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AUTHOR Ghatala, Elizabeth Schwenn, Ed.
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ABSTRACT

Individually Guided Motivation (IGM) is designed to attain certain motivational objectives set by the school by accommodating instruction to individual differences in skill and motivational level and rate and style of learning. The development of IGM was undertaken to meet these specific educational needs: (1) to assure a high level of motivation to learn on the part of each individual child; and (2) to promote the acquisition by each child of such prosocial behaviors as self-control and self-reliance. As described in Chapter I, operationally IGM consists of four motivational instructional procedures that are organized ways of working with a child or group of children to attain motivational objectives. The motivational-instructional procedures are: (1) adult-child conferences to encourage independent reading; (2) teacher-child conferences for goal setting; (3) guiding children toward self-directed prosocial behavior; and (4) guiding older children in tutoring younger children. Each of these procedures was the focus of a controlled experiment in which its effectiveness was tested under various conditions. The results of these experiments, reported in Chapters III through VI, indicate that each of the procedures has positive effects upon one or more indicators: measures of motivation; measures of achievement; and measures of attitudes toward the subject matter. Also, each experiment provides information concerning the conditions for optimal success of a given procedure. The results of these experiments with respect to the effectiveness of the IGM procedures with children are favorable. Based on the results, multimedia materials have been developed to help school staff implement the procedures. (MM)

TECHNICAL REPORT NO. 355 (Part 1 of 2 Parts)

effectiveness of individually guided motivation: a summary of the empirical evidence

DECEMBER 1975

WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING

Technical Report No. 355 (Part 1 of 2 Parts)

EFFECTIVENESS OF INDIVIDUALLY GUIDED MOTIVATION: A SUMMARY OF THE EMPIRICAL EVIDENCE

Edited by

Elizabeth Schwenn Ghatala

Report from the Technical Services Section

Wisconsin Research and Development
Center for Cognitive Learning
The University of Wisconsin
Madison, Wisconsin

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WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING

MISSION

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

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

PROGRAM

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

FUNDING

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PURPOSE AND ORGANIZATION OF THIS REPORT

During the course of development of the system of Individually Guided Motivation (IGM), many research and evaluation studies have been carried out at the Wisconsin Research and Development Center for Cognitive Learning. Controlled experiments and other studies in school settings in the area of motivation have been contributed by the project staff of the principal investigator, Herbert J. Klausmeier; these contributors include Patricia Allen, Carma Averhart, James Bavry, Doris Cook, Dorothy Frayer, John Gaa, Elizabeth Ghatala, Jan Jeter, Barbara Kennedy, Peter Lamal, Richard Marliave, Nancy Nelson, Juanita Sorenson, and James Wardrop. Evaluation specialists, including Thomas Fischbach, W. D. Hubbard, Conrad Katzenmeyer, Mary Quilling, Deborah Stewart, and Nancy Zajano, have carried out the evaluation studies on IGM with cooperation from the project staff and school personnel. The purpose of the present effort is to bring together, in a systematic way, the empirical evidence pertaining to the effectiveness of IGM. This report, then, is intended for those who wish to become acquainted in some depth with the research on IGM, but who do not wish to read the numerous related Technical Reports in their entirety. Embodied in this report are edited excerpts from the most relevant of these research documents which have been issued by the Center since 1968, organized and placed in a context which provides a coherent picture of the evidence upon which IGM is based. A bibliography of Center research related to IGM is included at the end of this report.

The present effort is not intended as a guide for implementing any of the motivational procedures of IGM, nor is it intended to provide a comprehensive description of the IGM system. These types of information can best be obtained from the materials which have been shaped by the research reported herein. Current IGM materials are described in Chapter I, which also provides an overview of the IGM system. Chapter II outlines the results of research on the effectiveness of IGM materials with teachers and other school personnel responsible for implementing the system. The next four chapters report and summarize research findings regarding the effectiveness of the motivational procedures with students of different characteristics. The final chapter provides a summary.

I

OVERVIEW OF THE MOTIVATION SYSTEM[1]

The major purpose of the school is to provide conditions which facilitate children's learning of the knowledge and skills deemed important by society. Children acquire knowledge in mathematics, language arts, foreign languages, the fine arts, physical development, and other curriculum areas. In addition, the school is responsible for transmitting certain values, endorsed by society, related to self-discipline and prosocial behavior. Motivation is central to the learning of both subject matter and prosocial behavior, and thus is one of the key conditions which must be considered by the school when attempting to facilitate children's learning.

Research in laboratory and school settings over the past few decades has greatly added to our knowledge of factors which influence children's motivation to learn. However, problems are immediately encountered by even the most skillful teachers when attempting to deal, in a practical way, with motivation in the classroom. The first of these difficulties is to define what is meant by motivation to learn, in the context of the classroom. What behaviors by the child can a teacher look for as indications of his motivational level? And, given that such behaviors can be specified, how can they best be measured? A second problem arises from the realization that just as children bring diverse cognitive characteristics to learning tasks, they also bring diverse values, affective needs, and attitudes to these same tasks. Thus, efforts to generate high motivation must be guided by the individual needs and characteristics of each child. And because cognitive and motivational factors are inextricably intertwined in the learning process, facilitation of children's learning of subject matter and prosocial values will only be attained when motivational procedures are integrally related to a total instructional program geared to the individual child. The final problem confronting the teacher is the necessity to formulate motivational practices which can induce children to exhibit increasingly those behaviors indicative of high motivation. To be effective, these practices should be based on sound motivational principles and they must be practical in terms of the time and money required to implement them.

With these problems in mind, researchers under the direction of Professor Herbert J. Klausmeier began development of a system of Individually Guided Motivation (IGM) nearly eight years ago at the Wisconsin Research and Development Center for Cognitive Learning. From the description of the IGM system and related materials presented in this chapter, the reader can trace the effort to deal with the above problems which teachers face in attempting to motivate students.

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[1] Klausmeier's theoretical analysis of motivation (see Klausmeier & Goodwin, 1975) formed the basis for development of the IGM system. The system was first described by Klausmeier, Schwenn, & Lamal (1970), and this description was later elaborated on in a book by Klausmeier, Jeter, Quilling, & Frayer (1973). The present description of IGM is based on the latter two sources.

RELATIONSHIP OF IGM TO THE SYSTEM OF INDIVIDUALLY GUIDED EDUCATION

The IGM system is directly tied to a total system of Individually Guided Education (IGE), and thus can best be elucidated in terms of its relationship to that larger framework. IGE is a comprehensive system of education and instruction designed to produce higher educational achievements by identifying and providing for differences among students in rate of learning, learning style, and other characteristics. Although IGE includes various components (see Klausmeier, Quilling, Sorenson, Way, & Glasrud, 1971, for a complete description of IGE), central to the system is the instructional programing model shown in Figure 1. This model, with related guidance procedures, is designed to provide for the above differences among students and also to take all educational objectives of the school into account. This model is used by R & D Center personnel in developing curriculum materials, and as a result, the curriculum components of IGE are objective-based programs to meet the needs of each child. Because the IGM system is based on the Center's model of instructional programing, it too is objective-based and is designed to meet the child's unique motivational needs.

The model for the IGM system, depicted in Figure 2, is compatible with the model of instructional programing for the individual student. The IGM system has steps identical to those in the Center's instructional programing model, making it possible to relate the motivational program for the student directly to his instructional program in the various curriculum areas.

The teacher's roles in motivation and in instruction are not to be separated in individually guided education. Similarly related are the child's level of motivation and his rate of learning and achieving. Therefore, whatever a teacher does to motivate a child should be related directly to his instructional program--that is, to attaining instructional objectives.

REQUIREMENTS FOR IMPLEMENTING THE IGM MODEL

There are four requirements for implementing the motivational programing model shown in Figure 2. The first is a statement of motivational objectives. Second is a description of procedures for assessing children's attainment of objectives. Third is a set of motivational principles derived from theory and research on motivation. The final requirement is a set of motivational-instructional procedures whereby the motivational principles are implemented to attain certain motivational objectives. We consider each of these requirements in detail.

Motivational Objectives

An ideal way to ensure a reasonable level of motivation in children attending a particular school is to implement the IGM model on a school-wide basis. The first step in such an implementation is for the principal and teachers--with feedback from parents and students--to formulate a

