.098	.093	.278**	.238**	.115					
-.055	.106	.072	.145*	.305**	.342**	.432**	.240**				
.017	-.263**	.166*	.338**	.250**	.191**	.072	.091	.173*			
.004	-.016	.158*	.119	.292**	.014	.089	.001	.058	.145*		
-.061	-.041	.177**	.278**	.156*	.066	.123	-.080	.139*	.218**	.099	
.076	.006	.205**	.096	.267**	.044	.178**	.044	.111	.049	.221**	.277**

Table 20. Inter-item correlations for subscale 6 (DECISION MAKING) in non-IGE schools

Items	63	64	65	66	67	68	69	70	71
63									
64	.146								
65	.170	.598**							
66	.027	.595**	.574**						
67	.112	.476**	.526**	.586**					
68	.217*	.443**	.491**	.634**	.569**				
69	.016	.408**	.388**	.455**	.526**	.425**			
70	.181	.363**	.344**	.322**	.391**	.521**	.289*		
71	.243*	.123	.217*	.084	.101	.094	-.020	.186	

Table 21. Inter-item correlations for subscale 6 (DECISION MAKING) in IGE schools

Items	63	64	65	66	67	68	69	70	71
63									
64	.062								
65	.052	.555**							
66	-.040	.577**	.411**						
67	-.065	.499**	.448**	.635**					
68	.125*	.288**	.339**	.324**	.359**				
69	.051	.214**	.260**	.384**	.347**	.455**			
70	.075	.313**	.361**	.447**	.418**	.370**	.457**		
71	.047	.027	.116	-.035	-.007	.134*	-.004	.013	

Table 22. Inter-item correlations for subscale 7 (INSTRUCTIONAL IMPROVEMENT) in non-IGE schools

Items	72	73	74	75	76	77	78
72							
73	.640**						
74	.587**	.570**					
75	.297*	.348**	.295*				
76	.328*	.499**	.579**	.264			
77	.396**	.441**	.568**	.361**	.526**		
78	.484**	.454**	.691**	.460**	.384**	.685**	

Table 23. Inter-item correlations for subscale 7 (INSTRUCTIONAL IMPROVEMENT) in IGE schools

Items	72	73	74	75	76	77	78
72							
73	.621**						
74	.390**	.519**					
75	.168*	.283**	.248**				
76	.463**	.536**	.348**	.359**			
77	.257**	.119	.073	.254**	.269**		
78	.397**	.424**	.426**	.275**	.452**	.320**	

Table 24. Inter-item correlations for subscale 8 (SCHOOL TO SCHOOL INTERACTION) in non-IGE schools

Items	79	80	81	82	83	84	85
79							
80	.734**						
81	.513**	.676**					
82	.326*	.287*	.472**				
83	.748**	.610**	.564**	.431**			
84	.604**	.714**	.541**	.460**	.732**		
85	.565**	.580**	.645**	.633**	.664**	.689**	

Table 25. Inter-item correlations for subscale 8 (SCHOOL TO SCHOOL INTERACTION) in IGE schools

Items	79	80	81	82	83	84	85
79							
80	.401**						
81	.326**	.471**					
82	.245**	.373**	.395**				
83	.341**	.385**	.471**	.405**			
84	.347**	.325**	.338**	.331**	.631**		
85	.433**	.326**	.421**	.196**	.374**	.594**	

Table 26. Inter-item correlations for subscale 9 (STUDENT GROUPING) in non-IGE schools

Items	86	87	88	89	90	91	92	93	94	95
86										
87	.583**									
88	.481**	.412**								
89	.342**	.173	.398**							
90	.314**	.347**	.333**	.539**						
91	.287*	.392**	.331**	.298**	.379**					
92	.394**	.496**	.250*	.326**	.451**	.622**				
93	.376**	.413**	.279*	.287**	.514**	.521**	.768**			
94	.394**	.496**	.292*	.292**	.540**	.515**	.753**	.770**		
95	.396**	.449**	.500**	.608**	.688**	.467**	.621**	.628**	.571**	

Table 27. Inter-item correlations for subscale 9 (STUDENT GROUPING) in IGE schools

