Relationship of selected IGE outcomes to student self-esteem and ability of elementary teachers to infer learner self-concept

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Relationship of selected IGE outcomes to student self-esteem and ability of elementary teachers to infer learner self-concept

by

Arnold David Lindaman

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of The Requirements for the Degree of DOCTOR OF PHILOSOPHY

Department: Professional Studies Major: Education (Educational Administration)

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For The Graduate College
Iowa State University
Ames, Iowa

1975
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INTRODUCTION AND RATIONALE

The helping professions today are developing supplements to theories on the nature of human behavior. The behaviorist view of man as a reactive organism that responds more or less mechanically to outside forces has been greatly modified in recent years. Other factors are now considered, such as man's capacity to consciously select and evaluate stimuli in terms of his needs, to assign value and meaning to experience, and to think creatively and engage in self-initiated action. Snygg and Combs (105), proponents of this view, suggest that learning is a problem of the discovery of personal meaning.

What has brought about this gradual change in our beliefs about learning? Difficulties which people experience in most areas of life are closely related to the ways in which they see themselves and the world in which they live. Purkey (in 27, p. 44) states that at the elementary school level it now appears that children's difficulties in basic academic skills seem to be a consequence of their own beliefs that they cannot accurately read, spell, write, handle numbers or think accurately, rather than of basic differences in capacity for these skills. According to Purkey (in 27, p. 44), many students have difficulty in school, not because of low intelligence or physical
disabilities but because they have learned to see themselves as unable to handle academic work.

In the search for a better way to motivate students, the emphasis has shifted away from manipulating the environment and external stimuli, though this is still important, toward facilitating perception and creating favorable conditions for personal exploration and discovery of meaning.

While concern for facilitating healthy pupil self-concept has been expressed by educators and laymen alike, the relationship among possible variables affecting it remains a fertile area for research. Gill's concluding statement is representative of the rising interest of educators in self-concept theory:

The results of this study support the conclusion with such convincing uniformity that the importance of the self-concept in the educational process seems to need more emphasis than is presently given to it. (Purkey, 92, p. 23)

Studies of self-concept as it relates to academic achievement have, in most cases, shown a positive relationship. A pioneer in this area was Prescott Lecky in 1945. He was one of the first to point out that low academic achievement may be related to a student's belief that he is unable to learn academic material (72).

Both Campbell (18) and Bledsoe (11), using self-report inventories, found a stronger relationship between
self-concept and achievement in boys than in girls. Lumpkin (44) found a significant relationship between pupil self-concept and reading. Alvord (3, p. 71) found a significant positive correlation between science achievement and self-concept with students in grade four.

Sackett (102) studied self-concept and achievement of sixth grade students in an open space school, a self-contained classroom school and a departmentalized school. The students in the open space school showed significantly lower achievement than in either of the other two schools. The self-concept mean score in the open space school was significantly lower than the self-concept mean score for the students in the self-contained and departmentalized schools.

Deeb (33) found no significant differences in the academic self-concepts of pupils (11.4 mean age) in graded and nongraded schools except in the specific area of social studies self-concept. In this area Deeb found significant differences in favor of nongradedness. When the educational program of sixth grade students used the continuous progress philosophy, Oldroyd (85) concluded that, as a whole, the type of instructional program (continuous progress or traditional) does not affect differences in the scores of sixth grade students on the Piers-Harris Children's Self-Concept Scale.
Junell (61) studied the effects of multi-grading on a number of noncognitive variables and obtained somewhat different results than those mentioned above. The data generally indicated that multigrading was more favorable for boys than it was for girls. Students with multi-graded backgrounds tended to have more favorable attitudes and higher self-concepts than students with graded backgrounds. However, a chi-square analysis revealed no significant differences between the two groups in Self-Direction as assessed by teachers and students. Leadership qualities, however, were found more often in the students with graded backgrounds. It would appear from Junnell's study that multigrading gives children of all ability levels broader scope for achievement and that it is apt to improve that portion of the pupil's self-concept that is closely allied to academic performance and school attitude.

Krathwohl et al. (70) submit that much of the research on the relations between cognitive achievement and attitudes and values shows them to be statistically independent.

A pertinent observation made by Purkey and Persons (95) and indirectly by Rosenthal and Jacobson (98) is that a factor usually overlooked in studies of innovative school programs is the question of whether the teacher's expectation of students is an important influence on
student self-concept and academic achievement. Available evidence gathered by Purkey (93, p. 256), Davidson and Lang (32), Purkey (92) and others indicates that the teacher's attitudes toward himself and others are as important, if not more so, than his techniques, practices, or materials. When the teacher believes that his students can achieve, the students appear to be more successful. This so-called self-fulfilling prophecy has been demonstrated by the research of Rosenthal and Jacobson (98).

Around 1965, Rosenthal and Jacobson (98) launched what was to become a most controversial study. It has since developed into the Pygmalion theory or the self-fulfilling prophecy phenomenon. Its potential effects are still being debated and researched. Through September, 1973, 242 studies had been done with a variety of subjects and situations (92, p. 58). Of these, 84 found that prophecies, i.e. the experimenters' or teachers' expectations made significant differences.

Rosenthal (97, p. 59) proposed a "four-factor theory" of the influences that produce the Pygmalion effect. People who have been led to expect good things from their students, children, clients, etc. appear to create a warmer mood around their "special" students; give more feedback to these students about their performances; teach more
material and more difficult material to these students; and give these students more chances to respond and question.

It becomes apparent in the face of the importance of student self-concept and its relationship to academic achievement that each educational innovation, such as Individually Guided Education (IGE), be evaluated in terms of its influence on the self-concept of students.

Statement of the Problem

A nationwide attempt to facilitate a more individualized and personalized educative process is Individually Guided Education (IGE). IGE is an educational process that includes multiage grouping, team teaching, differentiated staffing and continuous progress learning. IGE is geared toward individual student success. In its teacher inservice program an emphasis is placed on making teachers aware of the importance of self-concept when a student's educational program is planned. One of the major results of IGE study is that each student should have a personal advisor (48, p. 14):

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.

Another of IGE's major developments is a focal point of the present study (48, p. 14):
Both student and teacher consider the following when a student's learning activities are selected: peer relationships, achievement, learning styles, interest in subject areas, and self-concept.

Thus, IGE, along with nongraded and continuous progress learning, continues to stimulate considerable interest in the alleged ability of these innovative practices to develop in pupils a broad range of non-cognitive behaviors, such as a positive and healthy self-concept.

The major problem of this research was to determine if there were differences between the student self-esteem in IGE schools and student self-esteem in non-IGE schools, and to analyze the relationships between the teachers' inferences of their students' self-concepts as learners in the IGE and the non-IGE schools.

Specifically, the study focused on eight and ten-year old students, who, in the traditional school organization are generally starting the third and fifth grades.

Development of Hypotheses

The working hypotheses formulated for testing were developed on the basis of the general research hypothesis which has been deduced from the research rationale. Specifically, the research hypothesis was as follows: There are no significant differences of pupil self-concept
between IGE and non-IGE students as measured by pupil self-report via the Self Esteem Inventory (SEI) and by teacher inference via the Florida Key (FK).

In developing the hypotheses the following questions served as criteria.

1. Is there a significant difference between the student self-concept score of IGE students as measured by the SEI and FK?

2. Is there a significant difference in the correlation between the IGE student and teacher self-concept scores and the non-IGE student and teacher self-concept scores?

3. Is there a significant difference between the student self-concept scores of IGE and non-IGE students when categorized on the basis of age, sex, and school district?

4. Is there a significant difference between the student self-concept scores of IGE and non-IGE students when categorized according to those students scoring at or above the 65th percentile and those scoring at the 35th percentile or below on a standardized test of reading achievement?

5. Is there a significant relationship between the subscale scores of the FK and the SEI?

Based upon these criteria, several hypotheses were developed and tested at the 0.05 significance level.

1. There is no significant difference between the IGE and non-IGE pupil scores on the SEI.

2. There is no significant difference between the IGE and non-IGE pupil scores as inferred by the teachers on the FK.
3. There is no significant difference between the student self-concept scores (SEI and FK) of IGE and non-IGE students when categorized on the basis of age, sex, and school district.

4. There is no significant difference in the correlation between the IGE student and teacher self-concept scores and the non-IGE student and teacher self-concept scores of SEI 5 and the total FK score.

5. There is no significant difference between the self-concept scores (SEI and FK) of IGE and non-IGE students when grouped into students scoring at the 65th percentile or above and those scoring at the 35th percentile or below on standardized reading achievement tests.

6. The relationship between any of the subscales of the SEI and the subscales of the FK is not significantly different than zero for IGE and non-IGE students.

In accordance with the statement of the problem the research undertaken examined differences between student self-concept in IGE and non-IGE schools. Hypotheses one and two were developed to test the proposition that IGE schools, with the emphasis on individual success and stated concerns for enhancing a student's self-concept, will help students achieve more positive self-concepts than do non-IGE schools. Moreover, teachers in IGE schools are provided inservice training (48, p. 16) to help them become more aware of the need for developing activities which enhance a student's self-concept. Consequently, this investigation proposes that IGE students will develop a more positive self-concept and that the IGE
teachers will infer the self-concept of their pupils to be higher than will the non-IGE teachers.

Hypothesis three was developed to determine whether there were any differences between student self-concept scores when analyzed according to age, sex, and school district. Based on past research and experience, this investigation postulates that the younger students will have higher and more positive self-concept scores. The higher SEI and FK means found will be with the eight and ten-year-old IGE pupils.

Regarding the sex variable, this investigation hypothesizes that girls will have higher mean scores on the SEI and FK than boys. Based on past research, experience, and the sex stereotype by many elementary teachers that girls like school more than boys, this investigation predicts that the IGE girls will have the highest means on the SEI and FK.

With regard to the school district variable, the investigation suggests that differences among districts will vary according to the age and sex of students found in either the IGE or non-IGE schools.

In hypothesis four, the investigation seeks to find the association, if any, between the IGE teacher-inferred scores and student self-concept scores and the non-IGE teacher and student scores. If there are significant
correlations found, will a comparison using the Fisher Z analysis favor the IGE or non-IGE scores? This investigation proposes that the association will be higher for the IGE teacher-student scores because of the emphasis on assessing student self-concept given to IGE teachers during their inservice training sessions (48, p. T 17). This training should enable IGE teachers to be more accurate in their inferences regarding student self-concept.

Hypothesis five seeks to determine whether there are differences in self-concepts of students who are high achievers in reading and those who are not. Past research by Hutchison (47), Dennerll (34), Myers (78) and others supports the proposition that high achievers will feel good about themselves as learners and thus have higher scores on a self-concept inventory. Consequently, the SEI scores for high achievers should be higher than for low achievers for both IGE and non-IGE students. However, with the emphasis on individualization and the continuous progress learning approach of IGE, the expectation is that all IGE students will have more success than the non-IGE students and will thus develop a higher self-esteem of themselves in school.

Additionally, with the IGE emphasis on enhancing students' self-concepts by placing them in learning activities appropriate to their interests and their
abilities to cope, to relate and to assert themselves, the expectation is that their teachers would infer their students' self-concepts to be higher on the FK than the teachers in non-IGE schools.

Purkey et al. (94, p. 981) reported a low positive correlation (.14) between the short form of SEI and the FK. Hypothesis six was formulated to compare (Purkey and Cage's) this correlation with the correlation to be found in this research, which uses the long form of SEI with the FK. The expectation is that the total score correlation between the long form of SEI and the FK will be lower than .14 because of the inclusion of more SEI items which pertain to nonschool related areas. Purkey et al. (94, p. 981) reported a correlation coefficient of .33 between the school factors of the short form of SEI and the FK. However, the school-academic subscale (eight items) on the SEI long form should have a higher correlation than .33 with the FK because the FK purports to also measure the self-concept as a learner.

Assumptions

The assumptions underlying this research are:

1. Each of the two measures used in this research will measure what it purports to measure.

2. Student self-esteem (learner self-concept) can be identified and measured through pupil self-report and teacher inference.
3. The IGE system of organizational and inservice sessions have helped teachers to become warm, supportive and better able to enhance the self-concepts of their students by planning activities on the basis of a student's peer relationships, his achievement, learning styles, interest in subject areas, and of his own self-concept.

4. Each of the control schools within each district is comparable to the IGE schools except for the absence of IGE.

Definition of Terms

Following is a list of terms pertinent to the investigation. Subsequent use of the terms defined below relate to the definitions which follow.

- **pupils** - refers to girls and boys enrolled in four Iowa pupil school districts involved in the Central Iowa IGE League, Iowa State University, Ames, Iowa.

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

- **IGE** - is an acronym for Individually Guided Education. It is an educational process including multiage grouping, team teaching, differentiated staffing, continuous progress learning, and other innovations. See description in Review of Literature.

- **IGE/MUS-E** - is one of seven components of the IGE system. It is the organizational/administrative component at each building and central office level. The acronym stands for Individually Guided Education Multiunit School - Elementary.

- **League** - is a group of schools which work cooperatively to implement IGE.
non-IGE - schools which are not associated with IGE either through the Wisconsin Research and Development Center or /I/D/E/A/. They are labeled non-IGE in this investigation regardless of their organizational structure or educational practices.

self-concept - is defined as the degree of positive or negative feeling associated with an individual pupil's attitude toward himself as measured by the Self-Esteem Inventory or as inferred by his teacher and measured by the Florida Key.

SEI - refers to the Self-Esteem Inventory developed by Stanley Coopersmith. Of the two forms available, the long form (58 items) of the SEI is used in this research. The SEI is a self-report measure of pupil self-esteem. See Review of Literature for a more complete review and the Appendix.

FK - is a scale for teacher to use to infer learner self-concept. The abbreviation refers to Florida Key and was developed by William W. Purkey, Bob N. Cage, and William Graves. See description in Review of Literature and the Appendix.

Delimitations

The scope of this study was confined to those elementary students enrolled in the Iowa public school districts of Ames, Newton, Indianola, and Marshalltown. Furthermore, the student population was restricted to only those students who were either eight or ten-years-old on September 15, 1972 and who were found in 15 different elementary schools in these four districts. Seven of
those schools were IGE; the remaining eight were non-IGE schools. Administrators and the IGE staff member helped to match non-IGE schools with IGE schools on the basis of similar socioeconomic level of students attending. The student population for the non-IGE control was taken from only those schools that were matched with the IGE school found in that district. Although each of the IGE schools had been using it for almost a full year, none of the experimental schools had completely implemented the IGE organizational pattern of philosophy, according to study done by Halvorsen (42).

The teacher population was composed of the teachers of those eight and ten-year-old students in the IGE and non-IGE classrooms located in those schools mentioned above. In the case of IGE teachers, the only teachers who could mark the Florida Key were teachers designated by either the unit leader or the building principal as having the best knowledge of those students being studied.

The treatment in this investigation was the educating process as designed by the IGE organization. Comparison variables for the experimental and control groups were derived from the scores received on the Self-Esteem Inventory, Florida Key and those standardized achievement tests given in the respective school districts, viz., Iowa Tests of Basic Skills, Stanford Achievement Test,
Metropolitan Achievement and the Sequential Tests of Educational Progress.

Students who moved to another attendance area during the school year were excluded from the study. Students whose SEI scores on the lie scale invalidated their results were also not included in some of the analyses, i.e., if more than three of the eight statements comprising the lie scale were answered "like me" the validity of the remainder of the test might have been questioned.

Sources of Data

Data for this study were obtained from the scores on the SEI, FK and the standardized achievement test given in each school district. The SEI and FK were administered to eight and ten-year-old students or their respective teachers during May, 1973.
REVIEW OF LITERATURE

A review of literature was undertaken in the areas pertinent to the present investigation: 1) self-concept theory; 2) self-concept and self-report; 3) elementary student self-concept as it relates to academic achievement; 4) influence of IGE on school environment and on student self-concept; 5) influence of other individualized school environments on student self-concept; 6) relationship of teacher expectation and student self-concept; 7) use of teacher inference to measure student self-concept; 8) development of Individually Guided Education; and 9) Coopersmith's Self-Esteem Inventory.