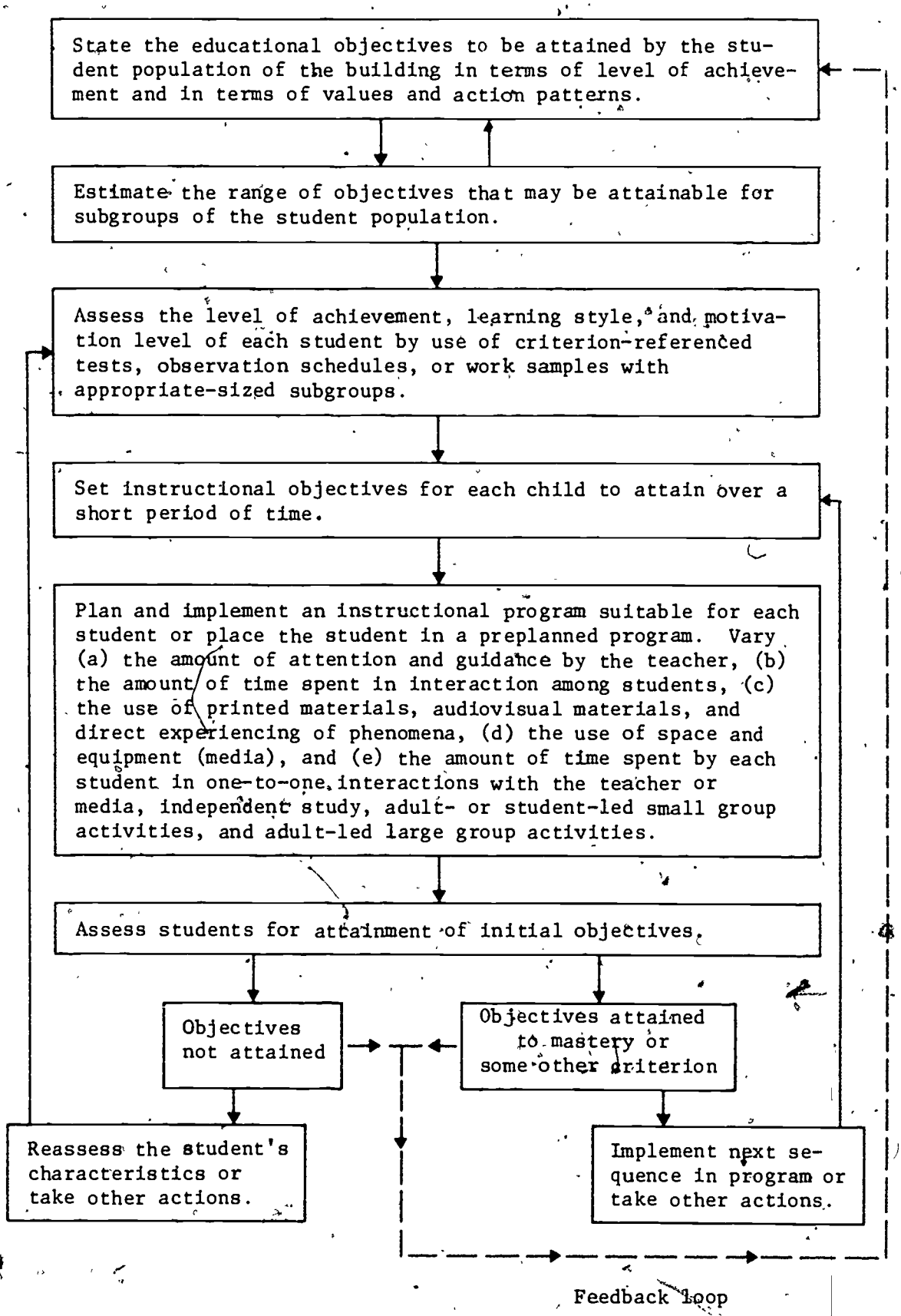

Figure 1. Instructional Programing Model.

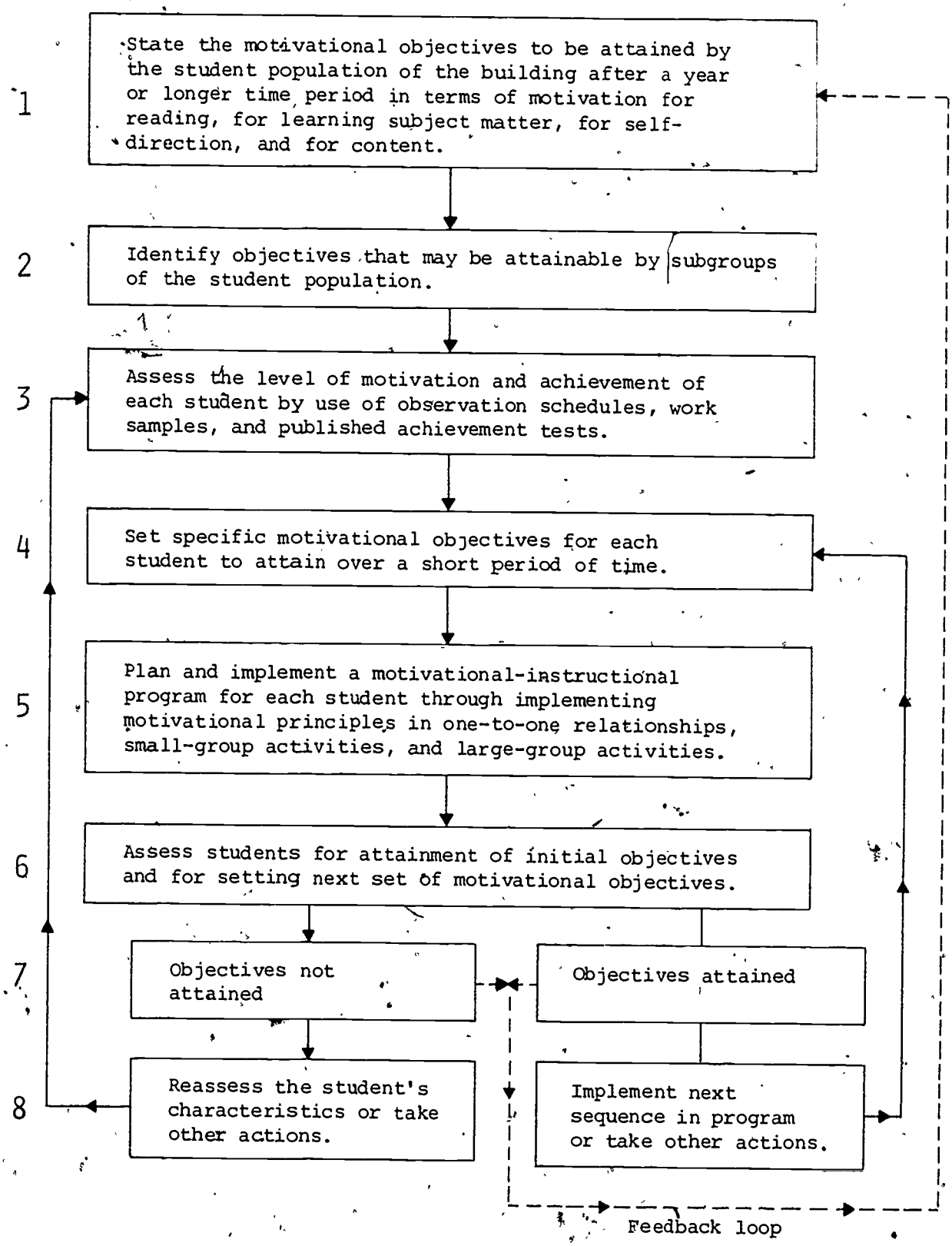

Figure 2. Model for the system of Individually Guided Motivation (from Klausmeier, Jeter, Quilling, & Frayer, 1973).

statement of the general motivational objectives of the school. These general objectives may deal with motivation in any of the following areas: learning subject-matter knowledge and skills; developing independence from adults in connection with learning; following, to at least a minimal degree, school policies related to conduct; and conceptualizing a value system. After these general schoolwide objectives have been formulated, there should follow an identification of motivational objectives for smaller groups of children. These objectives are more explicit and detailed than the general goals and are couched in behavioral terms related either to achievement in one or more subject-matter areas or to the development of self-directed prosocial behavior. Guidelines for development of both general, schoolwide objectives and more specific motivational objectives are contained in the IGM materials to be described later.

The specific, behaviorally stated objectives can be achieved by implementing one or more of the motivational-instructional procedures which will be described in a later section. Moreover, such specific objectives are subject to assessment.

Procedures for Assessing Motivational Objectives

The four primary ways of assessing the student's attainment of motivational objectives are by directly observing the student, by examining his written work, by giving teacher-made or published achievement tests, and by securing the student's own self-reports in oral or written form.

Formalized assessment procedures, including checklists, observations, and interviews, have been developed and incorporated into each of the motivational-instructional procedures which are at the heart of the IGM system. In general, children are preassessed to determine whether they could benefit from a particular motivational-instructional procedure. Continuous assessment is then carried out to ascertain each child's motivational progress.

Principles of Motivation

The major program elements of the IGM system are stated in terms of generalizations or principles drawn mainly from laboratory studies and related theories of motivation (see Klausmeier, Jeter, Quilling, Frayer, & Allen, 1975, for a full discussion of each principle). In the left column of Table 1, the motivational principles are stated. The right column lists teacher behaviors or instructional guides that are parallel to the generalizations. Some of the principles deal with motivational concerns which relate primarily to the learning of school subject matter--focusing of attention, goal setting and goal attainment, and providing informative feedback after activities are underway. The principles of modeling and reasoning are more directly applicable to student conduct, dealing with the initial acquisition and subsequent conceptualization

TABLE 1

MOTIVATIONAL PRINCIPLES AND COROLLARY TEACHER BEHAVIORS*

Motivational Principle	Teacher Behavior
1. Attending to a learning task is essential for initiating a learning sequence.	1. Focus student attention on desired objectives.
2. Setting and attaining goals require learning tasks at an appropriate difficulty level. Feelings of success with current learning tasks heighten motivation for subsequent tasks; feelings of failure lower motivation for subsequent tasks.	2. Help each student set and attain goals related to the school's educational program.
3. Acquiring information concerning correct or appropriate behaviors and correcting errors are associated with better performance on and more favorable attitudes toward the learning tasks.	3. Provide feedback and correct errors.
4. Observing and imitating a model facilitate the initial acquisition of many behaviors, including prosocial behaviors such as self-control, self-reliance, and persistence.	4. Provide real-life and symbolic models.
5. Verbalizing prosocial values and behaviors and reasoning about them provide a conceptual basis for the development of the behaviors.	5. Provide for verbalization and discussion of prosocial values.
6. Expecting to receive a reward for a specified behavior or achievement directs and sustains attention and effort toward manifesting the behavior or achievement. Nonreinforcement after a response tends to extinguish the response. Expecting to receive punishment for manifesting an undesired behavior may lead to suppression or avoidance of the behavior, or to avoidance and dislike of the punisher.	6. Reinforce desired behaviors.

*Adapted from Klausmeier & Goodwin (1975, p. 232).

of self-control, self-reliance, persistence, and other prosocial behaviors. The principle of reinforcement is equally relevant to learning and conduct.

By incorporating the motivational objectives into subject-matter instruction, a teacher could induce high motivation to learn on the part of students. However, it is a long step from the guides given in Table 1 to the development of motivational practices based on these guides which are applicable to specific subject-matter areas. Thus, the fourth requirement for implementing the IGM model is motivational-instructional procedures, which are essentially ways of putting the guides into practice within the context of a particular subject-matter area.

Motivational-Instructional Procedures

Over the past several years, the Center's research and development activities related to the IGM system have produced materials designed to give teachers the necessary knowledge and skills with which to initiate and maintain sound motivational procedures consonant with the overall instructional program of individual schools. Sets of teacher education materials consisting of films and related printed materials have been developed for each of four motivational procedures: (1) adult-child conferences to encourage independent reading, (2) teacher-child conferences for goal setting, (3) guiding children toward self-directed prosocial behavior, and (4) guiding older children in tutoring younger children.