Items	86	87	88	89	90	91	92	93	94	95
86										
87	.349**									
88	.119	.241**								
89	.126*	.158*	.517**							
90	.214**	.192**	.133*	.200**						
91	.140*	.171**	.330**	.360**	.307**					
92	.142*	.234**	.203**	.222**	.403**	.456**				
93	.170**	.173**	.131*	.276**	.411**	.373**	.671**			
94	.106	.171**	.125*	.340**	.338**	.430**	.697**	.783**		
95	.124	.166*	.178**	.296**	.339**	.362**	.576**	.655**	.793**	

Table 28. Inter-item correlations for subscale 10 (TEACHER-ADVISOR) in non-IGE schools

Items	96	97	98	99
96				
97	.544**			
98	.550**	.558**		
99	.548**	.641**	.529**	

Table 29. Inter-item correlations for subscale 11 (INSERVICE) in non-IGE schools

Items	100	101	102
100			
101	.274*		
102	.637**	.259*	

Table 30. Inter-item correlations for subscale 10 (TEACHER-ADVISOR) in IGE schools

Items	96	97	98	99
96				
97	.462**			
98	.217**	.301**		
99	.186**	.358**	.407**	

Table 31. Inter-item correlations for subscale 11 (INSERVICE) in IGE schools

Items	100	101	102
100			
101	.430**		
102	.436**	.318**	

XIII. APPENDIX 5: RANK-ORDER CORRELATIONS BETWEEN TEACHERS WITHIN EACH SCHOOL

Table 32. Spearman rank-order correlations between teachers in school 1

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	.818**									
3	.552*	.343								
4	.589*	.240	.906**							
5	.229	.251	-.141	-.046						
6	.910**	.733**	.587*	.589*	.036					
7	.543*	.254	.590*	.659**	.005	.498				
8	.239	.146	.119	.223	.736**	.059	.474			
9	.833**	.800**	.607*	.635*	.257	.837**	.441	.147		
10	.450	.524*	.369	.447	.309	.346	.405	.209	.743**	
11	.454	.313	.681**	.745**	.330	.285	.589*	.670**	.472	.404
12	.404	.702**	.155	.100	.346	.283	-.078	.255	.486	.536*
13	.495	.611*	.583*	.478	.318	.424	.097	.055	.771**	.673**
14	.630*	.497	.772**	.763**	.248	.460	.399	.404	.593*	.349
15	.762**	.497	.542*	.611*	.400	.547*	.681**	.664**	.486	.236
16	.359	.436	.208	.144	.342	.564*	.254	.406	.469	.137
17	.944**	.763**	.469	.533*	.330	.791**	.682**	.459	.732**	.431
18	.853**	.570*	.542*	.652*	.082	.688**	.786**	.382	.587*	.418
19	.433	.471	.494	.526*	.562*	.348	.342	.548*	.696**	.607*
20	.662**	.626*	.475	.484	.278	.790**	.484	.346	.805**	.483

(non-IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19	20
.312									
.468	.464								
.889**	.395	.661**							
.780**	.246	.264	.771**						
.179	.305	.146	.092	.237					
.565*	.349	.367	.620*	.881**	.359				
.578*	.273	.209	.596*	.846**	.119	.908**			
.760**	.361	.781**	.705**	.480	.382	.465	.283		
.386	.328	.510*	.382	.383	.760**	.602*	.447	.661**	

Table 33. Spearman rank-order correlations between teachers in school 2 (non-IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	.442									
3	.603*	.431								
4	.847**	.694**	.724**							
5	.816**	.519*	.551*	.685**						
6	.481	.326	.433	.671**	.391					
7	.501	.212	.196	.459	.212	.285				
8	.813**	.156	.327	.551*	.651*	.551*	.488			
9	.716**	.699**	.611*	.712**	.662**	.448	.144	.551*		
10	.616*	.174	.718**	.656**	.294	.419	.597*	.509	.292	