Self-Concept Theory

Dinkmeyer (35, p. 181) outlined two broad frames of reference in psychology: first, the objective or mechanistic approach and second, the subjective or perceptual approach. When the objective approach is used (it is also referred to as stimulus-response psychology), behaviors are explained in terms of set stimuli to which the individual seems to be reacting. The subjective approach, on the other hand, starts with the assumption that behavior is purposeful and that people behave as they do because of their interpretation of external stimuli. An individual's behavior makes sense to him in terms of how he perceives the situation.
Snygg and Combs are the chief representatives of the self-concept theory used in this present research. They state (105, p. 15):

All behavior, without exception, is completely determined by and pertinent to the phenomenal field of the behaving organism.

Combs succinctly states (25, p. 470):

The self is composed of perceptions concerning the individual and this organization of perceptions in turn has vital and important effects upon the behavior of the individual.

The self is seen as a vantage point by Snygg and Combs (105, p. 146):

The self is the individual's basic frame of reference, the central core, around which the remainder of the perceptual field is organized. In this sense, the phenomenal self is both product of the individual's experience and producer of whatever new experience he is capable of.

In defining self-concept, Snygg and Combs (105, p. 141) said that it is the individual's "attempt to reduce his self-organization to its essence so that he may be able to perceive and manipulate it effectively".

Perhaps the single most important assumption of modern theories about the self is that the maintenance and enhancement of the perceived self is the motive behind all behavior. Two studies, one by Aronson and Mills (6), and another by Aronson and Carlsmith (5),
have shown that students who did poorly but expected to do so were more satisfied and contented than even those who did well but had not expected to do so. Individuals are generally unwilling to accept evidence that is contrary to the ways they perceive themselves. The ways one reacts to people, tasks, and roles are those which seem to be most consistent with one's self-image.

Maintaining and enhancing the perceived self is clearly expressed by individuals as they interact with other human beings. People learn who and what they are from the ways they are treated by important people in their lives or by "significant others", as Sullivan (in 71) calls them.

Learning about oneself from other people is a function of an individual's interpretation of how others see him. Since the individual really has no way of knowing precisely how others see him, he infers this from their behavior toward him. Therefore, as LaBenne and Greene (71 p. 13) notes, as individuals concepts of self rests in part on what he thinks others think of him. The most significant others in most young children's lives are their parents. Gradually, the number of significant others begins to expand to include teachers and peers. All of these people play a crucial role in developing of an individual's self-concept (71, pp. 28-40).
Self-Concept and Self-Report

In her comprehensive review of self-concept studies, Wylie (119), was optimistic about the possibilities of research into self-concept but pessimistic over the general quality of work up to that time. Most of the works reviewed here are studies of self-report. Combs states the difference between self-concept and self-report (24, p. 52):

Self-concept is what an individual believes he is. The self-report, on the other hand, is what the subject is ready, willing, able, or can be tricked to say he is. Clearly, these concepts are by no means the same.

For the remainder of this research, the review of literature and subsequent references will indicate when a study used a self-report as a way of exploring self-concept. The present research attempts to measure self-concept with both a self-report measure and a rating instrument used by the child's teacher which infers a child's self concept directly from the observed behaviors of the child. This procedure is recommended by Purkey (92, pp. 62-64).

Elementary Student Self-Concept as It Relates to Academic Achievement

A considerable fund of research evidence relating self-concept to school learning has been accumulating in recent years. Overall, the research evidence clearly shows
a persistent and significant positive relationship between the self-concept and academic achievement.

Studies found self-concept related to several variables. Coopersmith (29) found there was a significant positive relationship between high self-concept and school achievement in a group of fifth and sixth grade students. Bodwin (13) reported a significant positive relationship between immature self-concepts and reading disabilities in third and sixth grade classrooms.

Campbell (18) and Bledsoe (11) found a stronger relationship between self-concept and achievement in boys than in girls. According to Bledsoe and Garrison (12), the role of the school and the teacher is very important in creating a climate favorable to the development of a healthy self-concept.

The thread of continuity in those studies cited above is woven around the ideas of self-perception and the motivational force of self-consistency. In terms of self-perception, Roth (100) reports that individuals have a definite commitment to perform as they do. Those who do achieve choose to do so, while those who do not achieve choose not to do so. Lecky (72) concluded in his study that self-consistency was a primary motivating force in human behavior.
IGE's Influence on School Environment and on Student Self-Concept

Studies previously reviewed by Sackett, Myers, Junell, Deeb and Oldroyd, and others show the effects of various school organizational patterns and practices on student self-concept. However, Williams and Godwin's (113) study was specifically designed to ascertain the effect of the IGE organizational pattern and philosophy upon the attitudes of children in selected IGE schools as compared to children in non-IGE schools. A total of eight IGE schools from six different school districts and from three different IGE Leagues were selected. Three non-IGE schools were selected and were classified by type in the same manner as the IGE schools, i.e., urban, inner-city, and suburban (113, p. 52). Children included in the study were randomly drawn from class lists and given the following instruments: The School Sentiment Index (SSI) for ages six through eight; the Self-Concept (SC); the Attitude Toward School (ATS); and the Attitude Toward Learning (ATL) questionnaires for ages nine through 11 (113, p. 53).

Williams and Godwin found that children's attitudes toward themselves, toward school, and toward learning were not different because of their experiences in an IGE school. Moreover, on the Attitude Toward Learning questionnaire, when the averages for children in control
and IGE schools were compared, children in the suburban control schools had higher averages than for those in suburban IGE schools at the .01 level. This indicates a more positive attitude in the control group students. The opposite was true for the urban and inner-city schools (113, p. 54). However, the small n used for these comparisons, particularly for the inner-city schools (27 and 73), presents questions for the reliability of the scores obtained.

Regarding differences in attitudes based on the sex of the child, Williams and Godwin (113, p. 56) found significant differences at the .01 level for the SSI. These data indicate that girls generally have more positive attitudes toward school, toward learning, and toward teachers. On all questionnaires, means for girls were consistently higher than means for boys.

Are there differences in attitudes among the various age groups of children, six through 11 years old? Williams and Godwin (113, p. 56) found that mean scores of the various age levels were not significantly different for any of the questionnaires used. However, on the ATL the interaction between the kind of school attended and age level was significant at the .05 level, and a three-way interaction between kind of school, age and sex at .01 level. In IGE schools it appeared that older
children (11 years old) had a more favorable attitude toward learning, while in control schools the younger children (nine years old) had the more favorable attitude (113, p. 57). According to Williams and Godwin, the three-way interaction was caused by boys and girls scoring differently at various age levels in the IGE and control schools (113, p. 57). However, Williams and Godwin failed to discuss the very important effect of multiage grouping on students' attitudes, a chief characteristic of the IGE organizational structure.

Recommendations for further research from Williams and Godwin (113, p. 57) support this investigation's attempt to compare the self-concept of students and their achievement. Also, the present research will help to verify the difference in student self-concept found in the suburban and control schools.

A national evaluation study of the Individually Guided Education Program was conducted by Belden Associates, a firm doing research and counselling in marketing and public affairs for /I/D/E/A/ (10). The Summary Report (1972-73) presents findings of the Belden study conducted to assess the overall effectiveness of the IGE system during the 1972-73 school year in the following areas (10, p. iv):
1. Evaluation of the level of installation of the organizations and the process of the IGE program.

2. Assessment of the behavior of the groups of people involved directly in the IGE system.


Four questionnaires were designed for gathering data by means of face to face interviews with administrators, teachers, students, and parents of the students in IGE schools (10, pp. iv-v). All 1656 interviews were completed using the questionnaires developed and tested by Belden Associates in consultation with /I/D/E/A/, the sponsor of the research. Interviewees were selected from schools which in turn had been selected from a master list of schools supplied by /I/D/E/A/.

A total of 103 schools were selected and screened for inclusion in the sample; however, for 30 schools (28 per cent) the administrator or the school board would not grant permission for the school to participate. The final sample totaled 73 schools.

Some selected results of the study done by Belden Associates for /I/D/E/A/ follow. The findings of this national evaluation study which include the overall rating of IGE by administrators, teachers, and parents shows a very favorable reaction to IGE by all three groups (10, p. 9). Using a rating scale of Excellent, Good, Fair,
Poor, Don't know, or No answer, 68 per cent of the administrators stated that IGE is excellent, 28 per cent rated it as good. Forty-two per cent of the teachers rated IGE as excellent and 52 per cent of the teachers rated it as good.

Parents were the least favorable with 34 per cent of them rating IGE as excellent and 42 per cent of them rating it as good. Children were also very favorable in their opinion toward IGE. Attitudes of the children were measured by asking them if they had learned more, less, or about the same amount in school this year as compared to last year. Seventy-five per cent of the children responded and said they had learned more this year, and 20 per cent said that they had learned about the same amount. Five per cent said they learned less than last year (10, p. 9).

It must be pointed out, however, that the questions asked for opinions and not for a comparison based on direct evidence from standardized achievement test scores. The present research will look at student scores on standardized achievement tests.

Multi-age grouping and self-planning of work by each student, two of the main characteristics of the IGE system, were not completely understood or accepted by the teachers, parents and children. Both concepts faced some resistance
among teachers, with two out of every ten saying that both of the activities are fair or poor goals (10, p. 12).

Teachers perceive the IGE model a positive influence on school climate, as reported by Belden Associates and corroborated by the University of Nebraska. However, the Nebraska study qualifies its conclusions (113, p. 55):

... This study suggests that positive results are obtained by the implementation of the IGE Model—if an increase in climate which stresses intellectual endeavors, achievement, respects for others, and increased interpersonal interaction is an intended outcome.

The Belden Associates study reports that 75 per cent of the IGE teachers said that the IGE system had allowed them to do a better job of teaching. Sixty-seven per cent said that the other teachers in their unit were more effective now than they had been before. Seventy-seven per cent thought that students were enjoying school more under IGE. Approximately 75 per cent of the IGE teachers thought that IGE worked equally well for fast and/or culturally advantaged learners as it did for the slow and/or culturally disadvantaged children (10, p. 16).

Several questions should be raised to set in perspective some of the conclusions reached by the research firm of Belden Associates. Did the treatment of the IGE program really produce a change in the
expectations of groups, in the opinion of meeting expectations, in the concepts of roles, in the perceptions of changes, and in the opinions about the effectiveness of IGE?

A brief look at some of the uncontrolled variables that may have produced or confounded the effects of the IGE program should satisfy the requirements of setting a perspective for some of the conclusions reached. They represent the effects of the following uncontrolled variables:

1. Biases might have developed because of the employer (/I/D/E/A/) and employee (Belden Associates) relationship. A question might be raised concerning the objectivity of the findings in the situation where the employee is investigating his employer's programs.

2. There was a possible selection bias in the entire sample since there may have been pre-IGE variables that made the sample different from the normal population to start with. For example, the respondents obviously preferred the more innovative and experimental or else they would not be involved in IGE (10, p. 19):

   In approximately four out of every ten schools some of the teachers left the schools because of the adoption of the IGE system. In the majority of cases, however, only one or two teachers left. Additionally, most of the instances of teachers leaving occurred in larger schools.
3. There was a possible selection bias resulting from interviewing respondents from 73 schools out of the total sample school population of 103 schools. However, the 103 schools were screened and stratified by size of school district and the degree of implementation of IGE goals (10, p. iv).

4. There may have been maturation and historical effects resulting during the period of May 21, 1973, to July 2, 1973. Significant events such as being in or out of school, being in the same unit the next year or changing to a new unit the next fall all might affect a respondent's opinions and perceptions of the influence of IGE (10, p. v).

Another major study investigating the relationship of IGE/MUS-E to the learning climate of pupils was done by Nelson, a doctoral student at the University of Wisconsin in 1972 (83). IGE/MUS-E is the organizational/administrative component of IGE at the elementary level in each building in the central office. Nelson's study was not sponsored by /I/D/E/A/ as was the Belden study. In Nelson's study, learning climate was defined as a combination of those behavioral and attitudinal variables in a pupil's immediate school setting which may affect learning. They included a pupil's attitude toward several factors related to school morale and his self-concept as a learner. Basically, the study used two self-report measures.
The major question posed in this study was (83, p. 2): "Is the IGE/MUS-E organizational structure characterized by a different learning climate than the traditional self-contained organizational structure?"

The sample used in the study included 25 schools, 13 multi-unit and 12 traditional, self-contained schools. The multi-unit schools were selected on the following criteria: The school must be fully organized in the multi-unit pattern, must include students in the nine to 12 (upper unit) age range, and must be in at least its second year of operation. The control schools were matched on the criteria of geographic location, size, and socioeconomic background (83, p. 3). The instruments chosen for gathering data on learning climate included the School Morale Scale and Semantic Differential of Self-Concept as a Learner.

Nelson's conclusions with respect to the multi-unit school and self-concept were (83, pp. 7, 8):

1. Pupils in multi-unit schools exhibited more positive learning attitudes than did pupils in traditionally organized schools.
2. Pupils in multi-unit schools generally appeared to have a more positive self-concept as learners than did pupils in traditionally organized schools.
3. Pupils in multi-unit schools displayed a more positive attitude toward their fellow pupils than did pupils in traditionally organized schools.
4. There was no difference between multi-unit pupils and pupils in traditionally organized schools with respect to their attitude toward teachers.

5. Pupils in multi-unit schools generally appeared to have a more positive attitude toward instruction than did pupils in traditionally organized schools.

6. Pupils in multi-unit schools revealed a more positive attitude toward school in general (school morale) than did pupils in traditionally organized schools.

The results of Nelson's study are restricted by the abstract nature of such concepts as "learning climate" and "school morale" and by limitations of self-report instruments which measure perceptions rather than behavior. Despite defining learning climate at the beginning of his study as those (83, p. 1) "...behavioral and attitudinal variables in a pupil's immediate school setting which may affect learning." Nelson did not include any measurement of self-concept as learner except the self-report type.

Additionally the findings of Nelson's study were based on the broad age range of the upper unit, nine through 12 and did not analyze data with regard to youngest versus oldest students or differentiate between the sexes. Primary age children (eight years or younger) were not included in the study. The present research has taken the variables of age and sex into account when analyzing the data.
Influence of other Individualized School Environments on Student Self-Concept

Other studies on the effects of various school environments on self-concept and attitude toward school have yielded varying results with regard to their influence on self-concept. Campbell (18) reported a low positive correlation between the Coopersmith Self Esteem Inventory, a self report questionnaire, and the achievement of fourth, fifth and sixth grade students. Bledsoe (11) explored the relationship of the self-concepts of fourth and sixth grade children to their intelligence, achievement, interests, and anxiety. He used the Bledsoe Self Concept Scale and found significant correlations between professed self-concept and achievement for boys but insignificant correlations for girls.

Sackett (102), after comparing the self-concept and achievement of sixth grade students in an open space school, a self-contained school, and a departmentalized school, concluded that the students in the open space school were significantly lower in achievement (using the Iowa Tests of Basic Skills) and in the self-concept mean score (using Coopersmith Self Esteem Inventory) than either of the other schools.

Wiegand (111) studied the extent which peer group status interacts with the student's perception of the
classroom learning climate. Using 93 fifth and sixth grade students in midwestern suburban communities she concluded that a status quo tends to be maintained, that the accepted student remains accepted while the rejected student is subjected to continuous failure.

Climate perception had a positive correlation with the perceived status of a student in Wiegand's study (111). One inference that could be drawn from her study was that it supports the multi-age grouping concept of IGE e.g. the pattern of social and academic failure for some students may only be broken when these students have interaction with a new and more accepting group.

Junell's (61) study on the effects of multi-grading on a number of noncognitive variables goes beyond Wiegand's findings. Junell's comparison involved 54 students with multi-graded experience and 96 students with graded elementary background. Both groups went to the same junior high and were tested in the fall on 12 noncognitive variables.