The motivational-instructional procedures have the following characteristics: (1) they are directed toward achieving selected motivational objectives--these objectives are stated in terms of subject-matter area, (2) they incorporate four or more of the motivational principles outlined in the system, and (3) except for the third procedure which is specific to enhancing prosocial behavior, they can all be applied to one or more areas of subject-matter instruction. A description of the motivational-instructional procedures and the related multimedia materials follows. At the end of this chapter is a list of IGM materials.

Adult-child conferences to encourage independent reading. Reading is a major focus of the elementary school curriculum. It is essential for later success in school that children develop good reading skills and an enthusiasm for independent or self-initiated reading. The results of several research studies conducted at the Center beginning in 1966 indicated that under certain conditions one-to-one conferences between an adult and a child constitute an effective technique for motivating the child to read independently. Based on the results of this research, inservice education materials were developed to teach adults to conduct effective conferences. Following a field test of the effectiveness of these materials (reported in Chapter II), refined materials were developed and are currently in use. Inservice materials for the motivational-instructional procedure now include:

1. Individually Guided Motivation, a textbook for each person who participates in an IGM inservice session. Chapter one of this textbook gives a detailed description of the IGM system; chapter two is devoted to the reading conferences.

2. A Guide for Adult-Child Reading Conferences, a manual for each noncertified adult who prepares to conduct reading conferences. It has been found that properly instructed instructional aides, parents, and high-school student volunteers can successfully conduct the reading conferences. Since these persons would not normally attend inservice sessions geared for teachers, this separate manual was created.

3. Encouraging Independent Reading, a film which shows teachers conducting actual conferences with students in real school settings. This film, like all the films developed for IGM, is about 17 minutes long and is meant to show teachers how to apply motivational principles in concrete situations.

The direct target group for the above inservice education materials consists of elementary school personnel, including teachers, paraprofessionals, and adult volunteers. Following exposure to the materials, adults should be able to demonstrate an understanding of motivational theory, implement certain motivational principles in the reading conferences, and carry out the steps in planning and organization necessary for implementing the conference program.

The indirect, or ultimate, target group for the motivational procedure consists of elementary school children who have low motivation for independent reading. When conferences are held in accordance with guidelines contained in the materials, children should read more (that is, read a greater number of books or longer books or both) and express more positive attitudes toward reading than they did prior to initiation of the conferences. Some, but not all, children may also progress in various reading skills.

Essentially, the motivational procedure described in the inservice materials involves regularly scheduled conferences between the adult and the child which focus on increasing the independent reading of the child. During the conferences, the adult models desirable reading behaviors for the child to observe and imitate. The adult reinforces both the child's independent reading and his or her positive attitudinal statements about reading; the adult informs the child of any progress he or she has made in reading by telling him or her how many books or pages in a book he or she has successfully read on his own; the adult verbally encourages the child to continue to read while helping him or her to select books of an appropriate difficulty level. Through consistent application of these motivational principles, the conferences have their effect on the child.

In addition to instructing adults in the application of the motivational principles, the inservice materials provide guidance for selecting students who would benefit most from the conferences, assigning students to adults, scheduling conferences, developing record-keeping materials for the conferences, providing an attractive selection of reading materials in classrooms, and evaluating the effectiveness of the conferences. To evaluate the conferences, adults are instructed in procedures for gathering preconference baseline data on students against which to measure gains in independent reading and reading skills during and after the conference periods.

Adults are taught to tailor conferences to meet the needs of individual students. Depending on their assessment of the child's level of reading skill and level of motivation to read, the adults can vary the amount of time spent cultivating reading skills, the size goals set for the child (that is, the number of books or pages in a book that the child endeavors to read between conferences), the type and difficulty level of reading materials offered to the child, and other factors related to the conferences.

Teacher-child conferences for goal setting. Center research conducted during 1968-70, which indicated the efficacy of goal-setting conferences in increasing students' learning and motivation, led directly to the development of the goal-setting motivational procedure. As a result of research and field test evaluation, the following materials were developed for this procedure: (1) chapter one of the text Individually Guided Motivation, which gives an overview of IGM; and chapter three of the same text, which outlines the objectives of the goal-setting conferences, instructs teachers in the motivational principles to be used in the conferences, and provides guidelines for planning and implementing the goal-setting conference procedure, and (2) a 17-minute film, Setting Individual Goals for Learning, which shows goal-setting conferences being used to motivate children to learn reading word attack skills.

Elementary school teachers are the direct target group for these inservice materials. After working through the materials, teachers should be able to demonstrate an understanding of both the motivational techniques and the organizational procedures necessary to implement the goal-setting program, and be able to apply that understanding in actually implementing the program. The ultimate target group, children of low motivation and skill mastery in a selected subject-matter area, should show an increase in motivation, self-direction, and skill mastery related to that subject matter if the goal-setting conferences are correctly implemented.

Briefly, this procedure involves weekly conferences between the teacher and child, lasting 5 to 10 minutes, during which the teacher focuses the child's attention on important subject-matter objectives or skills, helps the child set realistic goals consisting of particular skills which the child will attempt to master between conferences, provides informative feedback concerning the student's mastery of his goal, and gives positive reinforcement for the child's progress toward his goal. The materials enable teachers to implement the above motivation principles in the context of the short subject-matter conference. This particular procedure also requires instructing teachers in how to select subject-matter areas for the goal-setting conferences, develop goal checklists of behavioral objectives in a child's own vocabulary, schedule conferences, and evaluate the effectiveness of the conferences.

Development of the goal checklist is absolutely essential to the successful implementation of this motivational procedure. Teachers are encouraged to select subject-matter areas in which they are already using objective-based, individualized instructional materials, such as the Center-developed Wisconsin Design for Reading Skill Development (WDRSD).[2]

[2] See, for example, Otto, & Askov, 1972.

If such instructional programs are not being used, then teachers themselves must identify the content objectives and determine the skills and subskills involved in attaining them. These instructional objectives are then expressed in terms of specific behaviors to be demonstrated by students. The objectives can in turn be put into checklists from which students can select goals they would like to attain.

In order to evaluate the success of the conferences, teachers must be taught to assess skill mastery through development of diagnostic tests or by use of standardized tests, the former being preferable. Teachers are guided in collection of baseline data related to subject-matter mastery and motivation-indicating behaviors. The baseline data are used by teachers to select students who would profit most from the conferences, to tailor the conferences to the needs of the individual, and to evaluate the effectiveness of the conferences through computation of children's gain scores from baseline to conference periods.

A great deal of emphasis in the inservice materials is placed upon the initial teacher-child conference. In this first conference, children are introduced to the notion of setting goals and are taught how to set goals for themselves. A teacher must provide careful guidance to the child so that he or she learns to distinguish between goals which are realistic and those which are not. In general, the motivational effect of setting and achieving goals is maximized when children select their own goals, and the goals are of appropriate difficulty level.

Guiding children toward self-directed prosocial behavior. Research conducted during 1969-70 indicated that small-group conferences conducted by the teacher were effective in helping children learn prosocial values and behaviors. This early research and subsequent field testing of the procedure led to the development of teacher-education materials consisting of: (1) chapters one and five of the text Individually Guided Motivation, and (2) a film, Guiding Children Toward Self-Directed Behavior.

In contrast to the two motivational-instructional procedures discussed thus far, in which a teacher or other adult works one-to-one with a given student to improve his motivation for acquiring cognitive skills, the group conference procedure features an adult working with a group of three to seven children and focusing discussion on a particular prosocial behavior. Conferences are usually 20 minutes in length and are held regularly once a week or once every two weeks. It is recommended that conferences be carried out as an integral part of the social studies or language arts program of the school. The conferences are conducted throughout the school year with all children participating at some time.

The purposes of the conferences are to increase the self-directedness of the children and to encourage prosocial behaviors. Prosocial behaviors are behaviors that are approved by large segments of our society and that contribute to the individual's self-realization and to good citizenship. When conducting the conferences, the teacher applies six motivational principles: focusing attention on the problem, reasoning about behavior, providing exemplary models, helping set goals, giving feedback and correction, and reinforcing desired behaviors. Emphasis is placed on reasoning about behavior--that is, helping the children think about why they behave in certain ways, and helping them consider the possible consequences of their behavior for themselves and others.

The inservice materials mentioned above enable teachers to implement the motivational principles with small groups of children. The materials also contain instructions concerning the necessary planning, record-keeping procedures, and other organizational matters crucial to the success of the small-group conference procedure.

Guidance is given to teachers in selecting children who will participate in each group. Behavioral objectives related to self-direction and prosocial behavior are formulated by teachers and students using suggestive guides in the inservice materials. Children are assessed on their attainment of the objectives on observational checklists or self-rating scales. The conference groups may consist of children who have shown common needs based on an assessment, but groups can also be formed on other bases.

Particular emphasis is given to guiding teachers in conducting the initial conference with the group, since the success of the conference program hinges on the success of this first meeting. Discussion at the first conference is usually focused on one of those behaviors (as assessed beforehand) on which the children need help. The teacher must strive to interest the children in a discussion of the behavior and, most importantly, let the children themselves arrive at a statement of the problem. The teacher is taught to play a nondirective, guiding role in the conferences. Questions are asked to help children understand why the problem exists and to help them explore the consequences of various behaviors on themselves and others. Models of desired behaviors are introduced by anecdotes or by having children observe films or real-life models. The teacher reinforces children for contributing to the discussion by praise or, more effectively, by paying close attention to what each child says. Finally, the teacher assists each child in setting a realistic goal pertaining to the behavior under discussion.

In subsequent conferences, the teacher gives feedback and reinforcement for children's goal-directed behavior between conferences, encourages children to be mutually supportive of each other's progress, discusses with the group whether to continue to work on the same problem or move to a new problem, and helps children set new goals.

Teachers are also provided with instruction on how to devise checklists of behaviors which students can use to keep track of progress toward their goals, how to develop and maintain records of the events of each conference, how to gather baseline data on children's level of self-directed and prosocial behaviors, how to use baseline data and data collected during the conference period to evaluate the progress of each child and to evaluate the overall success of the conference procedure, and how to schedule conferences.

After working through the inservice package, teachers should be able to demonstrate an understanding of the principles and procedures involved in the conferences and initiate a successful conference program on their own. The ultimate target group for conferences--students--should show gains in self-directed and prosocial behaviors.