Table 34. Spearman rank-order correlations between teachers in school 3

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	-.011									
3	.743**	-.132								
4	.615*	.606*	.518*							
5	.059	.702**	-.009	.509						
6	.363	.569*	.246	.683**	.242					
7	.451	.105	.755**	.600*	.273	.182				
8	.642*	.228	.418	.536*	.500	.269	.146			
9	.132	.611*	-.046	.518*	.309	.679**	.136	.009		
10	.147	.877**	.051	.647*	.726**	.431	.261	.465	.279	
11	.041	.879**	-.100	.500	.818**	.401	.027	.427	.527*	.791**
12	.524*	.160	.336	.381	.291	.674**	.018	.664**	.191	.219
13	.415	.570*	.409	.564*	.364	.292	.455	.400	.282	.647*
14	-.237	.560*	.146	.191	.200	.287	.282	-.082	.191	.577*
15	.820**	.151	.697**	.615*	.383	.217	.606*	.506	.128	.233
16	.234	.373	.048	.362	.458	.234	.086	.706	.134	.586*
17	-.116	.655**	.173	.456	.451	.438	.305	.178	.228	.648*
18	.916**	.164	.715**	.670**	.246	.299	.506	.597*	.036	.326
19	.007	.282	.251	.315	.694**	-.201	.511	.365	.037	.369

(non-IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19
.227								
.391	.146							
.391	-.064	.564*						
.196	.360	.506	-.173					
.362	.439	.582*	.257	.091				
.415	.191	.679**	.765**	.078	.449			
.178	.415	.515*	-.137	.927**	.148	.055		
.379	-.078	.475	.224	.384	.407	.481	.160	

Table 35. Spearman rank-order correlations between teachers in school 4

Teacher	1	2	3	4	5	6	7	8	9
1									
2	.658**								
3	.833**	.556*							
4	.575*	.182	.464						
5	.363	.236	.428	.409					
6	.668**	.326	.777**	.419	.717**				
7	.394	.606*	.153	.037	.037	.188			
8	.520*	.294	.705**	.633*	.670**	.723**	-.111		
9	.636*	.369	.825**	.570*	.501	.681**	.046	.920**	
10	.678**	.294	.529	.752**	.587*	.751**	.204	.537*	.432
11	.408	.220	.538*	.495	.431	.625*	.259	.769**	.745**
12	.226	.037	.397	.338	.804**	.736**	-.166	.839**	.657**
13	.115	-.218	.023	.673**	.173	.256	.239	.358	.319
14	.202	-.300	.101	.300	-.100	-.205	-.505	.000	.100
15	.704**	.627*	.915**	.236	.382	.772**	.184	.688**	.752**

(non-IGE) based on their rankings of the eleven subscales

10	11	12	13	14	15
.352					
.484	.631*				
.486	.587*	.311			
.000	-.303	-.201	-.100		
.413	.578*	.475	-.100	-.200	

Table 36. Spearman rank-order correlations between teachers in school 5

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	.064									
3	.561*	.203								
4	.147	.296	-.018							
5	.018	.711**	.346	.500						
6	.413	.565*	.269	.346	.527*					
7	.450	.560*	.784**	.464	.664**	.518*				
8	.606*	.242	.893**	.000	.164	.209	.773**			
9	.431	.055	.232	.236	.127	-.127	.227	.136		
10	.460	.105	-.167	.483	.246	.160	-.009	-.191	.588*	
11	.853**	.242	.492	.109	.200	.436	.482	.546	.182	.324
12	.523*	.027	.406	-.027	.036	.391	.418	.446	.118	.073
13	.592*	-.014	.476	-.265	-.014	-.005	.158	.447	.540*	.427
14	.413	.360	.775	.427	.536*	.246	.855**	.773**	.382	.109
15	.670**	.588*	.665**	.336	.409	.500	.855**	.791**	.391	.201
16	.258	.005	.306	.337	.041	-.077	.301	.237	.237	.078
17	.267	.080	.607*	.283	.264	-.068	.601*	.665**	.251	.098
18	.404	.182	.524*	-.009	.146	-.009	.273	.446	.027	.046
19	-.119	.519*	.301	.664**	.536*	.264	.682**	.282	.118	-.187
20	.257	.255	.032	.018	-.064	.291	.164	.009	.291	-.087

(IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19	20
.409									
.298	.451								
.282	.173	.372							
.591*	.582*	.442	.736**						
.228	.305	.023	.123	.269					
.073	.442	.508	.747**	.583*	.388				
.509	-.027	.228	.227	.236	.624*	.251			
-.073	-.109	-.414	.564*	.427	.360	.292	.082		
.327	.227	-.209	-.191	.273	.310	-.424	.018	.264	