In Junell's analysis of the effects of multi-grading versus regular grading, there was a strong tendency for the main effects of school treatment to be different for boys than it was for girls. There was a trend for more favorable attitudes and self-concepts of students with multi-graded backgrounds. Multi-graded children of below average ability
achieved statistically higher scores on "attitude toward school" and "attitude toward peers". Junell (61) concluded that the age grouping pattern per se seemed to be little more than a means of setting parameters to peer group influences. When grouping patterns give children of all ability levels a broader scope for achievement, they are apt to improve that portion of children's self-concepts closely allied to academic performance and likely to improve school attitudes as well.

While Junell's study was comprehensive in the scope of the noncognitive variables investigated, the internal validity of his study may be weakened because he waited until the students were in junior high before he measured the variables. The treatment variable of multi-grading may have been confounded through the effects of history and the maturation of the subjects during the summer months and during the start of the junior high year. The present research provides for maximum treatment effect of IGE; tests are given in May, before the regular school year closes.

After reviewing the literature regarding the treatment effects of the IGE educational environments and the treatment effects of other school organizational structures on elementary student self-concept and attitudes, the following summary statements can be noted. Research in IGE in
this area favors IGE in two out of three studies reviewed, viz. the Belden study and the Nelson study. The third study by Williams and Godwin showed no significant favorable effects of IGE but did favor the IGE process in several aspects relating to attitude towards learning and self-concept if one compared the means of the IGE school with the control non-IGE school.

Two studies by Sommerville (104) and Myers (78) look at the influence of openness of a school's organizational climate and the success oriented approach used by the nationally known Individually Prescribed Instruction (IPI). Both factors of openness and a success oriented approach are contained in the IGE organizational and philosophical framework and are thus pertinent for this review. Sommerville (104) found no significant differences in school-related self-concept; however, students in school who had highest scores on the Organizational Climate Descriptive Questionnaire exhibited significantly higher mean scores on their personal/social self-concept, their level of aspiration, and their attitudes and opinions about school than those in schools which had the lowest scores on the Organizational Climate Descriptive Questionnaire. Myers found that students with three years of IPI have significantly lower self-concepts than students that have one or two years of IPI.
In six studies, Coopersmith (29), Bodwin (13), Hutchison (47), Dennerll (34), Myers (78), and Bledsoe and Garrison (12) (12), significant relationships were shown between student self-concept and achievement. Two studies by Wiegand and Junell gave definite support to the multiage grouping concept, a major characteristic of IGE schools. Sackett's study found support for the self-contained and departmentalized school organization as opposed to the open space type school. Self-concept scores were higher in the self-contained and departmentalized schools studied by Sackett.

Relationship of Teacher Expectation and Student Self-Concept

A basic assumption of the theory of self-concept is that we behave according to our beliefs. If that is true, then the teachers' beliefs about himself and his students are crucial factors in determining his effectiveness in the classroom.

Combs and Purkey (26, p. 55) indicates that the teachers' attitudes toward himself and others are as important, if not more so, than his techniques, practices, or materials. Purkey (92, p. 47) states that teachers, in their capacity as significant others, need to view students in essentially positive ways and hold favorable expectations for them. The ways teachers evaluate the student directly affects the student's conception of
his academic ability. Purkey says that when teachers have essentially favorable attitudes toward themselves they are in a much better position to build positive and realistic self-concepts in their students (3, p. 47).

Several studies illustrate this important relationship between the student's perception of his teacher's feelings towards him and the student's self-esteem and academic achievement. It is this interaction that the present research seeks to clarify with regard to its presence in IGE and non-IGE schools.

Davidson and Lang (32) found that the children's perceptions of their teacher's feelings toward them correlated positively and significantly with their self-perceptions. Thus, the child with the most favorable self-image was usually the one who perceived his teachers' feelings toward him as being favorable. Furthermore, the more positively the children perceive their teachers' feelings toward them, the better their academic achievement will be and the more desirable their classroom behavior will be as rated by the teacher.

Pertinent to this review is the study done by Rosenthal and Jacobson (98) where they report on the self-fulfilling prophecy. The basic hypothesis of their research was that students, more often than not, do what
is expected of them. With 650 public elementary students and teachers, Rosenthal and Jacobson conducted an experiment. The teachers were told that, on the basis of ability tests administered the previous spring, approximately one-fifth of the students could be expected to show significant increases in mental ability during the year. The names of these high-potential achievers were then given to the teachers. In fact, however, the names had been chosen at random by the experimenters. When intelligence tests and other measures were given some months later, those previously identified high achievers tended to score significantly higher than the children who had not been so labeled.

The teachers later described them as happier, more curious, more interesting, and as having a better chance of future success than other children. They summarized their study by stating that the evidence strongly suggests that "children who are expected by their teachers to gain intellectually in fact do show greater intellectual gains after one year than do children of whom such gains are not expected" (98, p. 121).

Are teacher characteristics associated with student classroom behavior? Hartlage and Schlagel's study (45, p. 192), though having a limited sample of teachers (21) and children (300), found 38 significant correlations
between 14 classroom behaviors of children and 15 personality characteristics found on the Edwards Personal Preference Schedule. In general, they found that high affiliation, abasement, and nurturance needs in teachers tend to be negatively correlated with desirable classroom behaviors in children such as sense of humor, being a leader, and being happy, and positively correlated with undesirable behaviors, such as shyness, crying, whining, and disruptive behavior. Since the design of the study was correlational, it cannot be inferred that the teachers' characteristics resulted in the children's classroom behaviors. However, their data do suggest that there is a strong relationship between characteristics and the behavior of the children in their classrooms, at least as perceived by their teachers.

Purkey and Persons (95, pp. 79-80) did a study which, though again limited in the number of teachers involved (79), found that teachers in various school organizational patterns may see themselves differently. The purpose of their study was to determine whether or not teachers in an innovative, completely ungraded, team teaching elementary school view themselves differently from a comparison group of teachers employed in a conventional graded and self-contained classroom type school. All subjects were
given the Teacher Self-Report Inventory (TSRI), a semantic
differential inventory with five categories. When overall
results were analyzed, there appeared to be a significant
difference between the composite self-reports of teachers
in the innovative elementary school and those in the
conventional elementary school. The teachers in the
innovative school reported more positive and favorable
self-concepts relating to themselves, to others, and to
their job.

If these relationships do exist as indicated by these
studies, research by this writer, which does not rely only
on student self-report but also includes the teacher
inference of the learner's self-concept, would enable
one to look at both sides of the coin regarding the
influence of IGE on students.

The present research seeks to determine whether IGE
teachers infer the self-concept of their students to be
higher than do non-IGE teachers. If a change in teacher
inference of student self-concept is evidenced then will
there also be a parallel effect in the students self-
estee as measured by a self-report instrument? That is,
does a change in teacher inference of student self-concept
get reflected in the way students view themselves?
Use of Teacher Inference to Measure Student Self-Concept

A primary study in this area was done by Purkey and Cage (94) who attempted to devise and validate a simple scale which classroom teachers could use to infer pupils' self-concepts as learners without relying on pupils' self-reports. Data was collected and analyzed on 1000 students in Florida and Oklahoma.

To ascertain a measure of concurrent validity with a self-report instrument, a comparison was made of each pupil's rating on the Florida Key (FK) with his self-report as measured by the 25 items of the Coopersmith Self Esteem Inventory (short form). When more than one teacher had rated a child with the FK only one teacher's score was randomly selected and correlated with the child's SEI. The correlation of coefficient was .14, indicating little relationship between FK total scores and this self-report instrument (94, p. 932).

According to Purkey and Cage, this was expected, as the 25 items on the SEI encompass four broad factors, only one which directly relates to school and the learning activities in a school setting. The coefficient of correlation between the school factor on the SEI and the Florida Key was .33, which was a significant increase over the total score correlation (94, p. 932). The
results of the factor analysis indicated that there were four characteristics of children as learners which teachers perceived within the 18 observable behaviors described in the Florida Key.

Purkey and Cage stated that these four characteristics (Relating, Asserting, Investing, and Coping) accounted for 92 per cent of the common variance. Coefficients of reliability using the split halves procedure were determined for all teachers in the study done by Purkey and Cage. These ranged from .62 to .96. A total split-halves reliability coefficient across all teachers was found to be .93 (31, p. 982).

The validation study for the FK was conducted in the Florida Laboratory School (94, p. 938). Teachers chose five students as "feeling best about themselves as learners" and five who "felt badly about themselves as learners". The mean factor score in the four FK factors for each of the two dichotomous groups was found for each of the two groups and a point biserial coefficient of correlation found. These coefficients ranged from .57 (Relating) to .71 (Coping) with correlation for total score being .68, all of which were significant beyond the .01 level as reported by Purkey and Cage (94, p. 983).
They stated that the study was a preliminary attempt toward the development of an unobtrusive instrument to infer learner self-concept. They suggested that this type of instrument held promise for use with early primary children and children in special education programs and they hoped that additional emphasis would be made on the collection of data for normative purposes.

In evaluating this research, the need for correlating the FK with the long form SEI (58 items) becomes apparent. Comparing the .14 correlation coefficient between the total scores of the short form SEI and the FK with correlation coefficients between the total scores of the long form SEI and the FK should put into sharper perspective their statement that there is little relationship between the FK and the SEI.

Whereas Purkey and Cage chose only a limited (though randomly selected) number of each teacher's FK scores for correlation with the SEI, the present research will correlate all SEI scores with all teacher FK scores that were obtained.

Furthermore, research using the long form of the SEI becomes apparent when one evaluates the correlation coefficient of .33 between the school factor on the SEI short form and the total score of the FK. Whereas Purkey and Cage's correlations are based on the school factors
which were composed of only three items on the SEI (see Appendix), the present correlation of the school factors will use the subscale score based on all eight items on the SEI long form. In addition, research that would correlate all of the four subscales of the SEI (General Self, Social Self-Peers, Home-Parents, School Academic) with the total FK scores would again add greater perspective to the correlation data of Purkey and Cage as well as provide much needed baseline and normative data for future IGE research in this area. Specifically, the present research provides a comparison of the .33 correlation coefficient found by Purkey and Cage (94) with the correlation coefficient found from the school factor on the long form of SEI and the FK.

In attempting to correlate the FK with SEI, Purkey and Cage did not use the SEI long form which contains a lie scale. This would have enabled them to throw out the invalid tests. The eight items which produce the lie scale score are fairly absolute statements to which few children would answer "Like me", such as, "I never worry about anything". "I always do the right thing". If more than three of these statements are answered "Like me", the validity of the remainder of the test might be questioned. Although less than one-half of one percent of the children have scores high enough to doubt the
validity of the tests, Purkey and Cage's study was not able to eliminate these scores from their findings. These invalid scores will be eliminated from any correlation calculations in the present research.

Most attempts to assess self-concept have relied on a self-report instrument. This research design lacks the advantage of an external criterion for measuring self-concept. Although Purkey and Cage's research and the present research do not fully meet all the requirements of an external criterion, both designs have student self-report data on self-concept as well as the teacher inferred self-concept scores for students.

Another study using the FK was directed by Graves (41) in Oklahoma. Graves found significant differences favoring pupils in the innovative schools on the FK dimensions of Relating and Investing. The present research focuses on these two dimensions of the FK and also on all the other dimensions, not only in terms of IGE versus non-IGE but also in terms of the FK scores of male versus female.

Even though Purkey's list of students' behaviors on the FK may be only a start, it is a significant start for research into self-concept to find out more about how various self-concepts are represented in behaviors. Combs and his colleagues believe that a more accurate
assessment of self-concept can be made when a larger sample of behavior is used (28, p. 495):

...if behavior is a function of perception, it should be possible to observe behavior and infer the nature of the self-perception which produced that behavior.

Despite the great need for using some measurement of self-concept other than a self-report inventory and despite the previously quoted claims of Combs and his colleagues, caution is the watchword when making use of teachers' perceptions of students. Jorgensen (60) studied the relationship between self, peer, and teacher evaluations of behavior and motivational dispositions in third grade students. In short, is a teacher able to rely on his own judgment of a child's personality?

Jorgensen found that neither the teacher perceptions nor the peer perceptions of a child's behavior were consistently related to the child's self-perceptions. He concluded that teachers and peers do not rate motivational and behavioral dispositions in the same way that a child perceives himself. The findings of Jorgenson clearly illustrate the need for caution when using teacher perceptions of student self-concept.

Coopersmith's Self Esteem Inventory

One of the instruments chosen to measure self-concept was Stanley Coopersmith's *Self Esteem Inventory* (SEI)
(1965). Experiences in other studies and criticisms leveled at self-report type measures such as the SEI make clear the exceptional difficulties involved in this area of measurement. The Coopersmith instrument was chosen primarily because of its wide use [Campbell (18, Coopersmith (30), Zirkel and Moses (120), Trowbridge (108)] and also because of the body of normative data available.

Form A of the SEI is a self-report or self-inventory consisting of 58 items designed for children from about nine to 14 years old. The present study includes eight-year-old students so the items were read aloud. It asks only whether a certain attitude or characteristic is "like me" or "unlike me" as the child perceives himself. The maximum possible score, representing the highest possible self-concept is 100. The national average score found by Coopersmith was 70.

The 58 items are subdivided into a total of five subscales: (1) General Self (26 items); (2) Social Self-Peers (eight items); (3) Home-Parents (eight items); (4) School Academic (eight items); and (5) Lie Scale (eight items). The Lie Subscale is not counted in scoring the test because its purpose is to check on test validity. Each of the remaining 50 items may have a weight of two, making the possible score of 100.
The eight items which produce the "lie scale" score are fairly absolute statements to which few children would answer "like me" such as "I never worry about anything", "I always do the right thing", and "I am never unhappy". If more than three of these statements are answered "like me" the validity of the remainder of the test might be questioned. Less than one-half percent of the children had high enough lie scale scores to doubt the validity of their tests.

The SEI employs the usual test design of having approximately half of its items answered "like me" for a positive self-concept and the remaining half of the items requiring an "unlike me" response to be scored in the direction of a positive self-concept. For example, the item, "If I have something to say, I usually say it" would be scored in a positive direction if the child answered "like me". Whereas the item "My teacher makes me feel I'm not good enough" would be scored in a negative direction if the child answered "like me".

Coopersmith (30) reports that in most samples the curve is skewed in the direction of high self-esteem. The means have been in the vicinity of 70-80 and the standardized deviations approximately 11-13. Employing position in the group as an index of relative
self-appraisal, Coopersmith has employed the upper quartile as indicative of high esteem, lower quartile as indicative of low esteem, and the interquartile range as indicative of medium esteem.

Concerning the normative data (30), Coopersmith reports (nine - 15) a mean of 70.1 for female preadolescents and a mean of 72.2 for male preadolescents.

Development of Individually Guided Education

The multi-unit school can be traced back to 1964-65 when Project MODELS (Maximizing Opportunities for Development and Experimentation in Learning in the Schools) began at the Wisconsin Research and Development Center for Cognitive Learning (81, p. 1). The center was under the direction of Herbert J. Klausmeier, professor of educational psychology at the University of Wisconsin. Dr. Klausmeier was joined by representatives of 13 Wisconsin school systems and the Wisconsin Department of Public Instruction. Their aim was to initiate (81, pp. 1, 2):

a new type of organization ... in the school building to deal with some of the mutual concerns of the Center, the public school systems and the State Department of Public Instruction regarding the development of exemplary instructional systems and sophisticated experimentation.
In 1966, as a result of this project, the Wisconsin Center and three school districts cooperatively started the first 13 nongraded instructional and research units as replacements for age-graded classes in Madison, Janesville, and Racine. In 1966-67 the number of instructional and research units increased to 19. The emerging system became known as Individually Guided Education or IGE.

Another thrust in implementation occurred in 1969 when the Wisconsin Center and /I/D/E/A/ (the Institute for the Development of Educational Activities, a division of the Kettering Foundation) entered into an agreement whereby /I/D/E/A/ used Center-developed printed materials and videotapes to prepare their first generation multimedia inservice materials.

Recently an implementation thrust came when the United States Department of Health, Education, and Welfare (HEW) selected the multi-unit school for nationwide installation in the 1971-72 school year. Well above 500 IGE schools were in existence in 18 states in 1971-72. During the 1972-73 year, some 350 new schools were working with the Wisconsin Center, as well as 200 with /I/D/E/A/.