Guiding older children in tutoring younger children. Center research showing the beneficial effects of having older children tutor younger children led to the inclusion of this procedure in the IGM system.

Current inservice materials for teachers implementing the tutoring procedure consist of: (1) chapters one and four of Individually Guided Motivation, (2) the film Guiding Children as Tutors, which outlines the planning necessary to establish a tutoring program and shows portions of actual tutoring sessions, and (3) Tutoring Can Be Fun, a booklet written especially for prospective tutors.

This motivational procedure is probably the most complex one to implement, since it involves teachers teaching students to teach other students. The activities of four groups must be coordinated: the teachers of the tutors, the children acting as tutors, the teachers of the tutees, and the tutees (children receiving the tutoring). The inservice materials are directed at both types of teachers and are intended to provide them with the knowledge and planning capability necessary for implementing the tutoring program.

In general, the tutoring program involves regularly scheduled sessions in which a child-tutor provides assistance to a child one to four years younger than himself. However, a good pupil may tutor children of his own age. Also, high school students, college students, and non-certified adults can be enlisted as tutors. The tutoring sessions are usually 10 to 20 minutes long. In the tutoring sessions, the tutor guides the younger child's practice of skills or his independent study activities. Tutoring is carried out as part of the younger child's regular instructional program in a particular subject-matter area.

Tutoring is primarily for the benefit of the tutee. The objectives for the tutee, which are explicitly spelled out in the inservice materials, are to increase his level of motivation and achievement in the subject-matter area and to increase his self-direction in learning.

The tutors are taught to apply motivational principles and to carry out other tutoring procedures. The tutors learn to apply the principles of focusing attention, modeling desired behaviors, providing informative feedback, and providing reinforcement. The inservice materials contain a complete plan to be used by teachers in teaching children to be effective tutors. The materials used for teaching tutors include the book Tutoring Can Be Fun, which explains the tutoring procedures and the motivational principles in easy vocabulary and contains practical exercises and role-playing activities for prospective tutors. Tutors are also shown part of the film Guiding Children as Tutors. This section of the film is called "Learning To Be a Tutor" and shows tutors learning about motivational principles, applying the principles in tutoring sessions, and discussing their progress and problems with a teacher. Each tutor is provided a checklist of the procedures (stated in vocabulary he can understand) which he is to implement in the tutoring sessions. This checklist, which is contained in Tutoring Can Be Fun, is a useful device for the tutors and also serves as a means for the teacher to monitor the tutors during initial instructions and later during the actual tutoring program. The instructional plan for tutors outlined in the materials consists of three to five sessions of about 30 to 45 minutes each. It is suggested that 6 to 10 tutors be taught simultaneously.

In addition to providing teachers with a plan and materials for instructing tutors, the inservice materials provide explicit instructions and materials for performing the following tasks: determining the objectives

of the tutoring sessions; selecting the materials and activities to be used; monitoring the sessions to assure that the tutor and tutee get along with one another and that the tutor is carrying out the tutoring procedures and instructional activities properly; providing feedback and reinforcement to both the tutor and tutee; assessing the appropriateness of the content of the tutoring sessions; and relating tutoring to the regular instructional program. Some of these tasks are performed by the teacher of the tutor and others by the teacher of the tutee.

Teachers are also given guidance and materials for assessing the pretutoring level of achievement and motivation of children so that those who would benefit most from the tutoring can be selected. These pretutoring data are also used as baseline data against which the tutees' gains during the program are measured. Monitoring of the tutees' progress is the primary method for evaluating the success of the program and making necessary revisions.

While it is obvious that the motivational principles in Table 1 can be implemented in numerous ways, the four motivational-instructional procedures just described have been found to provide effective means for systematically applying the principles to accomplish explicit and significant motivational objectives. Currently, implementation of IGM in a school means the implementation of one or more of these procedures. It should be noted that, because the IGM system was designed as part of the Center's IGE system, it can best be implemented in schools which have adopted the Instructional Programming Model (see Figure 1) and the organizational structure of IGE.[3] The research on the effectiveness of the IGM system and related materials which is reported in the following chapters was all conducted in schools organized into Instructional and Research units. However, it is expected that with some adaptation the system can also be used in more traditionally organized schools.

LIST OF IGM MATERIALS

The materials which follow are available from the CCL Document Service of the Wisconsin Research and Development Center for Cognitive Learning.

Books

Individually Guided Motivation, by H. J. Klausmeier, J. T. Jeter, M. R. Quilling, D. A. Frayer, and P. Allen. 123 pp. (1975).

Inservice Implementation Manual for Individually Guided Motivation, by J. T. Jeter, C. G. Katzenmeyer, H. J. Klausmeier, and M. R. Quilling. 107 pp. (1973).

[3]The organizational arrangement under IGE consists of several levels. Several non-graded Instructional and Research (I & R) units, consisting of a unit leader, staff teachers, aides, and 100 to 150 students, replace self-contained classrooms. At the next level is the Instructional Improvement Committee (IIC), consisting of the principal and unit leaders of a building. The next level is the Systemwide Program Committee (SPC), consisting of the system superintendent, consultants, and other central office personnel, and representative principals and unit leaders from the district. Together these levels form the structure of the multiunit elementary school (MUS-E).

College Instructors Guide for Individually Guided Motivation, by H. J. Klausmeier and C. G. Katzenmeyer. 71 pp. (1973).

Tutoring Can Be Fun, by H. J. Klausmeier, J. T. Jeter, and N. J. Nelson. 54 pp. (1972).

A Guide for Adult-Child Reading Conferences, by J. T. Jeter, N. J. Nelson, and H. J. Klausmeier. 33 pp. (1973).

Films

The following are 17-minute sound-color films:

Individually Guided Motivation: An Overview

Encouraging Independent Reading

Setting Individual Goals for Learning

Guiding Children as Tutors

Guiding Children Toward Self-Directed Behavior

II

EFFECTIVENESS OF THE IGM PROCEDURES AND MATERIALS WITH ADULT TARGET GROUPS

While parts of the IGM system were formulated on the basis of extant theory and laboratory research on motivation, other parts, such as the four motivational-instructional procedures, were identified in cooperation with the staff of school systems affiliated with the R & D Center. Once a procedure was identified as potentially helpful in increasing children's motivation and achievement, controlled experiments were carried out to determine conditions under which each procedure would be optimally effective. The results of this experimentation were then utilized in the development of prototype IGM materials related to each procedure. Beginning in 1970, a small-scale field test of each procedure has been conducted each year to ascertain the effectiveness of the materials with two target groups--the adults implementing the program and the students receiving the motivational-instructional treatments. Feedback from the field tests has helped produce further development and refinement resulting in the current IGM materials described in Chapter I.

In contrast to the early experiments on the procedures, which were conducted under controlled conditions with rigorous supervision by Center staff, the field test studies were designed primarily to determine the feasibility and effectiveness of the procedures when implemented by typical school personnel in naturalistic school environments with children of diverse characteristics.

While the designs of the field test studies varied in specific details, in general, each of the studies included the following features:

1. Participating schools were multiunit schools in Wisconsin selected from among those volunteering to participate in the field test.

2. Persons selected by each school to be the local field test coordinators participated in an inservice session conducted by R & D Center personnel. The R & D inservice consisted of acquainting the local coordinators with the IGM system and materials and outlining the field test plan.

3. The coordinators conducted local inservice sessions for participating staff using the available inservice educational materials relevant to the particular motivational-instructional procedure being field tested.

4. Evaluation of the success of the motivational procedure with the two target groups was independently assessed in each participating school.

It is obvious that unless the materials are usable by adults and are acceptable to them the motivational-instructional procedures will not be properly implemented and, in turn, can have little beneficial effect on children. Thus, the exposition of the empirical evidence related to IGM should logically begin with an inspection of adults' responses to the procedures and materials during implementation. In the following sections, data pertaining to the effectiveness of the IGM materials with adults are reported for each of the four motivational procedures.

ADULT-CHILD CONFERENCES TO ENCOURAGE INDEPENDENT READING: FIELD TEST RESULTS

BY DEBORAH M. STEWART, MARY R. QUILLING, AND DOROTHY A. FRAYER[4]

Participating Adults

The small-scale field test of the independent reading conferences was conducted in six multiunit schools selected to represent a variety of populations--rural, small town, small city, medium city, and large city. Adult conference leaders were identified by each school independently to make the best use of personnel and time. Of the 60 conference leaders selected, 40 percent were teachers, 40 percent staff and/or volunteer aides, and 20 percent high-school student volunteers; in any one site, however, only one or two groups were represented. Thus, a diverse population of adults was sampled in the field test.

Objectives and Procedures

The objective sought for adult participants were of two types--those related to understanding of the principles and implementation procedures of the motivational program, and those related to the actual implementation of the conferences.

Table 2 shows the three objectives related to adults' understanding of the principles and implementation procedures: knowledge of motivational theory, application of motivational principles, and procedures for implementing conferences. To find out whether the adults understood the motivation theory, principles, and procedures as presented in the materials, a multiple-choice test was administered by local coordinators following training. Of interest was whether the adults trained by local coordinators could perform as well as adults trained by specialists. The scores of adults trained by the conference leaders were compared with the scores of an "ideally trained" group. The latter group had participated in a training session conducted by members of the R & D staff as part of an earlier formative evaluation of the materials for the reading conference program (see Frayer & Sorenson, 1971).

As noted in Table 2, the adults' application of motivational principles and procedures during implementation of actual conferences was also assessed. Fifteen different applications of the principles were identified as

[4]This section is an abstract of sections of the document by Stewart, Quilling, & Frayer, 1971.

TABLE 2

ASSESSMENT PROCEDURES FOR ADULT TARGET GROUP IN INDEPENDENT READING CONFERENCE FIELD TEST

Objective	Assessment Time	
	Following Training	During Implementation
1. Demonstrate knowledge of motivational theory	Multiple-choice test	----------
2. Understand application of motivational principles in conferences	Multiple-choice test	Conference recorded, transcribed, and rated
3. Understand procedures for implementing conferences	Multiple-choice test	Implementation monitored on site

advantageous to successful conferences, and a rating scale was developed to assess implementation of the principles. Conference leaders cooperated by tape-recording conferences during two one-week periods.