Table 37. Spearman rank-order correlations between teachers in school 6

Teacher	1	2	3	4	5	6	7	8
1								
2	-.631*							
3	.249	-.085						
4	.530*	-.381	.470					
5	.552*	-.743**	.278	.597*				
6	.216	-.187	.237	.611*	.446			
7	.262	-.665**	-.278	.287	.582*	.527*		
8	.244	-.369	.278	.615*	.555*	.791**	.691**	
9	.424	.142	.187	.069	-.223	-.032	-.292	.105
10	.304	-.201	.697**	.706**	.336	.682**	.200	.591*
11	.317	-.210	.715**	.752**	.346	.673**	.191	.636*
12	.426	-.169	.585*	.799**	.205	.547*	.096	.497
13	.479	-.368	.196	.854**	.369	.665**	.333	.533*
14	.166	-.324	.191	.656**	.546*	.564*	.546*	.755**
15	.341	-.548*	.434	.795**	.506	.460	.474	.679**

(IGE) based on their rankings of the eleven subscales

9	10	11	12	13	14	15
-.014						
.059	.991**					
.183	.907**	.929**				
.096	.652*	.688**	.808**			
-.087	.291	.346	.287	.447		
-.055	.743**	.788**	.767**	.708**	.510*	

Table 38. Spearman rank-order correlations between teachers in school 7 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10	11	12
1												
2	.436											
3	.679**	.242										
4	.100	.373	.460									
5	.264	.582*	.269	.000								
6	.442	.656**	.518	.196	.656**							
7	.118	.746**	.119	.609*	.364	.365						
8	.456	-.319	.578*	-.087	.005	-.059	-.328					
9	.842**	.586*	.804**	.344	.275	.618*	.186	.310				
10	.319	.688**	.477	.406	.488	.722**	.314	.048	.639*			
11	.127	.664**	.032	.236	.500	.141	.636*	.005	.200	.415		
12	.798**	.468	.405	-.128	.441	.644*	.211	.138	.568*	.221	-.046	

Table 39. Spearman rank-order correlations between teachers in school 8

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	.236									
3	.391	.682**								
4	.173	.718**	.736**							
5	-.027	.073	.446	.464						
6	.391	.591*	.573*	.209	.218					
7	.436	.418	.709**	.382	.118	.709**				
8	.187	.547*	.679**	.538*	.433	.369	.383			
9	.328	.661**	.884**	.638*	.287	.597*	.829**	.751**		
10	.123	.615*	.765**	.642*	.597*	.670**	.620*	.751**	.788**	
11	.169	.770**	.583*	.761**	.542*	.542*	.346	.696**	.619*	.817**
12	.336	.127	.491	.082	.446	.500	.382	.109	.333	.191
13	.165	.495	.560*	.734**	.633*	.220	.266	.699**	.589*	.648*
14	.155	.336	.500	.327	.109	.491	.546*	-.055	.292	.260
15	.132	.342	.319	.428	.624*	.378	-.055	.260	.094	.612*
16	.000	.191	.473	.364	.264	.227	.536	.032	.565	.360
17	.309	.591*	.727**	.891**	.373	.136	.427	.583*	.702**	.652*
18	.327	.655**	.618*	.336	.291	.846**	.491	.292	.447	.492
19	.292	.685**	.895**	.740**	.598*	.607*	.594*	.842**	.819**	.893**
20	.300	.409	.282	-.091	.000	.555*	.136	.428	.260	.242

(IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19	20
.073									
.823**	.037								
.068	.518*	-.174							
.630*	.023	.455	.087						
.178	.400	.229	.200	-.050					
.670**	-.064	.752**	.055	.401	.446				
.483	.664**	.202	.691**	.369	.091	.091			
.774**	.393	.641*	.411	.483	.247	.667**	.616*		
.296	.218	.275	-.091	.187	-.291	-.064	.555*	.283	