The present research data are from the Central Iowa League of Schools, an /I/D/E/A/ affiliated League of schools.
IGE is concerned as a total organizational system designed (66, p. 1):

...to produce higher educational achievements through providing well for differences among students in rate of learning, in learning style, and in other characteristics.

Its proponents claim that IGE provides a realistic alternative to the age-graded, self-contained classroom and the traditional form of organization that makes children adapt to the system instead of adapting the system to meet the needs of each individual child. Thus, IGE is part of the dominant thrust in attempting to improve American education through individualization of instruction. IGE encourages instructional programs for each individual student so that his objectives may be attained. These systems call for (81, p. 3):

1. Planning instructional programs which allow each student to progress at his own rate.

2. Providing instructional materials (textbooks, audiovisual materials, demonstrations) which can accommodate individual learning styles.

3. Organizing modes of instruction (large group instruction, small group instruction, independent study, one-to-one instruction) to suit each child's best learning style.

4. Matching teachers and students so that each student has the help of the teacher who best suits him for each specific learning task.
Both the Wisconsin Center and /I/D/E/A/ offer detailed teacher inservice programs. In its Implementation Guide (48, pp. 12-16), /I/D/E/A/ lists 35 outcomes to be achieved by various members of the IGE personnel. All of the outcomes support the underlying assumption of IGE: An individualized program of instruction which attempts to accommodate the personal need disposition of the learner and goals of the organization is conducive to a positive self-concept of a student. Of the 35 outcomes, certain ones have more direct relationship to the dependent variables that are being assessed. The list of these pertinent outcomes follows:

**Responsibility of the Principal**

- Each unit is composed of approximately equal numbers of two or more student age groups.
- The Instructional Improvement Committee (IIC) coordinates school-wide inservice and educational programs.

**Responsibility of the Unit Leader**

- Unit teachers practice role specialization and a division of labor when planning for the students' learning programs.
- The unit selects and/or develops curricular materials which include the following components: assessment methods, specific learning objectives, a variety of learning activities using different media, student performance records.
Teacher performances in the learning environment are constructively criticized by unit members using both planned and informal observations.

Teacher performances in the learning environment are constructively criticized by unit members using both planned and informal observations.

Large group, small groups, paired situations and independent study are provided as optional learning modes.

Options exist for providing a greater range of teacher-learner environments.

Responsibility of the Teacher

The following are considered when students are matched to learning activities: peer relationships, achievement, learning styles, interest in the subject areas, self-concept.

Unit teachers insure that each student has personal rapport established with at least one teacher.

Adequate opportunity is provided through discussion and written communication to insure that each teacher is fully aware of perceptions and suggestions of other unit members relating to the students with whom each has developed special rapport.

Each student is involved in self-assessment procedures and analyses of the assessments.

Each student has increasing responsibility for selection of his learning objectives.
A staff member of an IGE school should have a personalized program enabling each to learn and to implement IGE.

These selected IGE outcomes affecting the self-concept of students are operationalized through three distinct levels of organizational structure of IGE: the I and R unit (Instructional Research); the IIC (Instructional and Improvement Committee); and the SPC (Systemwide Policy Committee) (see Appendix).

The I & R unit is the nongraded, multiage organization for instruction that replaces the age-graded, self-contained classroom. Each unit consists of a unit leader, three to five teachers, an instructional aide, a clerical aide and up to 150 children. The primary function of the I & R unit is planning and carrying out the instructional program for each child in the unit.

The I & R unit leader's responsibilities are to coordinate this assessment of children's characteristics and progress in the unit and to place children in appropriate activities. The I & R team assesses each child's level of achievement, learning style, and motivation level by using various kinds of tests, by observing each student, by interviewing, and by examining work samples and diagnostic tests from each student. The team works out specific instructional objectives for each child to complete over a short period of time.
Children with similar learning objectives and learning styles are grouped together and the children may move among independent study, one-to-one situations, small group work or large group work, depending on their assignments. After this period of activity, the team reassesses each student's progress and then decides on the next set of instructional objectives.

Besides the I & R unit level of operation, there is the IIC composed of the building principal and all of the unit leaders in the building. The principal is primarily responsible for managing the preservice and inservice training activities.

The last of three levels of operation in the organizational structure of IGE is the SPC. This system-wide policy committee includes the superintendent, principals, unit leaders, teachers, and various consultants. The SPC's primary task is to help the district make the transition from self-contained classrooms to the multi-unit organization. The degree of effectiveness of the IGE system seems to depend largely on the extent to which the various components have been implemented. The degree to which IGE teachers are influencing the self-esteem of the students depends largely on the effectiveness of the inservice training which they've had (48, pp. T 16, T 17).
The application of this training helps a teacher to match students into the right mode of learning at the right time. The teacher's fulfillment of this responsibility will influence the self-esteem of students. It requires sensitivity and understanding on the part of teachers and an openness to involve students in designing their own learning programs. This responsibility also requires objective measurement of student skills.

Summary

Judging from the preceding Review of Literature, there appears to be a persistent and significant relationship between self-concept and academic achievement during the elementary school years. Moreover, a change in one seems to be associated with a change in the other. Most correlation coefficients ranged from .20 to .40. The coefficients were generally higher for girls than for boys.

A limited number of studies have been done to measure the impact of the IGE educational process on the self-concepts of students. None of the reviewed studies utilized teacher inference of student self-concept techniques with the long form of the Self Esteem Inventory. No reviewed studies contained designs which analyzed the interactive effects of age, sex, and level of achievement in conjunction with the effect of IGE.
An apparent trend found in the literature is that boys generally possess lower self-concepts than girls, while few differences exist within sexes. Additionally, pupils with low self-concepts were only rarely found to be high achievers. IGE's influence on student self-concept, has been judged inconclusive in one study and found to be a moderately positive influence in two other studies.

Regarding the teacher's role and his perceptions of students, the literature reviewed was uniform in its implication that the teacher's role and perceptions are critical factors in the development of a student's self-concept and his performance at school.

A strength of the present research consists of establishing some benchmarks regarding IGE's impact on student self-concept. These reference points on self-concept are measured by both the self-report and by the teacher-inference techniques. Looking at self-concept from these two vantage points adds perspective in studying the relationship between age, sex, level of achievement and the type of school environment. Information of this type would then allow local schools to focus their IGE inservice and teaching emphasis for improving pupil self-concept on those areas found to be most directly related to pupil self-concept.
METHODS AND PROCEDURES

Instrumentation

According to LaBenne and Greene (71, p. 11) a person's self-concept is usually determined by:

1. Introspective self-reflections in personal, family, social, and school or work settings.
3. Congruence between subjective self-reports and action and objective reports of clinically trained observers.
4. Nonintrospective inferences derived from projective techniques and clinical interviews.

The present research uses technique number four. The self-report of student self-esteem is measured by the Self-Esteem Inventory (SEI) and teacher inference of the student's self-concept as a learner is measured by the Florida Key (FK).

When considering a self-report instrument such as the SEI, it is important to clearly understand the differences between a person's self-report and his self-concept. The self-concept, according to Combs et al., (27, p. 52):

...is what a person perceives himself to be; it is what he believes about himself. The self-report is what a person is willing or able to divulge, or what he can be tricked into saying about himself when asked.
Combs et al. (27, p. 52) states that the self-report is a behavior; the self-concept is a system of beliefs.

However, Coopersmith (29) suggests that a good vantage point for understanding behavior is from the internal frame of reference of the person himself. Self-reports provide the "inside view" based on the subject's knowledge and experience. LaBenne (71, p. 11) disagrees:

...this method is weak from the standpoint of possessing an external criterion. The researcher must infer the stimulus from the subject's response to it, and he has no way of getting agreement of others about what the subject should be experiencing under specified conditions.

How closely the self-report approximates the subject's "real" self-concept according to Combs et al. (28, p. 494) will presumably depend on at least the following factors:

1. The clarity of the individual's awareness.
2. The availability of adequate symbols for expression.
3. The willingness of the individual to cooperate.
4. The social expectancy.
5. The individual's feelings of personal adequacy.
6. His feeling of freedom from threat.

Purkey (92, p. 61) states that, in spite of their weakness, self-reports do reveal characteristics of the self and are important to teachers. He suggests that self-reports be used in conjunction with other evidence.
During this research data was gathered through use of the FK, an instrument used by teachers to infer pupils' self-concepts as learners. Combs, Avila and Purkey (27, p. 53) support the idea that self-concept can be understood indirectly through a process of inference from some form of observed behavior. They give the following rationale:

If it is true that behavior is a product of the individual's perceptual field, then it should be possible, by a process of reading behavior backward, to infer from observed behavior the nature of the perception which produced it.

Combs, Avila, and Purkey (27, p. 54) list the following reasons why inferences about self-concept made from observed behavior are more acceptable indicators of self-concept than a person's self-report.

1. This method approaches the self-concept as an organization of perceptions which produce behavior. The person's behavior is not thought to be synonymous with self-perception.

2. This method avoids many of the distortions found in self-report because of social expectancy, lack of subject cooperation, lack of adequate language, or the subject's feelings of threat.

Both the subjective self-report and the objective inferences of student self-concept were used in this research so that the weaknesses of each would be minimized.
Examination of Measuring Instruments

The two instruments used to measure pupil self-concept in this research were the SEI, a self-report inventory, and the FK, a scale which measures teacher inference of learner self-concept. Each of the school districts studied used either the Iowa Tests of Basic Skills (1971 edition) or the Stanford Achievement Test (1964 edition) to measure academic achievement.

The SEI, developed by Coopersmith (29), is a self-report inventory consisting of 58 items designed for children from about nine to 14 years of age. It asks only whether a certain attitude or characteristic is "like me" or "unlike me" as the child perceives himself. The maximum possible score, which represents the highest possible self-concept, is 50 or 100, if the score is doubled as the directions indicate. The national average for females in this age group is 70.1; for males it is 72.2. The reliability found by Coopersmith between the long form and short form of the SEI was .86. The long form was used in this study.

Coopersmith (30, p. 89) reports that the curve is skewed in the direction of high self-esteem. The means usually have been in the vicinity of 70-80 and the standard deviations are approximately 11-13. There are no exact criteria of high, medium, and low self-esteem.
However, Coopersmith has considered position in the group as an index of relative self-appraisal. The upper quartile indicates high esteem, lower quartile indicates low esteem and the interquartile range indicates medium esteem.

The other instrument used to measure student self-concept was the Florida Key (94). The scale, devised by Purkey et al. and further tested by Graves (41), is to be used by classroom teachers "...to infer pupils' self-concept as learners without relying on self-reports" (94, p. 979). The scale is composed of 18 items which make-up four subscale scores: relating, asserting, investing, and coping. Using a scale from 0=Never to 5=Very Often, teachers are asked, "Compared with other students his age, does this student —get along with other students; —speak up for his own ideas; —seek out new things to do in school on his own, and so on."

The maximum possible score, representing the highest possible learner self-concept is 90. Purkey et al. (94, p. 982) did a split-halves estimate of reliability of total scores and found it to be 0.93.

Treatment Effect

Students were involved with the IGE treatment from about the second month of the school year (October) to the time of testing during the last three weeks of May. The teachers in IGE had received most of the IGE inservice
training during the four months prior to the start of school in the fall. It should again be noted that the IGE treatment effect was limited to 40 or 50 per cent of the student's day.

Administration of the student self-report instrument (SEI) was standardized by tape recording all instructions. All directions and questions were taped and played to groups of approximately 10-25 students. Pupils marked their answers directly onto the exercise sheet to control possible transformation errors.

The SEI was administered during the last three weeks of May to allow maximum effect of IGE. Proctors for each session of SEI administration came from the building staff and consisted of the principal, teachers, or unit leaders. Student names were recorded on the test sheets by the IGE facilitator's staff before students took the SEI to assist local school staffs in assembling the desired student groups. Before the tests were returned to the researcher for scoring, the IGE staff removed the student names from the test sheets. This left only coded student identification numbers and protected the confidentiality of the subjects.

Administration of the FK was standardized by the instructions (see Appendix A-1) which directed the principal or unit leader to "give copies of the Florida Key to
the teacher who has the best knowledge of the student's attitudes and behaviors for this school year."

Again the IGE facilitator's staff placed the students' names on each copy of the FK to expedite its distribution in each school district. Before these copies were returned to the researcher the names were removed by staff members; only the student code number was used for identification. This procedure was outlined on the directions sheet that was sent to each building.

Teachers marked their responses directly onto the test sheet. Again this was done to control for possible transformation errors. The FK was completed by teachers during the last three weeks of May.

Sample Design

The student population for this sample consisted of 871 full time elementary pupils enrolled in four public school districts in Iowa: Ames, Indianola, Newton and Marshalltown. The selected students were either eight or 10 years old on September 15, 1972. This population was selected from coded sheets which listed only birth-dates and student code numbers. In the IGE schools studied, 304 students were eight years old and 112 were 10 years old. In the non-IGE control schools, 344 were eight years old and 111 were 10 years old.
Because of an administrative recommendation in the Ames district, a random sample of 15 students from each building was drawn from a list of those students who were taking the SEI. Each of the 15 students so selected had a FK completed on them by their teacher in that building.

The teacher population was composed of teachers of the selected students in 15 elementary buildings in the four districts. Each teacher marked the FK for students within his or her own classroom. In the case of IGE teachers, the teacher marking the FK was the teacher designated by the unit leader and/or principal as having the best knowledge of those students being studied.

Treatment of Data

All pupil responses, and information such as building, IGE status, student number, sex, birthdate, and achievement test data, were punched onto IBM cards, and each card was verified and edited for valid responses.

Data were treated using t-tests, correlation, and analysis of variance techniques as contained in the Statistical Package for the Social Sciences (SPSS) (84) and Statistical Analysis System (SAS) (9, 103). T-tests were used in finding differences in IGE and non-IGE student self-concept scores to test hypotheses one, two and five. For the hypotheses which deal with correlation (hypotheses four and six) correlation coefficients were
computed to examine the relationships, if any, between self-report and teacher-inferred self-concept scores. The Fisher Z formula (37, pp. 311, 312) was used to test for differences between the two sets of correlations found for IGE and non-IGE teacher and student scores of self-concept. Analysis of variance was used to test hypothesis three which deals with the effects of IGE, age, sex, school district and their interaction. An observational rule was applied to hypothesis 6 stating that if more than 50 per cent of the correlation coefficients were significant then hypothesis 6 would be rejected.
FINDINGS

Data gathered in the research was focused on testing six major hypotheses which were developed from the following questions:

1. Is there a significant difference between student self-concept scores of IGE and non-IGE students as measured by the SEI and the FK?

2. Is there a significant difference in the correlation between the IGE student and teacher self-concept scores and the non-IGE student and teacher self-concept scores?

3. Is there a significant difference between the student self-concept scores of IGE and non-IGE students when categorized on the basis of age, sex, and school district?

4. Is there a significant difference between the student self-concept scores of IGE and non-IGE students when categorized according to those students scoring at or above the 65th percentile and those scoring at the 35th percentile or below on a standardized test of reading achievement?

5. Is there a significant relationship between the subscale scores of the FK and the SEI?

The findings are organized as follows: 1) description
of sample; 2) student and teacher perception of self-concept as tested by the six major hypotheses.

Description of Sample

Percentage breakdowns for the sample population by IGE, age, sex and district are reported in Tables 1 and 2. Both tables list the number of either IGE or non-IGE students according to sex, school district and age. Some discrepancy exists between anticipated sample size (871) reported in Methods and Procedures and the actual sample size (795) totals given in Tables 1 and 2. This is due primarily to two factors: 1) information loss due to inappropriate pupil and teacher responses; and 2) pupil loss due to pupil absences from test sessions. Additionally, the data from the SEI was analyzed both with and without those tests that are invalidated because of the scores on the lie scale. The results reported here will include all students' scores unless there is a significant enough difference in the results to warrant listing the data with the lie scale taken into account.

Student and Teacher Perception of Self-Concept

Hypothesis 1: There is no significant difference between the IGE and non-IGE pupil scores on the SEI.