In addition to the above evaluations, an assessment was made of the degree to which the following implementation requisites, as described in the inservice materials, were fulfilled by each school.

1. An inservice training program for local leaders was carried out.
2. Baseline data on numbers of books read were collected from all children for eight weeks.
3. A criterion for identifying children who need conferences was specified in terms of amount of independent reading.
4. Children in need of conferences were identified on the basis of the above criterion.
5. Adult conference leaders kept records of each conference.
6. Children continued to record the titles of books completed and dates of completion throughout the conference period.
7. Availability of books was increased; new books were provided or additional opportunities to use the Instructional Media Center (IMC) with adult assistance were given.
8. The books available to the pupils covered a broad range of difficulty.
9. Pupils in the conferences had the opportunity to select books independently.

10. Conferences were held where a fair degree of privacy was possible.

11. Conference leaders were freed from other duties while conferring.

12. Conferences were held at a regular time each week.

The first requisite for satisfactory implementation involved an inservice education program for local conference leaders conducted by coordinators at each site. Two or three coordinators from each school received printed materials during the summer and attended a half-day workshop in mid-September. The workshop, conducted by R & D personnel, included inservice education and acquainted the coordinators with the procedures and forms to be used in the field test. Coordinators returned to instruct local conference leaders in motivational theory, principles, and implementation procedures. Prototype IGM materials, including the film The Individual Conference: A Motivational Device for Increasing Independent Reading in the Elementary Grades, and copies of the user's manual of the same title (Sorenson, Schwenn, & Klausmeier, 1969), were available to coordinators for their training sessions. The local inservice was judged to be satisfactory if the agenda from the on-site inservice program showed that the adult leaders saw the film, read the user's manual, and participated in at least a three- to four-hour instructional session and simulation.

Satisfactory fulfillment of Requisites 2 through 6, dealing with selection of children to receive conferences and with record keeping, was assumed if the schools returned the appropriate data for each student to the Center for analysis. Requisites 7 through 12, dealing with procedural aspects of the conference implementation, were monitored by on-site visitations. The instrument used in this monitoring was a checklist containing items related to the implementation Requisites 7 through 12.

The on-site visitations served two purposes: to determine whether requisite conditions regarding procedures were met, and to describe the implementation of the conferences more fully for each site. An R & D staff member, thoroughly knowledgeable about the conference procedure and product objectives, interviewed most of the 60 conference leaders.

Finally, all local coordinators and conference leaders were asked to respond to a questionnaire. This instrument was used both to assess the usability of the motivational-instructional procedure and to determine what changes and additions were perceived as necessary to increase the effectiveness of the materials.

Results

Knowledge of theory, principles, and implementation. On the basis of the formal agendas received by the Center, the instructional program provided for adult conference leaders in five of the six schools was judged to be satisfactory. In one school, no formal inservice training beyond viewing the film was provided; instead, leaders received the user's manual and a summary of the information provided to local coordinators.

Mean scores on the multiple-choice test administered immediately following training are shown in Table 3. Scores on three subtests related to motivational theory, applications of principles of motivation in conferences, and implementation of the conference procedures are also presented for conference leaders at each of the six schools and for an "ideally trained" group whose scores on the same test served as the standard for evaluating conference leaders. Inspection of the means on the total test indicates that two schools exceeded the mean of the standard and four schools fell below.

Separate analyses were done for each subscore and the total score. In each case, one-tailed t-tests compared the means for the six individual schools to the standard to determine whether performance was below standard in any school. The probability of a Type I error was held at .05 for all tests considered jointly. No significant differences were found between the standard and scores in Schools A through D. Thus in these four schools, conference leaders demonstrated knowledge of motivation theory, properly identified instances of application of the principles in conferences, and showed understanding of the procedures of implementation about as well as did members of the standard group. In School E, conference leaders' test performance was significantly below the standard for all subtests and the total test, while conference leaders in School F were below the standard on the theory subtest and the total test. School F's comparatively poor performance may be attributed to the incomplete inservice program in that school.

Application of motivational principles. Understanding of the application of motivational principles such as reinforcement, feedback, and modeling was further assessed during implementation. The leaders in each school tape-recorded their conferences for the same weeks, during each of the first and second eight-week periods in which the conferences were held.

All available tapes of conferences were independently evaluated by two experienced raters. For each conference, the adults' use of each of 15 different activities was rated on a 0-5 scale, for a maximum total rating of 75. Each total was then converted to a score of 1 to 5, reflecting the extent of application of the principles (1 = low implementation, 3 = average implementation, 5 = excellent implementation), and a mean conference rating was determined for each school. The quality of the conferences, as assessed by the rating technique, varied substantially between schools. School E conducted the poorest conferences, with mean ratings of 2.77 and 2.45 for the first and second eight-week conference periods respectively. School A conducted the best conferences, with a mean rating of 3.65 for both periods. Surprisingly, conference ratings did not improve from the first to second periods, as one would expect if the leaders gained from practice.

When pre-implementation test performance, as reflected by the combined means on knowledge of theory and application of motivational principles, is related to application of the principles in practice, a moderate degree of correspondence is noted. Rank orderings in Table 4, based on the second eight-week period of conferences, indicate that the two groups of conference leaders who demonstrated the least knowledge on the test also had the lowest ratings for application of motivational principles in conferences.

TABLE 3

MEAN SCORES ON TEST ADMINISTERED TO CONFERENCE LEADERS
AFTER INSERVICE TRAINING ON INDEPENDENT READING CONFERENCES

School	N	Scores				
		Theory (8 Items)	Application: Principles (9 Items)	Implementation: Procedures (11 Items)	Total Test (28 Items)	
					Mean	Median
A	6	5.50 (3)	7.00 (6)	9.00 (5)	21.50 (4)	21.5
B	11	6.00 (7)	7.55 (10)	8.91 (8)	22.45 (10)	22
C	19	5.68 (11)	5.74 (11)	8.32 (12)	19.74 (10)	21
D	7	5.57 (5)	5.71 (5)	9.00 (6)	20.29 (3)	20
E	11	4.64 (2)	4.73 (4)	5.91 (2)	15.27 (0)	17
F	8	4.75 (1)	5.75 (4)	7.75 (5)	18.25 (2)	17
Standard	93	6.38	6.15	8.77	21.30	

Note: The numbers in parentheses indicate the number of leaders whose scores equaled or exceeded the standard.

TABLE 4

RELATIVE RANK ORDERINGS OF CONFERENCE LEADERS' PERFORMANCE ON KNOWLEDGE AND APPLICATION OF MOTIVATIONAL THEORY AND PRINCIPLES

School	Rank Order of Mean Score on Theory and Principles of Motivation	Rank Order of Mean Conference Rating
A	2	1
B	1	4
C	3	3
D	4	2
E	6	6
F	5	5

Accomplishment of implementation requisites. On-site monitoring was conducted during the conference periods to determine whether implementation requisites were carried out. Results of the monitoring of the six requisites, 7 through 12, for conference implementation and the requisite involving the inservice program are summarized for each school in Table 5. The schools met all the implementation requisites, except that School F, as mentioned earlier, failed to provide a formal inservice session.

Along with determining that minimum implementation requisites were met, the monitoring identified additional desirable practices in the schools. For example, it was found that either the supply of books was changed regularly or else books for conferences were selected by individual children from the school IMC. In all cases, professional staff members rated the reading level of the books. Leaders reported that the conferences generally lasted 5 to 15 minutes, although longer ones were occasionally necessary. In most schools, a private seminar room was set aside for these conferences.

Evaluation of product usability. A final question relating to the adult target group was whether the conference leaders perceived the program as usable. Thirty-four of the 75 conference leaders and local coordinators responded anonymously to a staff questionnaire.

One indication of usability was intent to continue or discontinue the procedure upon completion of the field test. Seventy-nine percent of the teachers answered that they would either recommend continuation or be pleased if it did continue; all but one of the negative responses came from School F. In other words, the data suggest staff support for continuation in five of the six participating schools.

A related indication of usability is extension of the conference procedure to subject areas other than reading. Fifty-seven percent of the respondents had used the conference technique in other subject areas.

TABLE 5

ATTAINMENT OF REQUISITES FOR IMPLEMENTING
THE INDEPENDENT READING CONFERENCES

School	Inservice Program (1)	New Books Provided (7)	Broad Range of Book Difficulty (8)	Child Checkout Possible (9)	Fairly Secluded Conference Area (10)	Leader Freed for Conferences (11)	Regular Weekly Conferences (12)
A	1	1	1	1	1	1	1
B	1	1	1	1	1	1	1
C	1	1*	1	1	1	1	1
D	1	1	1	1	1	1	1
E	1	1	1	1	1	1	1
F	0	1*	1	1	1	1	1

Note: Rating of 1 indicates that school met or exceeded minimum criterion; rating of 0 indicates that criterion was not met..

*New books were ordered but not all were received early in the conference period.

A majority of the leaders indicated that they would follow the recommended guidelines for installation and implementation in a conference procedure of their own. Also, respondents indicated they would collect baseline data to determine who would receive conferences, select one-third (or at least 30) of the students for conferences, and schedule the conferences for approximately 10 minutes each week, over a period of eight weeks. Overall, therefore, the installation/implementation procedures were deemed feasible. Recommended changes in the materials included improving the technical quality of the film and adding more information on both selection of books and identification of students in need of conferences.

In conclusion, the results of the field test study of the adult-child conferences to encourage independent reading indicated that when the educational materials were studied in a properly conducted local inservice, adults acquired a sufficient level of mastery of the theory, motivational principles, and implementation procedures. Moreover, following proper inservice sessions with the materials, most adults were able to conduct conferences of average to good quality. They were able to implement the conferences according to the recommended guidelines and in most cases they did so. Finally, a majority of adults rated the materials as usable and the conference procedure as feasible.

TEACHER-CHILD CONFERENCES FOR GOAL SETTING: FIELD TEST RESULTS

BY MARY R. QUILLING, THOMAS J. FISCHBACH,
KAYE H. RENDFREY, AND DOROTHY A. FRAYER[5]

This field test study was conducted in two phases. The first phase was conducted only to determine how well adults understand both the motivational techniques and the planning and organizational procedures related to goal-setting conferences after studying the relevant materials. The second phase was conducted to ascertain how well teachers apply the motivational techniques and carry out the procedures described in the materials to implement the goal-setting conferences. In the following sections, the two phases of the study will be described separately.