Table 40. Spearman rank-order correlations between teachers in school 9

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	.474									
3	.382	.087								
4	.119	.192	-.082							
5	.446	.082	-.382	.110						
6	-.509	-.150	-.136	.256	-.027					
7	.146	.053	-.351	.057	.064	.082				
8	.255	.091	.560*	.121	-.337	-.100	.014			
9	.018	.036	.173	.187	-.391	-.146	.219	.788**		
10	.455	.273	.400	.269	-.082	.264	.228	.337	.046	
11	.182	.356	-.173	-.089	.351	-.068	-.374	.062	-.191	.178
12	.068	.507	-.050	-.201	-.415	-.146	.596*	-.021	.068	.169
13	.406	.304	.059	.432	.524*	-.214	-.324	.057	-.187	-.196
14	.172	-.033	-.257	.335	.114	.114	.831**	.210	.219	.248
15	.551*	.384	.324	.481	.114	-.164	-.215	.607*	.310	.565*
16	.200	.091	-.318	-.119	.746**	-.255	-.205	-.319	-.246	-.591*
17	.109	.319	.091	.420	-.264	-.236	.000	-.169	.027	-.009
18	.446	.570*	.418	.196	-.236	.136	.296	.187	-.064	.827**
19	-.191	-.059	.300	.251	-.318	.200	.027	.346	.118	-.136
20	.654**	.387	.218	.402	.182	-.218	.000	.333	.236	.664**

(IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19	20
-.190									
.267	-.331								
-.229	.363	.014							
.575*	-.215	.406	.105						
.182	-.374	.606*	-.257	-.173					
-.287	.283	.018	.067	.073	-.300				
.000	.570*	-.096	.210	.328	-.509	.164			
-.319	.128	.333	.401	.014	-.218	.191	.027		
.410	-.096	.064	.105	.816**	-.255	.318	.391	-.346	

Table 41. Spearman rank-order correlations between teachers in school 10 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10	11	12	13
1													
2	.555*												
3	.041	.319											
4	.927**	.500	-.132										
5	-.310	-.128	.345	-.369									
6	.409	.309	-.077	.464	.223								
7	.473	.627*	.210	.518*	-.182	.164							
8	-.110	.257	.883**	-.275	.336	-.110	.009						
9	.800**	.582*	.328	.718**	-.292	.391	.409	.110					
10	.473	.846**	.392	.300	-.232	.046	.527*	.468	.464				
11	.091	.327	.570*	-.146	.223	.036	-.191	.734**	.027	.518*			
12	.647*	.396	.151	.579*	.333	.547*	.346	.046	.551*	.278	-.009		
13	.711**	.715**	.053	.720**	-.379	.547*	.510*	.051	.533*	.606*	.337	.237	

Table 42. Spearman rank-order correlations between teachers in school 11

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	-.373									
3	-.155	.309								
4	.064	.346	.255							
5	-.027	.215	.306	.269						
6	.082	.400	-.009	.100	-.201					
7	-.100	.218	.264	.082	.265	.146				
8	.229	.514*	-.275	.376	.124	.560*	-.119			
9	.373	.146	.573*	.691	.356	.291	.346	.101		
10	-.460	.456	.333	-.201	-.053	.437	.355	.147	-.155	
11	.236	.091	.264	.064	.146	.591*	-.218	.294	.336	.287
12	.173	.273	.318	.718**	.493	.355	.364	.257	.836**	-.036
13	-.009	.318	.727**	-.055	.169	.500	.355	.046	.446	.638*
14	-.105	.515*	.448	.391	.637*	-.105	.029	.029	.362	.014
15	-.073	.173	.391	-.336	.041	-.036	.327	-.202	-.091	.406
16	.401	-.355	.027	-.023	-.103	.483	.146	.018	.324	.263
17	-.141	.041	.396	-.497	.275	.100	.410	-.368	-.018	.594*
18	.360	-.169	.036	.064	-.032	.365	.478	-.189	.488	-.103
19	.009	-.173	-.036	-.073	.000	-.473	.400	-.284	-.155	.137

(IGE) based on their rankings of the eleven subscales

11	12	13	14	15	16	17	18	19
.264								
.464	.336							
.286	.486	.134						
.236	-.400	.273	.114					
.693	.296	.333	-.105	.114				
.301	.068	.620*	.292	.419	.379			
.351	.351	.100	.067	.283	.637*	.233		
-.618*	.018	-.055	-.076	-.136	-.091	.255	-.196	