The significant means, standard deviations and the t-value for IGE and non-IGE student scores on the SEI are
Table 1. Distribution of IGE students classified by sex, school district and age

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>193</td>
<td>49.2</td>
</tr>
<tr>
<td>Girls</td>
<td>199</td>
<td>50.8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>392</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>School District</strong></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ames</td>
<td>158</td>
<td>40.3</td>
</tr>
<tr>
<td>Indianola</td>
<td>87</td>
<td>22.2</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>42</td>
<td>10.7</td>
</tr>
<tr>
<td>Newton</td>
<td>105</td>
<td>26.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Age</strong></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>202</td>
<td>51.5</td>
</tr>
<tr>
<td>10</td>
<td>190</td>
<td>48.5</td>
</tr>
</tbody>
</table>

Table 2. Distribution of non-IGE students classified by sex, school district and age

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys</td>
<td>187</td>
<td>46.4</td>
</tr>
<tr>
<td>Girls</td>
<td>216</td>
<td>53.6</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>403</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>School District</strong></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ames</td>
<td>198</td>
<td>49.1</td>
</tr>
<tr>
<td>Indianola</td>
<td>79</td>
<td>19.6</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>26</td>
<td>66.5</td>
</tr>
<tr>
<td>Newton</td>
<td>100</td>
<td>24.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Age</strong></th>
<th>N</th>
<th>Per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>214</td>
<td>53.1</td>
</tr>
<tr>
<td>10</td>
<td>189</td>
<td>46.9</td>
</tr>
</tbody>
</table>
presented in Table 3.\textsuperscript{1} Pooled variance t-tests were computed to test for mean differences. The hypothesis was tested to determine the treatment effect of IGE on self-esteem as reported by students. Examination of the total SEI scores of IGE and non-IGE students revealed no significant differences. Thus hypothesis 1 could not be rejected. However, on subscale SEI 5 (School Academic) there was a significant difference ($p < .05$) and, on this subscale, hypothesis 1 can be rejected. On subscale SEI 5, non-IGE students have a more positive self-concept than do IGE students.

Table 3. Comparison of means and standard deviations of subscale SEI 5 (School Academic) for IGE and non-IGE students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean S.D.</td>
<td>Mean S.D. t-value</td>
</tr>
<tr>
<td>SEI 5</td>
<td>4.811 1.996</td>
<td>5.082 1.877 -1.97\textsuperscript{*}</td>
</tr>
</tbody>
</table>

\textsuperscript{*}(p < .05).

Hypothesis 2: There is no significant difference between the IGE and non-IGE pupil scores as inferred by teachers on the FK.

\textsuperscript{1}T-values for nonsignificant results have been placed in the Appendix D-1 for the reader's convenience.
Hypothesis 2 was tested to determine the effect of IGE on a learner's self-concept as inferred by teachers. Significant means, standard deviations and t-values are listed in Table 4. Again the pooled variance t-tests were computed to test for mean differences.

Table 4. Comparison of means and standard deviations of FK subscales and total self-concept scores for IGE and non-IGE students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students (n = 293)</th>
<th>Non-IGE Students (n = 262)</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td>FK 1: (Relating)</td>
<td>20.00</td>
<td>4.30</td>
<td>21.85</td>
</tr>
<tr>
<td>FK 2: (Asserting)</td>
<td>24.92</td>
<td>7.35</td>
<td>28.75</td>
</tr>
<tr>
<td>FK 3: (Investing)</td>
<td>5.69</td>
<td>2.92</td>
<td>7.91</td>
</tr>
<tr>
<td>FK 4: (Coping)</td>
<td>15.25</td>
<td>4.38</td>
<td>17.38</td>
</tr>
<tr>
<td>Total FK</td>
<td>65.86</td>
<td>16.18</td>
<td>75.89</td>
</tr>
</tbody>
</table>

*** (p < .001).

Analyzing the scores on the FK revealed highly significant differences between the two groups on all subscales of the FK (p < .001). The findings substantiate rejection of null hypothesis 2 for all subscales of the
FK. On all subscales of the FK the non-IGE teachers inferred the learner self-concepts of their students more positively than did the IGE teachers.

Hypothesis 3: There is no significant difference between the student self-concept scores (SEI and FK) of IGE and non-IGE students when categorized on the basis of age, sex, and school district.

Hypothesis three was tested to determine the effects of the variables of IGE, age, sex and school district on the dependent variables of SEI and FK. Analysis of variance was used to determine the main and interactive effects of the selected variables. Because of unequal cell frequencies, a weighted analysis was computed. However, the school district variable was not analyzed because the cell frequencies were too small in two of the districts included in the study.

Findings pertinent to the interpretation of hypothesis 3 are summarized in Table 5. The data in Table 5 do not yield sufficient evidence from the main effects to reject hypothesis 3 as it relates to self-esteem of students. However, there is some statistical evidence for rejection of hypothesis 3 based on the interactive effects of IGE and age. An analysis of the means for the total scores
of SEI subscales (SEI 1, 2, 3, 5) reveals that 10 year olds reported a higher self-esteem in the non-IGE situation than did the non-IGE eight year olds. Conversely, the eight year olds reported a higher self-esteem in the IGE situation than did the IGE 10 year olds. Though the interactive effects of IGE and age were significant (p < .01), their educational significance is somewhat diminished because of the large number of subjects involved and a mean difference of 1.67 points or less between the subgroups while using the SEI which has a maximum of 50 points. The SEI subscales that had these statistically significant interactive effects of IGE and age were SEI 1 (General Self Concept); SEI 2 (Social Self-Peers); and SEI 5 (School Academic).

The differences found in the total FK subscale scores of learner self-concept as inferred by IGE and non-IGE teachers were presented in Table 6. These data revealed sufficient evidence to reject hypothesis 3, regarding sex, age and IGE treatment. Means for the total FK scores generally are higher for the non-IGE students:

<table>
<thead>
<tr>
<th></th>
<th>Means for IGE</th>
<th>N</th>
<th>Means for Non-IGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Females</td>
<td>69.338</td>
<td>157</td>
<td>78.418</td>
</tr>
<tr>
<td>Males</td>
<td>61.846</td>
<td>136</td>
<td>72.934</td>
</tr>
</tbody>
</table>
On the total FK the sex variable produced differences without grouping according to IGE. When comparing the means of IGE males and females with the means of non-IGE males and females the females were quite strongly favored in both groups by about 5.5 to 7.5 points respectively. Thus there was no interactive effect of IGE and sex.

The interactive effects of IGE and age were found with the total FK scores used to test hypothesis 3. An inspection of the means revealed that 10 year olds received much higher learner self-concept scores from their non-IGE teachers than 10 year olds in IGE classrooms did from their teachers.

<table>
<thead>
<tr>
<th>N</th>
<th>Means for IGE</th>
<th>N</th>
<th>Means for Non-IGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-year olds 134</td>
<td>66.194</td>
<td>105</td>
<td>75.686</td>
</tr>
<tr>
<td>10-year olds 159</td>
<td>63.893</td>
<td>157</td>
<td>76.019</td>
</tr>
</tbody>
</table>

However, the eight year olds received higher learner self-concept scores from IGE teachers than was received by the 10 year olds from the non-IGE teachers. It should be noted that both age groups of non-IGE students received significantly higher learner self-concept scores than did both groups of IGE students.

Two FK subscales which also had these significant interactive effects of IGE and age were FK 2 (Asserting) and FK 3 (Investing).
Table 5. Analysis of variance for total scores of SEI on IGE, sex and age

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>DF</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGE</td>
<td>1</td>
<td>6.368</td>
<td>6.368</td>
<td>0.0954</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>0.620</td>
<td>0.620</td>
<td>0.0093</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>30.762</td>
<td>30.762</td>
<td>0.4607</td>
</tr>
<tr>
<td>IGE:Sex</td>
<td>1</td>
<td>85.825</td>
<td>85.825</td>
<td>1.2852</td>
</tr>
<tr>
<td>IGE:Age</td>
<td>1</td>
<td>487.969</td>
<td>487.969</td>
<td>7.3074∗∗</td>
</tr>
<tr>
<td>Sex:Age</td>
<td>1</td>
<td>2.111</td>
<td>2.111</td>
<td>0.0316</td>
</tr>
<tr>
<td>IGE:Sex:Age</td>
<td>1</td>
<td>21.543</td>
<td>21.543</td>
<td>0.3226</td>
</tr>
<tr>
<td>Residual</td>
<td>787</td>
<td>52553.584</td>
<td>66.777</td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>794</td>
<td>53188.780</td>
<td>66.988</td>
<td></td>
</tr>
</tbody>
</table>

∗∗∗(p < .01).

Table 6. Analysis of variance for total teacher inferred scores using the FK on IGE, sex and age

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of squares</th>
<th>Mean square</th>
<th>F value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGE</td>
<td>1</td>
<td>13902.143</td>
<td>13902.143</td>
<td>68.5911∗∗∗</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>5952.965</td>
<td>5952.965</td>
<td>29.3710∗∗∗</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>334.412</td>
<td>334.412</td>
<td>1.6479</td>
</tr>
<tr>
<td>IGE Sex</td>
<td>1</td>
<td>96.214</td>
<td>96.214</td>
<td>0.4741</td>
</tr>
<tr>
<td>IGE Age</td>
<td>1</td>
<td>1017.707</td>
<td>1017.707</td>
<td>5.0212∗</td>
</tr>
<tr>
<td>Sex</td>
<td>1</td>
<td>283.274</td>
<td>283.274</td>
<td>1.3976</td>
</tr>
</tbody>
</table>

∗∗∗∗(p ≤ .001).

∗∗(p ≤ .05).
Hypothesis 4: There is no significant difference in the correlation between the IGE student and teacher self-concept scores and the non-IGE student and teacher self-concept scores of SEI 5 and the total score of the FK.

It was anticipated that one benefit from the IGE inservice training would be to increase teacher awareness of the learners' characteristics, especially the learner self-concept. However, the result was not statistically significant.

Findings relative to interpretation of hypothesis 4 are summarized in Table 7. An analysis of Table 7 provides insufficient evidence to reject the null hypothesis. Inspection of the data indicate that there was no significant difference in the correlation between the IGE student and teacher scores and the non-IGE student and teacher scores.
Table 7. Ninety-nine per cent confidence intervals for correlation between subscale SEI 5 (School-Academic) and the teacher inferred self-concept scores of the FK using Fisher's Z-transformation of r to obtain confidence interval

<table>
<thead>
<tr>
<th>Treatment</th>
<th>r</th>
<th>Confidence intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>lower limit</td>
</tr>
<tr>
<td>IGE</td>
<td>.277</td>
<td>-.074</td>
</tr>
<tr>
<td>Non-IGE</td>
<td>.126</td>
<td>.369</td>
</tr>
</tbody>
</table>

Hypothesis 5: There is no significant difference between the self-concept scores (SEI and FK) of IGE and non-IGE students when put into two groups: 1) students scoring at the 65th percentile or above and 2) those scoring at the 35th percentile or below on standardized reading achievement tests.¹

The testing of hypothesis 5 was first done to determine the effect of IGE on the high and low achievers' self-esteem scores. The pooled variance t tests were computed to test for mean differences. Only two school districts (Indianola

¹High and low achievers were identified as those students whose composite reading achievement scores on the Iowa Tests of Basic Skills and the Stanford Achievement Tests were equal to or higher than the 65th percentile or were equal to or less than the 35th percentile.
Table 8. Comparison of means and standard deviations of subscale SEI 5 (School-Academic) of high and low achieving IGE and non-IGE students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
<th>t-values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>SEI 5</td>
<td>60</td>
<td>5.02</td>
<td>2.08</td>
</tr>
<tr>
<td>(High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achievers)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEI 5</td>
<td>45</td>
<td>3.93</td>
<td>2.01</td>
</tr>
<tr>
<td>(Low)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Achievers)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: (p < .05).

and Newton) gave and reported either the Iowa Test of Basic Skills or the Stanford Achievement Test so the population (n = 292) is limited to these districts. Significant means, standard deviations and t values are listed in Table 8, above.

Inspection of the data shows that high achieving students reported their self-esteem, as it relates to the school-academic situation (SEI 5), to be significantly more positive in the non-IGE school setting. Although the mean for the low achieving non-IGE students was higher, it was not significant (p < .05).

Analysis of the other three subscales of the SEI did not support rejection of the null hypothesis as it relates to high or low achievers' self-esteem.
A closer look at student self-esteem scores was done with the sex of the student taken into account. The significant means and standard deviations of high and low achieving males and females in IGE and non-IGE schools are reported in Table 9. It can be noted that classification by sex produced significant results in only two of the SEI subscales. Male low achievers in IGE classrooms reported a more positive self-esteem in terms of social interactions with peers than did their counterparts in non-IGE classrooms. However, the male high achievers in non-IGE classrooms reported a more positive self-esteem on the subscale three dealing with students' home and parental relationships than did the IGE male high achievers. No significant differences of the treatment effect were found for either low or high achieving females.

Hypothesis 5 remained tenable in light of the data collected on sex variable effects for all SEI subscales except for male high and low achievers on subscales two and three.

The FK was used to measure the student's self-concept as a learner and these data were also used to test hypothesis 5. Comparisons of these IGE and non-IGE teacher-inferred, learner self-concept scores (FK) of high achievers are summarized in Table 10. Comparable data for low achievers appears in Table 11. Analysis of data revealed that only
Table 9. Comparison of means and standard deviations of subscales on the SEI 3 of high and low achieving male and female students in IGE and non-IGE schools

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
<th>t-values</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>SEI 3 Home-Parent (Male-High Achievers)</td>
<td>26</td>
<td>5.62</td>
<td>1.96</td>
</tr>
<tr>
<td>SEI 3 Home-Parent (Female-High Achievers)</td>
<td>34</td>
<td>5.94</td>
<td>1.89</td>
</tr>
<tr>
<td>SEI 2 Social-Self Peers (Male-Low Achievers)</td>
<td>24</td>
<td>5.17</td>
<td>1.31</td>
</tr>
<tr>
<td>SEI 2 (Female-Low Achievers)</td>
<td>21</td>
<td>4.48</td>
<td>1.75</td>
</tr>
</tbody>
</table>

*(p < .05).

Table 10. Comparison of means and standard deviations of subscales and total FK scores for high achieving IGE and non-IGE students

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>FK 1: (Relating)</td>
<td>62</td>
<td>20.73</td>
<td>3.46</td>
</tr>
<tr>
<td>FK 2: (Asserting)</td>
<td>62</td>
<td>26.53</td>
<td>6.87</td>
</tr>
</tbody>
</table>

**\*\*(p < .001).
** (p < .01).
Table 10. Continued

| Subscale   | IGE Students | | | Non-IGE Students | | | | t value |
|------------|--------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|            | N | Mean | S.D. | N | Mean | S.D. | | | |
| FK 3: (Investing) | 62 | 6.32 | 2.92 | 32 | 9.31 | 1.20 | | | | -5.55** |
| FK 4: (Coping) | 62 | 16.98 | 2.87 | 32 | 19.28 | 1.35 | | | | -4.28** |
| Total FK: | 62 | 70.56 | 13.48 | 32 | 83.06 | 7.53 | | | | -4.86** |

Table 11. Comparison of means and standard deviations of subscales and total FK scores of low achieving IGE and non-IGE students

| Subscale   | IGE Students | | | Non-IGE Students | | | | t value |
|------------|--------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|            | N | Mean | S.D. | N | Mean | S.D. | | | |
| FK 1: (Relating) | 45 | 17.87 | 5.92 | 33 | 19.33 | 5.06 | | | | -1.15 |
| FK 2: (Asserting) | 45 | 19.39 | 9.39 | 33 | 26.46 | 6.08 | | | | -3.51** |
| FK 3: (Investing) | 45 | 4.38 | 3.47 | 33 | 6.97 | 2.26 | | | | -3.74** |
| FK 4: (Coping) | 45 | 12.22 | 5.71 | 33 | 15.73 | 4.35 | | | | -2.95** |
| Total FK: | 45 | 54.36 | 21.77 | 33 | 68.49 | 15.97 | | | | -3.15** |

*:* (p < .01).
**:* (p < .001).
subscale, FK 1 (Relating), failed to show a significant difference with low achieving students. On all other subscales and on the total FK score, the non-IGE teachers inferred the learners self-concepts to be more positive for high and low achieving students than did the IGE teachers.