PHASE 1

Participating adults. This phase involved 58 adults attending a conference sponsored by the R & D Center. The participants included principals, unit leaders, and teachers from multiunit schools throughout Wisconsin.

Procedures and instrumentation. The adults took part in a two-hour staff development session which was designed to be an abridged version of one which might be used in a school setting. The participants were exposed to prototype materials consisting of a film on goal-setting conferences and a Center practical paper, Individually Guided Motivation: Setting Individual Goals for Learning (Rendfrey, Frayer, & Quilling, 1971); also there was a brief discussion of the motivational principles underlying the conferences. Table 6 contains a detailed outline of the activities and time allotments

[5]This section is an abstract of sections of the document by Quilling, Fischbach, Rendfrey, & Frayer, 1971.

TABLE 6

SCHEDULE OF ACTIVITIES AND TIME ALLOTMENTS FOR THE INSERVICE PROGRAM ON GOAL-SETTING CONFERENCES

Activity	Time (in minutes)
Introduction	3
Pretest (30 items)	15
Read Practical Paper, pp. 7-12	15
Discuss preconference planning	5
Discuss motivational principles	5
View film	22
Discuss evaluation of conference procedure	10
Read Practical Paper, pp. 27-31, 24-26	15
Discuss goal checklists	5
Posttest	10

during the inservice session. To determine whether the materials communicated the necessary information, a 30-item multiple-choice test was used, including questions concerning the planning and organizational procedures necessary to implement the conferences, and the principles on which the goal-setting procedure is based. This instrument was administered before and after the inservice simulation, so that change in scores served as an indicator of program success.

Results for Phase 1. The 30-item multiple-choice test included 19 items dealing with the planning and organizational procedures necessary to implement the conferences and 11 concerning the theory and principles inherent in the goal-setting conferences. The mean gain from pretest to posttest on the section dealing with procedures was 3.05; for the items dealing with theory and principles, the mean gain was 1.09. For both of the sections, the mean gain was significant at the .01 level of confidence. Summary statistics are presented in Table 7.

TABLE 7

MEAN SCORES AND GAINS ON TWO SUBSCALES OF THE TEST ON PROCEDURES AND PRINCIPLES OF THE GOAL-SETTING CONFERENCES

Items	Number of Items	Mean Scores		Mean Gain	Statistical Test
		Pretest	Posttest		
Procedures	19	11.71	14.76	3.05	$t = 8.50$, $p < .01$
Theory and Principles	11	6.55	7.64	1.09	$t = 4.14$, $p < .01$
All items	30	18.26	22.40	4.14	

Another index of the effectiveness of the materials in communicating information is the percentage of of adults who responded correctly to an arbitrarily set number of items. A score of 75 percent was established as the mastery criterion. The data revealed that 78 percent of the adults demonstrated mastery of the procedural aspects of the materials, while 60 percent of the adults mastered the theory and principles of the goal-setting procedure.

These results must be qualified because of characteristics of the instrument used. The pretest administration was the first tryout of the test and, although the overall internal consistency reliability was .74, the reliability for the two subscales was low. Therefore, while there is no doubt that performance improved from pretest to posttest, interpretation of the mastery data is difficult.

PHASE 2

Participating adults. In Phase 2, three schools implemented the program and contributed data showing how well teachers apply the motivational principles and carry out the procedures described in the materials. A total of ten teachers participated. Three teachers from an intermediate unit of Grantsburg Elementary School in Grantsburg, Wisconsin, implemented the conferences in math. Five teachers from a unit in Robinwood School in Franklin, Wisconsin, added the goal-setting techniques to conferences they were already conducting with students low in vocabulary. Two teachers from a unit of Morgan L. Martin School in Green Bay, Wisconsin, implemented the conferences in reading.

Procedures and instrumentation. One or two teachers from each of the cooperating units in the three schools attended a workshop held at the Center where they were briefed concerning the use of the materials and the design of the field test. The representatives returned to their schools and conducted an inservice session, utilizing the practical paper and film mentioned earlier. At that time, plans were made for selecting the content area and the participating students, and for conducting the conferences.

The evaluation was conducted over a 20-week period. This period was subdivided into a brief baseline period and two eight-week implementation periods. Data were collected from adults and children at the times indicated in Figure 3.

Monitoring of conference implementation was carried out by on-site visitations, by a teacher questionnaire, and by tape recordings of conferences. The visitations and questionnaire related to procedural aspects of conference implementation, while the tape recordings were used to evaluate the application of motivational principles. Each teacher taped three goal-setting conferences, one of which was randomly selected for rating by personnel at the R & D Center. The evaluation form for rating these taped conferences was designed to determine how effectively the motivational principles were implemented in the conferences and to rate the general conference effectiveness.

Results for Phase 2. Three Center staff members rated a total of 10 taped conferences, one from each participating teacher. Tapes were

TABLE 8

INCIDENCE OF APPLICATION OF MOTIVATIONAL PRINCIPLES IN GOAL-SETTING CONFERENCES

Motivational Principle	Behavior	Percentage of Conferences Exhibiting Behavior
Feedback	1. The child is given an opportunity to evaluate his own progress.	50
	2. The child is given an opportunity to demonstrate the behaviors learned.	70
	3. Feedback is provided for each of the goals chosen for the previous week.	80
Reinforcement	4. The child receives praise at least once during the conference.	90
Focusing Attention	5. Specific examples are given for the behaviors to be learned.	90
	6. The child is given sufficient help in selecting goals for the coming week.	40
Goal Setting	7. The child is given an opportunity to participate in goal setting.	100

rated for occurrence or nonoccurrence of seven specific behaviors. A behavior, such as the teacher's praising of the child, was deemed to have occurred if at least two of the three raters identified it.

The percentage of the conferences in which each of the seven desired behaviors was observed can be found in Table 8. In all the conferences rated, the child actually participated in goal setting (Behavior 7). Generally, specific examples were given for the behaviors to be learned (Behavior 5), and in only one case was praise not given to the child at least once during the conference (Behavior 4). It is apparent, however, from the data that certain practices (Behaviors 1 and 6) viewed as desirable were not consistently used in the sampled conferences.

The assessment of the procedural aspects of the conference implementation focused on the following questions: Do teachers satisfactorily implement the basic requisites of the procedure? Are any modifications necessary to assure adequate implementation of the procedure? Is the procedure feasible in terms of demands on time and instructional personnel?

Through close contact between Center and school personnel, it was confirmed that teachers satisfactorily implemented the following procedure requisites: participating in inservice training sessions, selecting subject-matter areas, developing goal checklists, collecting baseline data, selecting student participants, conducting regular goal-setting conferences, and maintaining current records of goal attainment. Further information on implementation and recommended modifications was gathered from the teacher questionnaire. The teachers suggested such changes in the prototype materials as adding more information on selection of conference participants and on the procedures for evaluating both conference implementation and effectiveness. It was suggested that the film should more effectively demonstrate application of the motivation principles and provide a more realistic example of the conference procedure.

The following facts relate to the feasibility of the conference procedure. Each school planned and conducted local inservice sessions without assistance from Center personnel. The time spent in preconference instruction varied from school to school. In one school, instruction included an all-day meeting followed by several short informal sessions; another school held eight half-hour sessions. Though the scheduling varied, the minimum amount of time spent in preconference planning was four hours. All teachers indicated that they felt prepared to implement the conference procedure.

The time spent by each teacher conducting conferences ranged from one to two hours each week; the number of conferences handled by each teacher per week ranged from 4 to 10. There seemed to be agreement among the teachers that the number of children participating in goal-setting conferences at any one time would have to be limited, since special arrangements usually must be made to find a time free from other class responsibilities. The teachers indicated that with a limited number of students participating (as was true in the field test), such other time requirements as preconference planning and record keeping were not unreasonable.

All 10 participating teachers indicated that they felt the goal-setting conferences were an effective motivational technique. Finally, the fact that all three schools chose to continue the conference procedure

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	3. Feedback is provided for each of the goals chosen for the previous week.	80
Reinforcement	4. The child receives praise at least once during the conference.	90
Focusing Attention	5. Specific examples are given for the behaviors to be learned.	90
Goal Setting	6. The child is given sufficient help in selecting goals for the coming week.	40
	7. The child is given an opportunity to participate in goal setting.	100

TABLE 9

PERFORMANCE ON PRETESTS AND POSTTESTS OF THE THEORY, PRINCIPLES, AND METHODS OF GROUP CONFERENCES

Group Tested	Pretest			Posttest*		
	N	Mean**	Standard Deviation	N	Mean**	Standard Deviation
1st R & D Inservice	17	12.4	1.73	6	12.2	.90
2nd R & D Inservice	10	11.6	1.65	5	11.2	1.17
Galesville	12	10.2	2.38	8	12.4	1.58
Chegwin	11	11.0	2.90	7	10.3	1.28
Huegel	12	11.3	1.50	3	8.3	3.40
Stangel	9	10.2	2.33	6	10.8	7.73
Port Edwards	20	10.8	2.07	6	11.3	1.89
Overall	91	11.1	2.23	41	11.2	2.17

*Data on Pretest non-masters.
**Fifteen-item tests.

of the table indicates that low ratings on three implementation requisites--maintaining current conference records, establishing regular conference schedules, and selecting students for conferences--account for the lower overall ratings for these schools.

Application of motivational principles. Three Center staff members observed and rated a total of 29 conferences in six schools over a period of six weeks. The teachers were rated on their use of the motivational principles of reasoning, modeling, and goal setting in the initial conferences, and on the principles of feedback and reinforcement in follow-up conferences. Table 11 contains the mean ratings on the five principles for teachers in six schools. The teachers' general ability to apply the five motivational principles is indicated by an overall mean rating of 4.0 (80 percent of the maximum). Two of the six schools, however, received ratings between 3 and 4, indicating only average ability of teachers to implement the principles. The modeling principle appeared to be the most difficult for teachers to implement, as indicated by its low mean rating. However, inspection of the table indicates that for the four schools on which data are available, two implemented modeling and two did not. In summary, the evidence shows that, with the possible exception of the modeling principle, teachers are able to carry out the motivational principles in the group conferences.