Table 43. Spearman rank-order correlations between teachers in school 12 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10
1										
2	-.073									
3	.169	.282								
4	.178	-.046	.073							
5	-.196	.691**	.191	.246						
6	-.314	.336	.055	.273	.655**					
7	.041	-.336	.200	.418	-.109	.127				
8	.281	.173	.201	.652	.046	-.173	.360			
9	-.032	.546*	.400	.264	.436	.200	-.036	.574*		
10	-.409	-.191	.592*	.050	-.055	.310	.551*	-.096	.091	

Table 44. Spearman rank-order correlations between teachers in school 13 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10	11
1											
2	.464										
3	.327	.582*									
4	.864**	.409	.336								
5	-.091	.682**	.436	-.236							
6	.482	.455	.464	.473	-.027						
7	-.409	.291	.291	-.609*	.782**	-.209					
8	.662**	.023	.101	.370	-.169	.461	-.233				
9	.418	.791**	.527*	.118	.618*	.300	.536*	.196			
10	.309	.136	.073	.027	.136	.373	.018	.374	.309		
11	.491	.673**	.246	.527*	.327	.573*	-.127	.210	.318	.182	

Table 45. Spearman rank-order correlations between teachers in school 14

Teacher	1	2	3	4	5	6	7	8
1								
2	.341							
3	.506	.594*						
4	.661**	.566*	.709**					
5	-.497	.317	.228	-.009				
6	.114	.329	.164	-.018	.274			
7	.393	-.112	.046	.232	-.014	.228		
8	-.355	.370	.264	-.055	.658**	.582*	-.278	
9	-.415	.242	.309	.009	.690**	.327	-.314	.482
10	-.552	.005	.046	-.229	.498	-.147	-.529*	.119
11	.301	.667**	.727**	.564*	.069	.000	-.255	.018
12	-.050	.365	.446	.246	.237	-.246	-.123	-.209
13	-.210	.274	.036	.136	.384	.609*	.278	.436
14	.214	-.073	-.091	.200	-.032	.446	.852**	-.082
15	.279	.588*	.474	.652*	.469	.492	.167	.314

(IGE) based on their rankings of the eleven subscales

9	10	11	12	13	14	15
.743**						
.327	.275					
.400	.587*	.791**				
.255	-.083	.182	.100			
-.236	-.514*	-.218	-.182	.655**		
.560*	.129	.351	.132	.419	.237	

Table 46. Spearman rank-order correlations between teachers in school 15 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1														
2	.356													
3	-.037	.275												
4	.185	.428	.901**											
5	-.037	.275	1.000**	.901**										
6	.288	.482	.789**	.925**	.789**									
7	-.037	.275	1.000**	.901**	1.000**	.789**								
8	.223	.182	.523*	.542*	.523*	.546*	.523*							
9	.000	.336	-.064	.077	-.064	.064	-.064	.327						
10	.507	.309	.560*	.601*	.560*	.582*	.560*	.382	.100					
11	.183	.664**	.422	.597*	.422	.464	.422	.109	.464	.291				
12	-.092	.679**	.212	.285	.212	.328	.212	.478	.642*	.141	.401			
13	.147	.451	-.313	-.153	-.313	-.228	-.313	.100	.761**	-.201	.556*	.486		
14	-.037	.275	1.000**	.901**	1.000**	.789**	1.000**	.523*	-.064	.560*	.422	.212	-.313	

Table 47. Spearman rank-order correlations between teachers in school 16 (IGE) based on their rankings of the eleven subscales

Teacher	1	2	3	4	5	6	7	8	9	10	11
1											
2	.700**										
3	.291	.509									
4	.319	.465	.556*								
5	.551*	.587*	.211	.239							
6	.646*	.482	.109	.123	.404						
7	-.132	-.123	.169	-.201	.295	-.005					
8	.600*	.518*	.209	.196	.532*	.864**	.301				
9	.564*	.546*	.682**	.447	.468	.264	.032	.264			
10	.700**	.555*	.300	.633*	.404	.409	-.269	.364	.773**		
11	.318	.782**	.146	.114	.468	.536*	.032	.555*	.209	.255	