Again the data was analyzed according to the sex of the students. Table 12 presents the significant means and standard deviations for high achieving males and females. Table 13 contains similar data for low achieving males and females. Inspection of these two tables provides significant evidence to reject null hypothesis 5 as it relates to total learner self-concept scores as inferred by teachers. Furthermore, on all subscales of the FK, except FK 1 (low achieving males and females) and FK 2 (high achieving males), non-IGE teachers inferred the self-concept of their students to be more positive than did the IGE teachers.

Hypothesis 6: The relationship between any of the subscales of the SEI and subscales of the FK is not significantly different than zero for IGE and non-IGE students.

Findings relative to the interpretation of hypothesis 6 are found in Table 14. With IGE scores, 11 of the
Table 12. Comparison of means and standard deviations of Florida Key subscale and total scores of high achieving males and females

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>FK 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>27</td>
<td>20.48</td>
<td>3.38</td>
</tr>
<tr>
<td>Females</td>
<td>35</td>
<td>20.91</td>
<td>3.55</td>
</tr>
<tr>
<td>FK 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>27</td>
<td>25.44</td>
<td>8.14</td>
</tr>
<tr>
<td>Females</td>
<td>35</td>
<td>27.37</td>
<td>5.69</td>
</tr>
<tr>
<td>FK 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>27</td>
<td>5.19</td>
<td>3.47</td>
</tr>
<tr>
<td>Females</td>
<td>35</td>
<td>7.20</td>
<td>2.07</td>
</tr>
<tr>
<td>FK 4:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>27</td>
<td>15.74</td>
<td>3.21</td>
</tr>
<tr>
<td>Females</td>
<td>35</td>
<td>17.94</td>
<td>2.18</td>
</tr>
<tr>
<td>Total FK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>27</td>
<td>66.85</td>
<td>15.49</td>
</tr>
<tr>
<td>Females</td>
<td>35</td>
<td>73.43</td>
<td>11.10</td>
</tr>
</tbody>
</table>

*(p < .05).
***(p < .01).
****(p < .001).
Table 13. Comparison of means and standard deviations of FK subscales and total scores of low achieving males and females

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE Students</th>
<th>Non-IGE Students</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>Mean</td>
<td>S.D.</td>
</tr>
<tr>
<td>FK 1:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24</td>
<td>15.71</td>
<td>6.57</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>20.33</td>
<td>3.94</td>
</tr>
<tr>
<td>FK 2:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24</td>
<td>19.08</td>
<td>9.70</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>20.81</td>
<td>9.17</td>
</tr>
<tr>
<td>FK 3:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24</td>
<td>3.29</td>
<td>3.06</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>5.62</td>
<td>3.57</td>
</tr>
<tr>
<td>FK 4:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24</td>
<td>11.29</td>
<td>6.09</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>13.29</td>
<td>5.18</td>
</tr>
<tr>
<td>Total FK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>24</td>
<td>49.38</td>
<td>22.85</td>
</tr>
<tr>
<td>Females</td>
<td>21</td>
<td>60.05</td>
<td>19.46</td>
</tr>
</tbody>
</table>

*(p < .05).
***(p < .01).
****(p < .001).
Table 14. Pearson correlation coefficients and level of significance between subscales of SEI and FK for IGE student score (n = 285)

<table>
<thead>
<tr>
<th>Subscale</th>
<th>FK 1: (Relating)</th>
<th>FK 2: (Asserting)</th>
<th>FK 3: (Investing)</th>
<th>FK 4: Coping</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEI 1: (General Self-Concept)</td>
<td>.0901</td>
<td>.1595***</td>
<td>.1113*</td>
<td>.1310*</td>
</tr>
<tr>
<td>SEI 2: (Social Self-Peers)</td>
<td>.1315*</td>
<td>.1256*</td>
<td>.0775</td>
<td>.1543***</td>
</tr>
<tr>
<td>SEI 3: (Home Parents)</td>
<td>.0930</td>
<td>.2009***</td>
<td>.1038*</td>
<td>.1456***</td>
</tr>
<tr>
<td>SEI 4: (Lie)</td>
<td>.1260*</td>
<td>.1141*</td>
<td>.0786</td>
<td>.2068***</td>
</tr>
<tr>
<td>SEI 5: (School Academic)</td>
<td>.1950***</td>
<td>.2235***</td>
<td>.2740***</td>
<td>.2737***</td>
</tr>
</tbody>
</table>

***(p < .01). *(p < .05).

Correlation coefficients were found to be highly significant (p < .01) with another five coefficients found significant (p < .05). Using the non-IGE scores on Table 15, nine of the coefficients were highly significant with four coefficients being significant (p < .05). It should be noted, however, that the levels of significance were obtained with sample sizes of 285 and 235 respectively.
Table 15. Pearson correlation coefficients and levels of significance between subscales of SEI and FK for non-IGE student scores (n = 235)

<table>
<thead>
<tr>
<th>Subscale</th>
<th>FK 1: (Relating)</th>
<th>FK 2: (Asserting)</th>
<th>FK 3: (Investing)</th>
<th>FK 4: (Coping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEI 1: (General Self-Concept)</td>
<td>.1655**</td>
<td>.1654**</td>
<td>.2880**</td>
<td>.1966**</td>
</tr>
<tr>
<td>SEI 2: (Social Self-Peers)</td>
<td>.1091*</td>
<td>.1322*</td>
<td>.1927**</td>
<td>.1620**</td>
</tr>
<tr>
<td>SEI 3: (Home Parents)</td>
<td>.1627**</td>
<td>.0653</td>
<td>.2137**</td>
<td>.1356*</td>
</tr>
<tr>
<td>SEI 4: (Lie)</td>
<td>.0173</td>
<td>.0425</td>
<td>.0235</td>
<td>.0476</td>
</tr>
<tr>
<td>SEI 5: (School Academic)</td>
<td>.1189*</td>
<td>.0945</td>
<td>.1844**</td>
<td>.0727</td>
</tr>
</tbody>
</table>

** (p < .01).
* (p < .05).

The IGE student and teacher scores correlated most highly on SEI 5 (School Academic) and FK 3 (Investing) with a low positive correlation of .2740. The non-IGE student and teacher scores correlated most highly on the SEI 1 (General Self-Concept) and FK 3 (Investing) with a correlation of .2880. Of the 20 coefficients reported on Table 14, 16 or 80 per cent were significant (p < .05). On Table 15, 13 of the 20 coefficients or 65 per cent were found to be significant.
The observational rule stated in Methods and Procedures was that if more than 50 per cent of correlation coefficients associated with this hypothesis were significant \((p < .05)\) hypothesis 6 would be rejected. Therefore, with 80 per cent of the IGE and 65 per cent of the non-IGE correlation coefficients found to be significant, hypothesis 6 is rejected.

For the tables which show the coefficients but exclude those SEI test scores that had a high enough Lie scale score to question the validity of the test see the Appendix. Generally, the differences between the correlation coefficients found with and without the Lie scale taken into account were not sufficiently different to make a separate listing necessary here.

It should be noted that using the long form of the SEI produced a higher coefficient correlation between the total scores of the SEI and the FK than that found by Purkey and Cage with the short form of the SEI (.14). Total score correlation between SEI and FK using all 795 students of this investigation was .215. Taken by IGE and non-IGE, the correlation coefficients were .221 and .220 respectively. However, the correlation between the School Academic factor and FK of .33, found by Purkey and Cage using the SEI short form, was not equaled in this research which used the SEI long form. The
correlation between the School Academic subscale and the FK for IGE students and teachers was .277 and for non-IGE students and teachers it was .126.
SUMMARY, CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Summary

The purpose of this investigation was to determine if there were differences between the student self-esteem in IGE schools and the student self-esteem in non-IGE schools and to analyze the relationships between the teachers' inferences of students' self-concepts as learners in the IGE and the non-IGE schools.

The research used the Self Esteem Inventory developed by Coopersmith (29) and the Florida Key, a learner self-concept measure for teacher use, developed by Purkey, Cage and Graves (94) at the University of Florida.

These two instruments were administered to a total of 871 Iowa public school pupils who were 8 or 10 years old on September 15, 1972. These students were found in four central Iowa school districts. Measures were administered in May, 1973. For the SEI, pre-taped instructions were used. Both teachers and students marked their responses directly onto the test sheets. The SEI and FK sheets were then scored and data were then punched onto cards for later analysis.

Is there a difference between student self-esteem scores of IGE and non-IGE students as measured by the SEI?
From the research conducted, the following differences and relationships were found. Looking at the total scores of the SEI, a self-report instrument composed of the General Self-Concept, Social Self-Peers, Home-Parents, and School-Academic subscales, no significant differences between IGE and non-IGE students were revealed. However, looking at the t tests on separate subscales, the SEI 5 (School-Academic) subscale revealed a statistical difference \((p < .05)\) indicating the non-IGE students have a slightly more positive academic self-concept than do IGE students.

The educational significance of this finding from an eight item subscale is diminished by the small difference between the means of IGE and non-IGE groups (the mean of IGE is 4.811 and the mean of non-IGE is 5.082, a difference of .27). A similar statement can be made about the significant interactive effect between IGE and the age of pupils. This effect was found to be significant on the School-Academic scale, the General Self-Concept scale, the Social Self-Peer scale and for the total scores on the SEI. On all these subscales the means favored the 10 year-old non-IGE students and the eight year-old IGE students. (See Appendix D-1 for means.)

Three findings came from t tests which used pooled variances with student groups whose scores placed them at the 65th percentile or above or at the 35th percentile and
below on a standardized reading achievement test. Such students were classified as high or low achievers for purposes of statistical analyses. The three differences found were for the individual subscales, not the total SEI scores. First, non-IGE high achieving students reported a significantly more positive self-esteem on the eight item School-Academic subscale than did their IGE peers with means of 6.04 and 5.02 respectively (p < .03). Second, classifying students by sex and grouping them as high and low achievers revealed that IGE male low achievers reported a higher self-esteem on the Social Self-Peers subscale than did their non-IGE counterparts with means of 5.17 and 4.08 respectively (p < .03). Third, self-esteem as measured by the Home-Parents subscale resulted in high achieving non-IGE males scoring higher than did their IGE peers with respective means of 7.71 and 5.62 (p < .02).

Is there a difference between student self-concept scores of IGE and non-IGE students as measured by the FK, a teacher-inferred learner self-concept scale? It is in this area that the research findings were most clear. Non-IGE teachers inferred their students' learner self-concepts to be significantly more positive on all FK subscales than did IGE teachers (p < .001). (See Appendix D-1 for FK means.)
Looking at the possible interactions of IGE, age, and sex, only the interaction between IGE and age produced a significant effect on the total FK scores (p < .03). The eight year-old IGE students received a higher mean rating (68.194) than the 10 year-olds (63.59?), while the mean for 10 year-old non-IGE students was higher than that of the eight year-old non-IGE student (76.019 compared with 75.686).

Using pooled variance t tests and classifying students as high and low achievers according to their composite scores on a standardized reading achievement test, non-IGE teachers inferred their students' learner self-concepts to be much more positive than the IGE teachers did. For students whose scores placed them at the 65 percentile or above, non-IGE teachers inferred their learners' self-concepts to be higher than IGE teachers for males (p < .03) and for females (p < .001). For low achievers, again the non-IGE teachers inferred the learner self-concept of their male and female students higher (p < .02) than did the IGE teachers. The FK means according to achievement level are listed in the Appendix D-1.

Is there a difference in the correlation between the IGE student and teacher inferred self-concept scores and the non-IGE student and teacher self-concept scores? That is, do IGE teachers know their students better than
non-IGE teachers to the extent that their inference of a student's self-concept associates more closely with the self-concept as reported by the student himself? This research found no significant difference in the .2767 correlation between the IGE student School-Academic scores and the teacher inferred score on the FK and the .1255 correlation coefficient between the non-IGE student and teacher scores. It should be noted that the association was very slight and was significant in this instance only because of the large sample size.

The last question posed by this study was: Are there any relationships between the subscale scores of the FK and the SEI? The purpose here was to determine if only one of the devices could be used for subsequent self-concept research vis-a-vis IGE treatment. In general all the relationships found to be significant could be ranked in a low positive range between .1091 and .2830. Of the 16 significant correlations for the IGE scores, the student reported School-Academic subscale correlated most highly with the total teacher inferred scores of the FK. The non-IGE, student reported General Self-Concept scores correlated most highly with the total teacher inferred scores of the FK. It should be noted that the statistical analyses were done with sample sizes of 285 and 231 respectively.
Another reason for testing the relationships between the FK and SEI subscales was to determine the effect of using the long form of the SEI. It was found that the long form of the SEI produced a slightly higher correlation between the total scores of the SEI and the FK than had been reported by previous researchers. However, the correlation of .23 between the FK and the short form School-Academic subscale, was not equaled by this research which used the long form for this subscale.

Conclusions

The following conclusions appear warranted:

1) Non-IGE students have a slightly more positive self-esteem as measured by SEI School-Academic subscale (less than one item difference).

2) There are significant interactions between IGE and age on the total scores of the SEI and on the total scores of the FK. The 10 year-old non-IGE student is favored over the eight year-old non-IGE student while the eight year-old IGE student is favored over the 10 year-old IGE student.

3) Non-IGE teachers inferred their students' learner self-concepts to be very much higher (means of 75.89 and 65.86) than did the IGE teachers on all FK subscales ($p < .001$).
4) Though the correlations are significant in themselves \(p < .001\) and \(p < .02\), there is no significant difference in the correlation \(0.2767\) between the IGE student self-reported and teacher inferred self-concept scores and the correlation \(0.1255\) between the non-IGE student self-reported and teacher inferred self-concept scores on the SEI School-Academic subscale and the FK total scores.

5) Non-IGE high achieving students reported a significantly higher School-Academic self-esteem than did their IGE peers with means of 6.039 and 5.017.

6) IGE male low achievers reported a higher self-esteem on the SEI Social Self-Peers subscale than did their non-IGE counterparts with means of 5.167 and 4.082.

7) Non-IGE male high achievers reported a higher self-esteem on the SEI Home-Parent subscale than did their IGE male peers with means of 7.714 and 5.615.

8) Non-IGE teachers inferred their students' learner self-concepts (total FK scores) to be more positive for high achieving students than did the IGE teachers with means of 83.063 and 70.565.

9) Non-IGE teachers inferred their students' learner self-concepts on the FK scores to be much more positive for low achieving students than did the IGE teachers with means of 63.485 and 54.356.
10) The long form of the SEI did not correlate sufficiently with the FK to warrant its use rather than the short form of the SEI in similar studies.

11) The correlation coefficients found between the various subscales of SEI and FK were all in the low positive range indicating that they measure different aspects of a student's self-concept (or the same aspects poorly) and cannot be substituted for each other.

Discussion

For the strong advocates of IGE who have expectations that their program would increase student self-esteem by the end of its first year of implementation, this investigation's findings may be disappointing. The following open-faced table of these results gives a concise summary:

Results that were pertinent to IGE

Data from students suggest that:

1. IGE eight year-olds reported a more positive self-esteem than IGE 10 year-olds.

2. Low achieving males reported a higher self-esteem in social and peer relationships.

Results that were pertinent to non-IGE

1. Non-IGE 10 year-old students reported a more positive self-esteem than the non-IGE eight year-old students.
2. Generally, non-IGE students reported a slightly more positive self-esteem.

3. High achieving students reported a more positive self-esteem in the school and academic situation.

4. High achieving males reported a higher self-esteem on the Home-Parents subscale.

Data from teachers suggest that non-IGE teachers inferred their students' learner self-concepts to be higher, in general, and also specifically higher for their high and low achieving students in reading. Other results suggest that IGE teachers inferred and student self-reported self-concept scores do not correlate significantly higher than do the scores from their non-IGE counterparts.