Usability and feasibility of the program. Information concerning the usability of the materials and the attitudes of teachers toward the group-conference procedure was gathered during informal on-site interviews and

their own staffs. Two weeks prior to the inservice, the participants were sent the practical paper Guiding Children Toward Prosocial Behavior: A Positive Approach to Student Conduct (Holland, Frayer, Sorenson, & Ghatala, 1970), the program agenda, and objectives for the inservice. A total of 27 people attended the one-day inservice conducted at two sites in mid-September.

The inservice session opened with the administration of a 15-item multiple-choice test of the theory, principles, and methods of the group conferences. Participants discussed the guidelines for formulating behavior checklists and implementing the group conferences in their schools. In order to provide some experience with the task of formulating a behavioral checklist, all participants were assigned to a working group where they developed a checklist of behaviors that adults would be expected to exhibit at an inservice meeting. The remainder of the session was devoted to a role-playing session simulating a small-group conference, the viewing and discussion of a video tape, *The Development of Prosocial Behavior Through Small-Group Conferences*, and a working session where participants prepared a skeletal plan for implementing the procedure in their schools. The session concluded with a 15-item posttest.

Local inservice and program implementation. Within a month following the Center inservice, each school conducted a local inservice to introduce the procedure to its staff. In all cases, the video tape was shown as part of this inservice. The same multiple-choice test used at the R & D inservice was administered to inservice participants at five of the schools.

Next, each school identified the prosocial behaviors it considered most important and stated these in the form of a checklist. These checklists, which included from 6 to 39 behaviors, were submitted to the R & D Center for the purposes of the field test study. In addition to the checklist, each school identified its criteria for selecting children to participate in the conferences; these group formation guidelines were also submitted to the Center. At this point, all schools were visited by Center staff to explain data collection forms and answer questions.

The field test participants then collected baseline information by rating each child on each behavior on the checklist. In four schools each child was rated by one teacher, while in the remaining four schools several teachers rated each child. In addition, in all but one of the 19 units participating in the field test, the students rated themselves on each behavior on the checklist.

Using the group formation guidelines and the baseline ratings, school personnel selected children to participate in the group conferences, with each conference focusing on one behavior. All schools had begun to hold conferences by the end of November 1971. On the average, the conference groups contained six or seven members and met two or three times. The duration of the group meetings averaged 19.5 minutes for initial conferences and 14.8 minutes for follow-up conferences. Of the 19 units using the program, 18 kept a Group Conference Record for recording which children participated, what behavior they discussed, and whether they attained their goals. For the purposes of the field test, the conferences were scheduled to end during February 1972. At this time a postassessment was completed by teachers and students. Each student

was again rated on each behavior on the checklist. The postconference ratings, as well as the group conference records, were submitted to the Center for analysis.

During the conference period of December to February, schools were randomly selected for on-site visits by Center staff. Three schools received two visits and another three were visited once. During the visits, conferences were monitored and usability information was collected from the principal. An observation schedule was completed for each conference monitored. This schedule was designed to discover whether the motivational principles were being applied by the adult conducting the conference, and to assess the degree of privacy and general atmosphere in which the conferences were conducted. An interview form was used to record usability information received from the principal. Most questions were related to the amount of staff time devoted to carrying out the various aspects of implementation.

Results

Data are reported here for each of the five questions, listed earlier, which relate to the adults' response to the group-conference procedure.

Knowledge of theory, principles, and methods. The multiple-choice test that was developed to assess knowledge gained from study of the group-conference materials was administered in five schools and at each of the two inservice sessions conducted by the R & D Center. Parallel forms were prepared for use as pretests and posttests. Table 9 contains descriptive data resulting from administering the test in the several situations. Results of the pretest administration indicate that teachers utilized the printed materials to prepare for the inservice sessions. An overall mean of 11.1 is relatively close to the 80 percent mastery level usually assigned to such tests. Most of the pretest non-masters were brought up to the mastery level by the inservice sessions. From another perspective, 70 percent of all the adults who were tested attained the mastery level on either the pretest or in subsequent posttesting. It can be reasonably concluded that teachers' study of the group-conference materials and participation in an inservice session utilizing these materials lead to mastery of the theory, principles, and methods of the group conferences.

Accomplishment of implementation requisites. At the conclusion of a series of on-site visits by Center staff, each school was rated on seven specific requisite techniques for implementing the group-conference procedure. Table 10 contains the ratings of the schools. The data indicate that teachers were able to implement most of the requisite techniques with a fair degree of success. Four of the seven techniques had a mean rating greater than 4.0 (80 percent of the maximum). No technique had a mean rating lower than 3.6 (72 percent of the maximum).

Table 10 also shows that five of the eight schools obtained mean ratings of 4.0 or better. Three schools obtained mean ratings between 3 and 4, which, on a 5-point scale, indicated average performance. In summary, teachers in five of the eight schools showed good to excellent ability to implement the requisite techniques of the group conferences; the remaining three schools showed only average ability to do so. Inspection

TABLE 9

PERFORMANCE ON PRETESTS AND POSTTESTS OF THE THEORY, PRINCIPLES, AND METHODS OF GROUP CONFERENCES

Group Tested	Pretest			Posttest*		
	N	Mean**	Standard Deviation	N	Mean**	Standard Deviation
1st R & D Inservice	17	12.4	1.73	6	12.2	.90
2nd R & D Inservice	10	11.6	1.65	5	11.2	1.17
Galesville	12	10.2	2.38	8	12.4	1.58
Chegwin	11	11.0	2.90	7	10.3	1.28
Huegel	12	11.3	1.50	3	8.3	3.40
Stangel	9	10.2	2.33	6	10.8	1.73
Port Edwards	20	10.8	2.07	6	11.3	1.89
Overall	91	11.1	2.23	41	11.2	2.17

*Data on Pretest non-masters.
**Fifteen-item tests.

of the table indicates that low ratings on three implementation requisites--maintaining current conference records, establishing regular conference schedules, and selecting students for conferences--account for the lower overall ratings for these schools.

Application of motivational principles. Three Center staff members observed and rated a total of 29 conferences in six schools over a period of six weeks. The teachers were rated on their use of the motivational principles of reasoning, modeling, and goal setting in the initial conferences, and on the principles of feedback and reinforcement in follow-up conferences. Table 11 contains the mean ratings on the five principles for teachers in six schools. The teachers' general ability to apply the five motivational principles is indicated by an overall mean rating of 4.0 (80 percent of the maximum). Two of the six schools, however, received ratings between 3 and 4, indicating only average ability of teachers to implement the principles. The modeling principle appeared to be the most difficult for teachers to implement, as indicated by its low mean rating. However, inspection of the table indicates that for the four schools on which data are available, two implemented modeling and two did not. In summary, the evidence shows that, with the possible exception of the modeling principle, teachers are able to carry out the motivational principles in the group conferences.

Usability and feasibility of the program. Information concerning the usability of the materials and the attitudes of teachers toward the group-conference procedure was gathered during informal on-site interviews and

TABLE 10

RATINGS OF TEACHERS' ABILITY TO CARRY OUT THE PLANNING AND ORGANIZATIONAL TECHNIQUES IN IMPLEMENTING THE GROUP CONFERENCE PROGRAM

Technique	School								Mean	S.D.
	Franklin	Black Earth	Galesville	Chegwin	Huegel	McKinley	Stangel	Port Edwards		
Attendance of all participating faculty at an inservice program which consists of three to four hours of training including conference simulation.	4	3	4	3	4	4	5	5	4.0	.76
Development of behavior checklist to meet local criteria for prosocial behavior.	5	5	5	5	5	5	5	5	5.0	.00
Collection by the teachers of baseline behavioral ratings for all students.	5	3	4	4	4	5	4	5	4.2	.76
Selection of students for conferences on the basis of a broad range of behavior patterns.	5	3	5	3	2	4	3	5	3.8	1.16
Maintenance of a regular conference schedule with regular assignments of personnel.	3	2	5	3	2	5	4	5	3.6	1.30
Establishment of conference sites with a fair degree of privacy.	5	3	4	5	3	5	-	-	4.2	.98
Maintenance of current records concerning conference attendance and conference results.	5	2	5	3	2	4	3	5	3.6	1.30
Mean	4.5	3.0	4.6	3.7	3.1	4.6	4.0	5.0	4.0	
Standard Deviation	.95	1.0	.53	.95	1.22	.53	.89	.00	1.09	

Note: Ratings are on a 5-point scale.

TABLE 11

MEAN SCHOOL RATINGS OF TEACHERS' UTILIZATION OF MOTIVATIONAL PRINCIPLES IN TWO TYPES OF GROUP CONFERENCES

	Motivational Principles								
	Initial Conferences				Follow-up Conferences				
School	N	Reasoning	Modeling	Goal Setting	N	Feedback	Reinforcement	Mean of Means	Standard Deviation
Franklin	2	5	2	2.5	1	2	2	2.7	1.30
Black Earth	2	4	4.5	5	3	5	4	4.5	.50
Galesville	3	4	2	5	1	5	5	4.2	1.30
Chegwin	0	--	--	--	3	4.3	4	4.2	.21
Huegel	0	--	--	--	4	3.3	3.5	3.4	.14
McKinley	3	4.3	5.3	4.8	7	4.8	4.8	4.8	.35
Mean of Means	10	4.3	3.5	4.3	19	4.1	3.9	4.0	
Standard Deviation		.47	1.71	1.22		1.20	1.08		1.23

observations. Data regarding feasibility of the procedure were obtained by interviewing the principals of the eight field test schools.

The most prevalent attitude of the teachers toward the conferences was one of enthusiasm. Several schools reported that both the children and teachers were eager to continue the conferences once the field test was over. A comment repeated by various principals was that their staffs were pleased with the conference effects on the behavior of children. One principal remarked that the procedure gave his teachers a new way of looking at the children's behavior and had positively affected their attitudes and teaching techniques. Thus, the small-group conference procedure was well received by the adults. However, certain negative comments, as well as suggestions for revision, were offered concerning the prototype materials of the procedure.