Put into perspective with other studies of elementary student self-concept, the results of this investigation are in general agreement with results found by Sackett (102), Sommerville (104), Wiegand (111), Deeb (33), Oldroyd (85), Williams and Godwin (113), and Myers (79). However, studies by Junell (61), Nelson (82), and the Beldon Associates (10) found results that were more supportive of IGE with regard to its impact on the self-concept of students.

This investigation's results regarding the major difference between IGE and non-IGE teachers' inferences of learner self-concept should stimulate more research.
The relationships between teacher expectations and children's perceptions of themselves should be studied further. This study provides some suggestions for future researchers as do the studies done by Davidson and Lang (32), Purkey et al. (94), Rosenthal and Jacobson (93), Hartlage and Schlagel (45), Graves (41), and Jorgensen (60).

With a great difference found in the levels of teacher inferred self-concept, why were there no major differences in self-esteem obtained from the self-reported scores of IGE and non-IGE students? Total SEI scores for IGE and non-IGE students were 64.6 and 64.2 respectively which are indicative of average self-esteem scores. These means are somewhat lower than Coopersmith's mean of 71.2 established with norm groups but higher than the 53.39 mean of disadvantaged youth reported by Graves.

One explanation for this apparent discrepancy would be that the teachers are not very accurate in the inference of self-esteem. Teacher inferred scores were only slightly correlated with the self-reported scores from the students. Perhaps teachers from non-IGE schools simply overestimated their pupils' level of learner self-concept.

A second reason for this rather neutral effect of IGE on self-esteem may be that the treatment effect of IGE was not continuous throughout the entire school day. None of
the IGE schools had implemented the IGE process to the extent that more than 50 per cent of the student's school day was spent in that mode.

Another moderating influence on the treatment effect was the significant interaction effect of IGE and age. The IGE eight year-old students reported a higher self-esteem than the 10 year-old students; conversely their 10 year-old students reported a higher self-esteem in the non-IGE classrooms. Possibly, IGE, with its multiage grouping and individualization of the learning process, has a delaying effect on the negative influences on a student's self-esteem. On the other hand, the IGE program which provides much feedback to students in terms of their individual progress via their advisor, may produce an effect proposed by Myers (78) in her study of Individually Prescribed Instruction (IPI). Myers suggested that the lower self-concept scores of the older students in her study might, in part, have been a consequence of older students being able to more realistically assess their self-concept following more feedback in the IPI program.

This interactive effect of IGE and age may also be because more eight year-olds are the oldest in their multiage group of six, seven and eight year-olds, whereas fewer 10 year-olds found themselves in a multiage grouping where they were the oldest. A similar interactive effect was found in a study done by Ahlbrand and Reynolds (1).
IGE and Learner Self-Concept as Reported by Teachers

Clearly the major differences between IGE and non-IGE appear to be with the teacher inferred scores of learner self-concept. Results of this investigation indicate that non-IGE teachers consistently inferred their learners' self-concept to be much more positive than did IGE teachers with means of 75.89 and 65.86. These differences reported by teachers were found on all four subscales of the FK which is composed of 18 behavioral acts with a rating scale to measure perceived frequency of occurrence. The element of trust in oneself as a learner is an important dynamic in academic achievement and is reflected in the four factors of the Florida Key, namely: relating, asserting, investing, and coping.

Apparently non-IGE teachers inferred their students' learner self-concept to reflect: 1) a greater trust in people (students who think in terms of our school, our teacher, our classmates, as opposed to the teacher, that school, those kids); 2) a greater trust on one's own value (students who have not learned helplessness but rather feel control over what happens to themselves and who are willing to obtain a voice in what is happening in their classroom); 3) a greater trust in one's own academic ability (students who take pride in their work, attempt to obtain closure and have found that reading is a powerful key to learning).
Several questions are raised by these findings. Why was there such a difference in teacher inferred scores? Can the higher teacher inferred scores of the non-IGE teacher be equated with higher teacher expectations? If so, then why was there not a parallel effect of higher student reported self-esteem in keeping with the self-fulfilling prophecy phenomenon of Rosenthal and Jacobson (98)?

First, why was there such a difference between the IGE and non-IGE teacher inferred learner self-concept scores? One argument for the difference would seem to focus on the instrument itself and its potential inherent bias against the IGE environmental setting. Possibly, the IGE teacher did not have the same opportunities for observing the students that the teacher was asked to evaluate. Consequently, the opportunity for seeing a positive behavior may have been less for IGE teachers because of students moving to other parts of the school, e.g., to another teacher or to another learning center. The more traditional non-IGE classroom would undoubtedly confine more of the students' activities to the self-contained classroom and thus were more noticeable to the teacher. However, one should note that the IGE process is set up to allow for team planning time and communication among all teachers concerning a particular student so that the
student's advisor is kept informed of his/her student's learning activities and behavior.

Second, the difference in teacher inferred scores may be attributable in part to the influence of controlled variables such as teacher age, sex, experience, school policies, and the teachers' own personalities and feelings of adequacy in making changes expected of them in the IGE process.

Another teacher influence may have resulted from the option given to teachers within a school planning to adopt IGE the next year. To enhance the possibility of getting a staff of teachers who are committed to IGE and who have a willingness to change from their traditional practices, all teachers are given the opportunity to transfer to another building where the IGE program is not used. This option may have produced a reverse Hawthorne effect on the non-IGE teachers. It would be a reasonable reaction on the part of those teachers, who did transfer out of an IGE school and subsequently were asked during this investigation to infer their students' learner self-concepts, to protect their credibility as teachers by rating their students' learner self-concepts very high.

Third, the difference in teacher inferred scores may be partially explained by the effect of the inservice training given to IGE teachers. These training sessions,
in part, focus on sensitizing IGE teachers to the importance of assessing a student's self-concept and peer relationships. Possibly IGE teachers were more realistic in their assessments of their students' self-concepts than were the non-IGE teachers. Support for this reasoning results from inspection of the open faced table below. These data show the per cent of students in each group receiving the maximum learner self-concept score on the various FK subscales from their teachers:

<table>
<thead>
<tr>
<th></th>
<th>IGE</th>
<th>Non-IGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FK 1</td>
<td>11.3%</td>
<td>33.2%</td>
</tr>
<tr>
<td>FK 2</td>
<td>4.8%</td>
<td>19.8%</td>
</tr>
<tr>
<td>FK 3</td>
<td>11.9%</td>
<td>38.5%</td>
</tr>
<tr>
<td>FK 4</td>
<td>14.0%</td>
<td>43.5%</td>
</tr>
</tbody>
</table>

Limited support for this argument is also given, in part, by the findings of hypothesis 4. The IGE teachers inferred scores had a higher correlation with their students' scores on the School-Academic subscale than did the non-IGE teachers and students scores. Experts in child development prefer that teachers have a more realistic though low perception of a student's self-concept rather than a high but noncongruent perception of student self-concept. However, the essential question remains, "How do teachers act upon their beliefs about their students?" The answer to this question and concomitant substantial improvement in the IGE model await subsequent research.
The second major area of questions raised by the results of this study focus on the relationships among inferred scores of learner self-concept, teacher expectation and the self-fulfilling prophecy phenomenon of Rosenthal and Jacobson (98). Can the much higher, inferred learner self-concept scores given by non-IGE teachers be assumed to be indicative of their higher teacher expectations of their students?

No, the scale does not ask a teacher to first indicate the frequency of a behavior and then ask what the teacher thinks the frequency of the behavior ought to be. It simply asks teachers to compare a student with others his age and then to indicate the frequency that the student exhibits a particular behavior. Rather than saying that non-IGE teachers have higher expectations of their students than IGE teachers, it can be legitimately argued that the non-IGE teachers are more trusting to their students to function well in the non-IGE traditional classroom setting.

Concerning the possible effect of a self-fulfilling prophecy operating here, the argument proposed is that since the FK does not show what the teacher's expectations are of his students no inference can be made about any effect of a self-fulfilling prophecy which in the original research applied to higher academic growth expectations. However, looking into the future and projecting the
effect of not being able to see their students in the many facets of behavior; one must question whether the IGE system can match the daily comprehensive feedback given by the student directly to the teacher in a self-contained classroom setting.

Another logical explanation of the apparent contradiction to the self-fulfilling prophecy is that IGE teachers did not fully understand all the options and components of IGE. Thus they were not fully convinced that their students could be trusted fully to relate, assert, invest, and cope in the new instructional setting of IGE. On the other hand, non-IGE teachers were apparently more confident, or possibly somewhat overconfident, and trusting of their students' ability to relate, assert, invest and cope in a more traditional classroom setting. Again this argument is supported by information from this research. On the FK subscales approximately 34 per cent of the non-IGE teachers gave their learners the maximum self-concept score compared with 11 per cent from the IGE teachers.

This argument leads to this question: Does the IGE inservice training for its teachers explain not only the importance of a learner's self-concept but does it also help to interpret ways to operationalize that concept? This research is not the first to raise the question concerning
the adequacy of IGE training; Halvorsen (42) and Belden et al. (10) also indicated that the IGE inservice may not be meeting the unique needs of its teachers nor helping to overcome some of the reservations about IGE, i.e., multiage grouping and children learning to plan their own work.

Relationship Between Subscales of SEI and the FK

Apparently the longer SEI form slightly helps to raise the overall correlation coefficients between the SEI and the FK. However, the very low correlation between the SEI 5 School-Academic subscale and the FK subscales indicates that either the teachers view students' learner self-concepts quite differently than students view themselves or that the FK and SEI are focusing on separate aspects of a student's self-concept as it relates to the school situation.

Limitations

The conclusions drawn from the results of this investigation are constrained in part by the assumptions stated in the Review of Literature. It was assumed that the Self Esteem Inventory and the Florida Key would measure what they purport to measure through pupil self-report and teacher inference. Additionally, it was assumed that each of the control schools within each school district was comparable to the IGE schools except for the absence of IGE.
Furthermore, future researchers in this area should be reminded that the inferences and conclusions drawn from this study are limited to the four Iowa public school districts included in this study. Implementation of IGE had involved students from 30 to 50 per cent of their school day. Although ages of the eight and 10 year-old students were defined as of September 15 of that school year, their placement in various multiage groups was not coded and therefore was an uncontrollable variable. In addition, some statistical analyses were not possible because there were too few subjects when grouped according to IGE, sex, age and district.

Regarding the data gathering devices, any interpretations based on these data must be limited to the 18 behavioral acts outlined on the FK and the 50 items on the SEI. Care needs to be taken when discussing the results because the low positive correlations between the two instruments indicate that either they measure different aspects of a student's self-concept or that teachers view students' self-concepts differently than the children view themselves.

Additionally, a pre-test post-test design may have given more data on initial teacher group difference and their change, if any, over time because of the treatment effect. Pre-existing teacher attitudes towards improving learning self-concept and towards the IGE process may have introduced a bias at the beginning of this study.
Recommendations

The data presented in this study would suggest that those who plan to evaluate IGE on some noncognitive variable such as learner self-concept as seen by student and teacher, must do so with caution. The difficulty in getting a reliable and valid measuring device that enables the researcher to have student and teacher focusing on the same aspects of self-concept continues to be an elusive challenge.

A longitudinal study should be conducted to determine whether IGE and non-IGE teachers do have different expectations of their students. This study should include not only a teacher self-report but a measurement based on behaviors exhibited in the classroom following the IGE inservice training sessions. The teacher behaviors observed could include those four factors suggested by Rosenthal, that is, the kind of climate created, the amount of feedback given to students about their performance, the amount and difficulty of material taught, and the number of opportunities given students to respond.

Inasmuch as this study found a significant difference between IGE and non-IGE inference of learner self-concept, an adaptation of Hartlage and Schlagel's (45) study should be conducted to determine whether there are initial differences in teachers' personality needs such as those measured by
the Edwards Personal Preference Schedule. A study like this would help to determine initial personality differences between IGE and non-IGE teachers.

Another recommendation for future study is to compare the IGE inservice teacher training workshops and material with other approaches to human relation training. Such an investigation would indicate the differential impact of the various approaches to human relations training. These results would make it possible for educators to determine which, if any, human relations component should be included or emphasized in the IGE change process.

Is there a significant boost to the self-esteem of students when they are the oldest members of a multiage group? This question is raised not only by this study but also by Ahlbrand and Reynolds (1) and should be examined. Also, because of the interactive effects of IGE and age found in this study, subsequent investigations are needed to determine at what age and in what type of school setting does the learner self-concept peak, both for students and for the inference of teachers.

One of the problems in self-concept research is the measurement of the construct itself. Measures of self-concept cannot be taken as being equivalent measures unless they can be shown to be related to each other to a high degree. Additional studies of the FK, the SEI,
and other self-concept measures need to be done to determine when they can accurately assess student self-concept in innovative programs such as IGE.

Future researchers should replicate the present study including a broader sample and varying degrees of exposure to IGE to overcome the limitations of this investigation. Additionally, the data should be analyzed while controlling for variables such as district, teacher, and age of students within their classroom grouping.

Present users of the IGE change process who are committed to learner self-concept development, need to provide inservice training procedures that increase not only student self-esteem but teacher self-esteem as well. These procedures must seek to gain teacher commitment to IGE by pointing out how teachers can better meet individual needs through multiage grouping, differentiated staffing, and continuous progress curricula. Teachers must trust themselves in a new environment like IGE before they trust their students to relate, assert, invest, and cope in an environment. Additionally, more materials and programs need to be aimed at the entire community. Educators and citizens within a school district need to move forward to basic education that results in students with high competency in academic skills and with an equally high level of self-esteem and self-reliance.
School administrators need to recruit teachers who have demonstrated skill in creating a warm climate for all students, as Rosenthal suggests. Recruitment of teachers also needs to seek teachers who provide lots of immediate feedback to students in such a way that the student perceives his teacher as personally interested in him or her. Student evaluation of teachers through paper and pencil techniques, class meetings, role playing and neutral observer recording of student and teacher relationships should be done to provide teachers with frequent feedback on how students are perceiving teachers. Teachers need to be perceived by students as having high expectations of students both in terms of academic achievement and self-esteem so that the self-fulfilling prophecy will have a positive educational and emotional influence.

Baseline data need to be gathered in each school district's classrooms on learners' self-concept as well as on learners' academic skills to gain some evaluative perspective of where a district is and where it wants to go. These data will help answer the questions: How do teacher expectations of students vary between teachers and between buildings within the district? How do students perceive teachers?
School district research and development funds should be used to answer these questions. First, however, these funds must be increased so that both existing and new programs can be adequately evaluated in terms as previously outlined. Unless the present accountability phase includes evaluation of not only whether a student can read but also whether or not a student can live with himself and others, we may have educational systems that mistakenly appear to be meeting all of society's needs.


113. Williams, Mary Heard and Godwin, Charles M. Children's attitudes and the implementation of Individual Guided Education (IGE). Nebraska /I/D/E/A/ Research Grant to Teachers College, University of Nebraska, December, 1973.
ACKNOWLEDGMENTS

I wish to express my greatest appreciation to the students and teachers who provided the necessary data for this research.

My gratitude is extended to my advisor, Dr. Richard P. Manatt, for his guidance in the development of this dissertation and throughout my graduate program.

Appreciation is also extended to Dr. George W. Hohl and to the members of my committee: Dr. Jess R. Beard, Dr. Ray J. Bryan, Dr. Ross A. Engel, Dr. Detroy E. Green and Dr. Harold S. McNabb for their helpful suggestions related to this research.

I also wish to express my thanks to Dr. Rex A. Thomas for his help with the computer programs and to Mrs. Don Toms for her expertise in typing this dissertation and Mrs. Robert Bishop for her assistance through the final stages.

For the many hours taken to check and score the SEI and the FK and for help in proofing the final copy, I wish to thank my wife, Lois. I also wish to thank Mrs. Raymond Peltz for her help in scoring the SEI and the FK.

Our children Kevin, David, Matthew, and Brian, I wish to thank for giving me the hours needed to complete this research.

Finally, I wish to dedicate this research to my dad, Jacob, and in memory of my mother, Esther Lindaman.


APPENDIX A: COPIES AND INSTRUCTIONS FOR SEI AND FK

In this section are included copies and instructions for scoring and interpreting the Self Esteem Inventory (SEI) and the Florida Key (FK).
PLEASE NOTE:

Pages 126-131, "SELF-ESTEEM INVENTORY", (SEI), and pages 132-139, "FLORIDA KEY" (FK), not microfilmed at request of author. Available for consultation at the Iowa State University Library.

XEROX UNIVERSITY MICROFILMS
APPENDIX B: IGE ORGANIZATION AND 35 OUTCOMES

Supportive materials are from Iowa Department of Public Instruction, Iowa State University, and /I/D/E/A/ concerning organizational structure and the 35 outcomes of IGE.
INDIVIDUALLY GUIDED EDUCATION

WHAT IS IGE?

IGE is an approach to schooling that provides a framework for individualizing instruction — INDIVIDUALLY GUIDED EDUCATION. It is achieved through an in-service program designed to reorganize and redirect the time, talents, and energy of all concerned with the educational process. It is a workable way of achieving and integrating such concepts as continuous progress and team teaching. Above all, it is a proven method of creating a relaxed, personalized environment that is highly conducive to learning — an environment that "turns children on, not off."

WHO IS PROMOTING IGE?

The Institute for Development of Educational Activities (IDEA), a nonprofit corporation engaged in educational improvement, was established in 1965 by the Charles F. Kettering Foundation of Dayton, Ohio to accelerate the pace of change in education. Through programs of research, development, and service, the Institute is committed to advancing the latest educational know-how into educational practice. IGE is a result of the IDEA's work with the Multi-unit school concept developed by the Wisconsin Research and Development Center for Cognitive Learning.

WHAT IS THE RELATIONSHIP OF THE DEPARTMENT OF PUBLIC INSTRUCTION AND IOWA STATE?

The Department of Public Instruction and Iowa State University have entered upon a partnership with IDEA. In this partnership the two agencies become an intermediate agency authorized to implement IGE.

Staff members of the DPI and ISU have participated in two IGE training sessions at IDEA in Dayton, Ohio with a third one-week workshop scheduled for March, 1972, and a fourth in April. IDEA's professional staff is in continuing contact with intermediate agencies by means of workshops, conferences, newsletter, and through their excellent professional in-service materials which include motion pictures, filmstrips with audio cassettes, and printed material.

Training sessions are provided by IDEA without cost to the agency; professional materials are purchased by the agency at a reasonable price. IGE materials are available only to intermediate agencies in partnership with IDEA.
TO WHOM ARE THE IGE SCHOOLS IN THE AREA ACCOUNTABLE?

The IGE schools remain under the jurisdiction of their own Boards of Education. The relationship with I/D/E/A in no way affects the autonomy of the educational system of any of its schools.

WHAT ARE THE COMPONENTS OF IGE?

There are four essential IGE components:

1. The IGE Learning Cycle
2. Home School Communication
3. League of Cooperating Schools
4. Decision making Structure

Following is a short explanation of each component:

1. THE IGE LEARNING CYCLE

Instructional processes represent the heart of IGE. These processes provide appropriate learning programs for each child built on a continuous cycle:

   a. Assessment (finding out where the student is and how he got there)
   b. Specifying objectives (deciding what he needs to learn next)
   c. Diversified learning opportunities (selecting the best ways for him to attain those objectives)
   d. Reassessment (making sure that he has met the objectives)

2. HOME SCHOOL COMMUNICATION

The assistance and cooperation of the community is vital to the success of any new educational program. It is particularly essential for the success of a highly innovative system such as IGE. IGE is primarily interested in children. So are parents. IGE encourages the involvement of parents in the education of their children.

3. LEAGUE OF COOPERATING SCHOOLS

Schools participating in I/D/E/A's program to implement IGE are linked with other schools in LEAGUES OF COOPERATING SCHOOLS to support and strengthen in-service education. Each league encourages the sharing of experiences and exchange of information on a personal basis -- principal to principal, unit leader to unit leader, teacher to teacher. It is yet another means of providing self-improvement.
4. DECISION MAKING STRUCTURE

The school organizational structure that facilitates IGE is called the MULTIUNIT ORGANIZATION. Students, teachers, and aides are divided into Units which include overlapping age ranges for the children. Within each Unit, students may be grouped and regrouped according to their current interests, needs, and objectives. Teachers in each Unit function as a team, with one teacher serving as Unit leader. Together, teachers plan, discuss, critique, and make decisions at regularly scheduled meetings. An Instructional Improvement Committee (IIC), chaired by the principal, resolves problems affecting two or more Units. The Unit structure and the IIC are the primary means by which self-improvement takes place within the school.

MULTI-UNIT ORGANIZATION

 WHAT KIND OF CURRICULUM IS USED IN IGE SCHOOLS?

I/D/E/A does not advocate any particular kind of curriculum, type of material or course content. A wide range of programs in reading, arithmetic, social studies, science, etc. are in use in IGE schools. In individualizing instruction, IGE teachers draw on a myriad of sources to create learning packets designed to achieve specific instructional objectives.
IS IGE DEMANDING OF THE SCHOOL FACULTY?

IGE requires staff commitment. It is not an easy task to move from a textbook-centered program to an individualized learning program. It is not an easy task to move from a self-contained classroom environment to a multiunit organization. Neither is it easy to evolve a growing, self-improving educational system. But it is possible. The IGE program and materials provide a detailed but flexible program to accomplish the task of transition to IGE.

WHAT FACILITIES AND EQUIPMENT ARE REQUIRED?

IGE is presently being implemented successfully in facilities varying from brand new open-plan buildings to over-fifty-year old traditional two/three story buildings. IGE school staff members contend that it is definitely the attitude of the teachers and principal that spells success or failure, not the building.

Schools implementing IGE may find they need additional cassette recorders and filmstrip viewers. They should have an instructional media center or resource center where the largest unit can meet together and have materials available.

IS IGE THE LAST WORD IN INSTRUCTIONAL IMPROVEMENT?

No system of improving instruction can be regarded as final, or the last word. In today's rapidly changing educational world it is only a beginning. IGE offers the framework and process for a constantly improving school. Individual school staffs and the IGE League continue to take action and make decisions that will provide better and better learning environments for boys and girls.

ARE THERE BENEFITS TO SCHOOLS IN THE AREA WHO DO NOT OPT FOR IGE?

There will be a variety of spin-off benefits to schools:

- Office staff and consultants who serve schools are trained in IGE
- Area IGE schools are available for visiting once they are on a secure operating procedure
- Peer contact with IGE faculty members will be enriching

In addition, all schools will benefit from the enriching opportunities available to the Joint Agency:

- Professional opportunities through I/D/E/A research and development
- I/D/E/A workshop and training sessions
- Membership in IGE League with fifty-two (52) other intermediate agencies across the country (personal contacts, newsletters, sharing materials, etc.)
IGE OUTCOMES

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 IIDEIA Change Program for Individually Guided Education.

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

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

4b. Each Learning Community is comprised of approximately equal numbers of all student age groups in the school. (Ages 10-19)

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

12. The staff and students use special resources from the local 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. A variety of data sources is used when learning is assessed by teachers and students, with students becoming increasingly more responsible for self-assessment.
15. Both student and teacher consider the following when a student's learning activities are selected:

- Peer relationships
- Achievement
- Learning styles
- Interest in subject areas
- Self-concept

16. 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 selecting his or her learning objectives.

19. Each student accepts increasing responsibility for selecting or developing 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. Teachers and students have a systematic method of gathering and using information about each student which affects his or her learning.

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

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

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

26. The Program Improvement Council 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 inservice programs for the total staff.

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

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

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

34. Learning program plans for the Learning Community and for individual students are constructively critiqued by members of the Learning Community.

35. Personalized inservice programs are developed and implemented by each Learning Community staff as a whole as well as by individual teachers.
APPENDIX C: COMMUNICATION REGARDING THIS RESEARCH

Communication pertinent to accomplishing this research including a transcript of a cassette tape used in administering the SEI is included in this section.
Dear Educators:

To research educational practices it is necessary to measure their effects on students and teachers. The two measuring devices for this research study are the Self Esteem Inventory (SEI) and the Florida Key instrument. This study is being done at Iowa State University in the field of educational administration with Dr. Richard Manatt as chairman.

Your help in administering or in completing these measuring devices is vital in obtaining an accurate measurement of students' self esteem. The enclosed sheets contain instructions to help you.

Respectfully yours,

Arnold D. Lindsman, Researcher
GENERAL INSTRUCTIONS:

To insure the confidentiality of student and teacher responses, the researcher has only code numbers for subjects involved in the study. Enclosed are lists of code numbers and their matching student names which Mr. Jim Halverson, from ISU has listed. The starred ones are students who will have a Florida Key score in addition to their SEI score. The names at the top of each instrument will be cut off by Jim Halverson before they are scored by the researcher.

DIRECTIONS FOR THE SEI:

1. The Self Esteem Inventory (SEI) should be given to only those students whose names have been written on the top of the SEI Instrument.

2. When giving the Self Esteem Inventory, please provide a quiet area for students where they can hear a cassette recording of the test items being read.

3. Please give the person in charge of administering the test the Self Esteem Inventory sheets with names at the top, so that he may give the correct sheet to the student taking the SEI in his group.

4. Please provide teacher with a cassette tape recorder and give the cassette cartridge to him.

5. Start the tape recorder. Complete instructions will be given on the recorder.

6. To prevent SEI's from getting lost, please remind students to fold their sheets and place them inside the large manila envelope and seal it before turning it in to the administrative office.

7. Please return all materials to office of the Director of Elementary Education.

8. Thank you very much for your help.

Arnold D. Lindaman, Researcher
DIRECTIONS FOR THE FLORIDA KEY:

1. Give copies of the Florida Key Instrument to the teacher(s) who have the best knowledge of the students' attitudes and behaviors for this school year. Students names are on each Florida Key, but they will be cut off by Jim Halverson before being returned to the researcher for scoring.

2. Please return all materials to the office of the Director of Elementary Education.

3. Thank you very much for your help.

Arnold D. Lindaman, Researcher
Thank you for your recent inquiry regarding the Self-Esteem Inventory and Behavior Rating Form. Enclosed you will find a memorandum describing the procedures we have developed for assessing self-esteem and the methods of administration, scoring and interpretation. Further information is contained in my book, *The Antecedents of Self-Esteem* (W. H. Freeman).

I do not have copies of the Inventory and Rating Form for sale but make them available for research purposes. If your study is intended as an investigation of self-esteem, you have my permission to reproduce and duplicate the enclosed copies of the tests. You also have my permission to modify the tests for the purposes of your specific study as long as the modifications are noted in your write-up of the results.

I should appreciate learning the results of the study you conduct. If I can be of further assistance, let me know. Best wishes.

Sincerely,

Stanley Coopersmith

SC:lp
Enclosure
APPENDIX D: NONSIGNIFICANT RESULTS AND MEANS FOR SEI AND FK

Nonsignificant results for SEI and FK are listed according to IGE, age, sex, and achievement.
Table D-1. Non-significant results for IGE and non-IGE on SEI

<table>
<thead>
<tr>
<th>Subscale</th>
<th>IGE (n = 392) Mean</th>
<th>Non-IGE (n = 403) Mean</th>
<th>t value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEI 1</td>
<td>16.98</td>
<td>16.66</td>
<td>1.04</td>
</tr>
<tr>
<td>SEI 2</td>
<td>4.95</td>
<td>4.88</td>
<td>.51</td>
</tr>
<tr>
<td>SEI 3</td>
<td>5.55</td>
<td>5.49</td>
<td>.47</td>
</tr>
<tr>
<td>Total FK</td>
<td>32.29</td>
<td>32.11</td>
<td>.31</td>
</tr>
</tbody>
</table>

Table D-2. Means for SEI subscales grouped by IGE and AGE

<table>
<thead>
<tr>
<th>Subscales by Treatment</th>
<th>8 year olds</th>
<th>10 year olds</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGE</td>
<td>N = 202</td>
<td>N = 190</td>
</tr>
<tr>
<td>SEI 1</td>
<td>17.149</td>
<td>16.725</td>
</tr>
<tr>
<td>SEI 2</td>
<td>5.089</td>
<td>4.800</td>
</tr>
<tr>
<td>SEI 3</td>
<td>5.554</td>
<td>5.542</td>
</tr>
<tr>
<td>SEI 4</td>
<td>5.713</td>
<td>6.142</td>
</tr>
<tr>
<td>SEI 5</td>
<td>5.674</td>
<td>4.532</td>
</tr>
<tr>
<td>SEI TOTAL</td>
<td>38.579</td>
<td>37.811</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-IGE</th>
<th>N = 214</th>
<th>N = 189</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEI 1</td>
<td>16.145</td>
<td>17.238</td>
</tr>
<tr>
<td>SEI 2</td>
<td>4.692</td>
<td>5.095</td>
</tr>
<tr>
<td>SEI 3</td>
<td>5.360</td>
<td>5.630</td>
</tr>
<tr>
<td>SEI 4</td>
<td>5.547</td>
<td>5.984</td>
</tr>
<tr>
<td>SEI 5</td>
<td>5.000</td>
<td>5.175</td>
</tr>
<tr>
<td>SEI TOTAL</td>
<td>38.743</td>
<td>39.122</td>
</tr>
</tbody>
</table>
Table D-3. Means for FK subscales grouped by IGE and age

<table>
<thead>
<tr>
<th>Subscales by Treatment</th>
<th>8 year olds</th>
<th>10 year olds</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IGE</strong></td>
<td>N = 134</td>
<td>N = 159</td>
</tr>
<tr>
<td>FK 1</td>
<td>20.455</td>
<td>19.616</td>
</tr>
<tr>
<td>FK 2</td>
<td>25.978</td>
<td>24.025</td>
</tr>
<tr>
<td>FK 3</td>
<td>6.052</td>
<td>5.390</td>
</tr>
<tr>
<td>FK 4</td>
<td>15.709</td>
<td>14.862</td>
</tr>
<tr>
<td>FK TOTAL</td>
<td>68.194</td>
<td>63.893</td>
</tr>
<tr>
<td><strong>Non-IGE</strong></td>
<td>N = 105</td>
<td>N = 157</td>
</tr>
<tr>
<td>FK 1</td>
<td>21.952</td>
<td>21.777</td>
</tr>
<tr>
<td>FK 2</td>
<td>28.600</td>
<td>28.853</td>
</tr>
<tr>
<td>FK 3</td>
<td>7.648</td>
<td>8.076</td>
</tr>
<tr>
<td>FK 4</td>
<td>17.486</td>
<td>17.312</td>
</tr>
<tr>
<td>FK TOTAL</td>
<td>75.686</td>
<td>76.019</td>
</tr>
</tbody>
</table>
Table D-4. Means for FK subscales grouped by IGE, sex and achievement level

<table>
<thead>
<tr>
<th>Subscales by Treatment</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Achievers</td>
<td>Low Achievers</td>
</tr>
<tr>
<td>IGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FK 1</td>
<td>20.482</td>
<td>15.708</td>
</tr>
<tr>
<td>FK 2</td>
<td>25.444</td>
<td>19.083</td>
</tr>
<tr>
<td>FK 3</td>
<td>5.185</td>
<td>3.292</td>
</tr>
<tr>
<td>FK 4</td>
<td>15.741</td>
<td>11.292</td>
</tr>
<tr>
<td>FK Total</td>
<td>66.852</td>
<td>49.375</td>
</tr>
</tbody>
</table>

| Non-IGE                |       |         |       |           |
| FK 1                   | 23.375 | 18.435 | 23.583 | 21.400 |
| FK 2                   | 29.625 | 24.870 | 31.375 | 30.100 |
| FK 3                   | 8.000  | 6.391  | 9.750  | 8.300  |
| FK 4                   | 19.000 | 14.565 | 19.375 | 18.400 |
| FK TOTAL               | 80.000 | 64.261 | 84.083 | 78.200 |