The suggestions for revision of the materials centered primarily on the teachers' feelings that insufficient information was given on implementation requisites in the following areas: formulating behavior checklists, scheduling conferences, involving primary-age children, preparing record-keeping forms, and forming groups for conferences. In addition, teachers suggested that the materials should contain a step-by-step guide to the complete implementation of the program so that school staffs could more easily grasp the overall picture of what was required for implementation. All suggestions for revisions have been incorporated into current IGM materials.

In addition to the printed materials, the instructional package included a black and white video tape. The technical quality of the video tape was poor and was only being used until a sound-color film could be developed. The content of the video tape was judged by teachers to be adequate in demonstrating the motivational principles. However, it was suggested that the film show more than one adult conducting an initial and follow-up conference. Using different adults would offer more examples of how to apply the principles and, more important, would demonstrate various styles of conducting conferences.

With some reservations, the principals considered the procedure to be feasible for elementary schools in terms of time and effort required for implementation. In addition to time spent in conferences, each field test teacher spent an average of 12 hours completing the preparation and evaluation tasks required by this procedure. It was found that the task of record keeping was especially time-consuming. Of course, record keeping would not be as extensive when the procedure is implemented by schools as part of their normal instructional routine. Another task which proved to be demanding for most schools was the formulation of the behavior checklist and the rating of each child on each behavior. A more informal method of forming conference groups, which would not require the maintenance of extensive records, and more specific and helpful suggestions for developing the behavior checklists have been included in the current materials. This should reduce the amount of staff time and effort required by this procedure.

In conclusion, the field test data with respect to adults' responses to the small-group conferences to promote self-directed prosocial behavior indicate: (a) study of the instructional materials related to the procedure results in understanding of the theory, motivational principles, and implementation requisites pertaining to the conferences, (b) adults are able to

implement the motivational principles in the conferences, (c) the current multimedia materials which incorporate suggested revisions are sufficient to support implementation of the procedure, and (d) adults' attitudes toward the conference procedure are favorable. Following revision of the implementation guidelines, the procedure is now completely feasible for elementary schools in terms of staff time and effort.

OLDER CHILDREN AS TUTORS: FIELD TEST RESULTS

BY NANCY ZAJANO AND W. DONALD HUBBARD[7]

Participating Adults

The field test of the tutoring procedure was conducted in two middle-class Milwaukee, Wisconsin, multiunit schools. At Thoreau School the teachers from three units participated in the field test--eight from Unit B (roughly, second graders), six from Unit C (third and fourth graders), and six teachers from Unit D (fifth and sixth graders). Tutoring was carried out in two subject-matter areas--reading and math. The local coordinators of the tutoring program at Thoreau were not members of the unit staff; rather one was in charge of a Reading Center and the other of a Learning Center, both of which were utilized by all three units.

At Victory School, the tutoring procedure was implemented by the five teachers in Unit IV (fourth to sixth graders) in the area of reading. One of the unit teachers was provided some release time by the unit leader to coordinate the implementation.

Objectives and Assessment

The purpose of the field test with respect to the adult participants was threefold:

1. To assess the ability of teachers to implement the motivational-instructional procedure of guiding older children as tutors.

2. To determine the usability by adults of the tutoring materials.

3. To ascertain the feasibility of the tutoring procedure in terms of the amount of staff and student time required.

The teachers' ability to implement the tutoring procedure was assessed by means of two checklists which contained the activities necessary for planning and maintaining the implementation. These checklists were contained in the inservice materials. A 50 percent random sample of teachers completed these self-evaluation checklists three times during the school year. The coordinators were interviewed by Center personnel, at seven-week intervals, three times during the course of implementation to determine if implementation tasks were being carried out.

To assess the usability of the materials, a 50 percent random sample of teachers recorded their day-to-day impressions of the materials on

[7] This section is an abstract of sections of the document by Zajano & Hubbard, 1975.

comment cards provided by the Center. During each of the three site visits by Center personnel, the comment cards were collected and coordinators were interviewed to obtain information regarding the usability of the materials and the feasibility of the tutoring procedure. Feasibility was determined by asking teachers and coordinators to estimate the amount of time spent in initial implementation and in day-to-day administration of the program.

Materials and Procedures

The inservice materials relevant to the tutoring procedure included chapters one, two, and five of the book Individually Guided Motivation: Guidelines for Implementation (Klausmeier, Frayer, & Quilling, 1972), an early prototype for the current IGM text. Chapter one of the book provided information for conducting the local inservice to introduce the school staff to the entire system of IGM as well as to the individual procedure of tutoring. The second chapter presented the theoretical background for the system, with special emphasis on the motivational principles which are at the heart of each procedure. Chapter five described in detail the necessary tasks to be accomplished in implementing the tutoring procedure, and also contained the checklists used to assess the progress of tutors, tutees, and adult implementors. A major purpose of the field test was to obtain information useful for evaluating and revising these prototype materials. In addition to the printed materials, two films were available to field test participants--Individually Guided Motivation: An Overview and Guiding Older Children as Tutors.

Five faculty members from Thoreau School and two from Victory School attended the Center-sponsored IGM workshop in Madison on July 24 and 25, 1972, and read all or most of the IGM book at that time. The principals and coordinators from the schools also conducted a local inservice on IGM for their entire school staffs. Aside from the workshop, however, there was no direct control exercised by the Center over the amount and type of exposure of the field test adults to the IGM materials. Indeed, except for the requirement of collecting and reporting data, which allowed the Center personnel to evaluate the tutoring procedure, no constraints were placed on the participating adults.

Results

Implementation of the tutoring procedure. The specific tasks required to implement the tutoring procedure were outlined for field test participants in tables contained in the instructional material. One of these tables described the planning tasks necessary to initiate the procedure. Such tasks included preparing a schedule for staff inservice and selecting the subject-matter areas for tutoring. The other table listed the tasks which should be done repeatedly to maintain implementation. These latter tasks included preparing specific activities for each tutee and monitoring

the tutoring sessions. The tables were used as checklists to determine whether or not the adults entrusted with implementing the procedures completed the tasks.

Coordinators and principals were interviewed by Center personnel prior to the beginning of the tutoring sessions to see if the 12 planning tasks were completed. Table 12 indicates which tasks were completed, and by whom, at each school; 10 of the 12 tasks were completed at Victory, while 11 of them were completed at Thoreau. The staff at Victory did not discuss the general objectives stated for the tutees (Task 2), while both schools omitted preparing a list of the instructional materials and tests to be used by the tutees and tutors (Task 8). Although Task 8 was initially seen as unnecessary by the staff at both schools, there were some subsequent complaints about the lack of variety in the material being prepared for the tutee. The preparation of such a list might have helped avoid this repetition of materials.

As can be seen from Table 12, the coordinators were involved in all the planning tasks. At both schools they received assistance from the principal in planning the inservice (Task 1), and from IIC (Instructional Improvement Committee) members in making decisions regarding subject-matter areas and assigning responsibility for preparing tutors (Tasks 3 and 4). Other tasks were accomplished at each school either by the coordinator alone or with the assistance of one or more staff members.

Center personnel interviewed the coordinators, at seven-week intervals, three times during implementation of the tutoring procedure. The purpose of the interviews was to determine whether the maintenance tasks required to keep the tutoring procedure running smoothly were being completed either by the coordinators themselves or by other staff members. The results of the Center interviews are reported in Table 13. Blank spaces indicate that either no information was available or that the coordinators were uncertain whether the task was being done by other teachers.

According to the coordinator at Victory School, seven of the nine tasks were accomplished during all three time periods. These tasks contain a "yes" response in each period. The response "some pairs" indicates successful accomplishments of Task 2, in that monitoring some sessions of selected tutor-tutee pairs satisfied the general guideline for this task as outlined in the tutoring materials. Task 5 (providing feedback and guidance to tutees) and Task 7 (praising the tutee) were performed during some of the three time periods.

At Thoreau School, the coordinator for tutoring in math was not available for the third interview. The results in Table 13 for the third time period at Thoreau, therefore, refer only to the tutoring in the reading program, whereas the results for the first and second time periods report both the math and reading program.

At first inspection, the results in Table 13 indicate that the maintenance tasks were not completed at Thoreau to the same degree that they were at Victory. There are blank spaces representing no information or uncertainty on the coordinator's part, as well as several "somewhat" answers indicating partial completion of some tasks. These results may be due to the difference in organization of the tutoring procedure at the two schools, rather than a real difference in what actually occurred.

TABLE 12

ROLE OF PERSONS COMPLETING TWELVE PLANNING TASKS AS INDICATED THROUGH CENTER INTERVIEWS

Task	Victory School	Thoreau School
1. Prepare a schedule for inservice education related to the tutoring program. For inservice sessions, follow or revise the procedures described in Table 1.5.	Coordinator and principal	Coordinators and principal
2. Adopt or revise the objectives for tutees as given in Table 5.1.	_____	Coordinators and principal
3. Select the subject-matter area(s) for tutoring and decide whether tutoring will be directed toward practice of skills or guidance of independent study activities.	Coordinator and Instructional Improvement Committee (IIC)	Coordinators and IIC
4. Adopt or revise the tutoring procedures in Table 5.2. Plan and assign responsibility for teaching tutors to use the procedures.	Coordinator and IIC	Coordinators and IIC
5. Establish the criteria for selecting the tutees and the tutors.	Coordinator and unit teachers	Entire staff
*6. Plan the evaluation procedures that will be used to determine the tutee's progress, to be sure that the program is being carried out correctly, and to ascertain the effectiveness of the program.	Coordinator	Coordinators
*7. Prepare the record-keeping forms, adapting Tables 2.2, 4.6, 5.2, 5.3, 5.4, and 5.5 as desired.	Coordinator	Coordinators
8. Prepare a list of the instructional materials and tests that the tutors and tutees will use.	_____	_____
9. Select the tutors and teach them the tutoring procedures.	Unit teachers helped select; Coordinator and central office consultant prepared tutors.	Coordinators
*10. Select the tutees and discuss with them their role in the tutoring sessions.	Coordinator and unit teacher	Coordinators
11. Match tutors and tutees.	Coordinator	Coordinators
12. Schedule times and places for tutoring sessions and arrange to provide necessary instructions and materials.	Coordinator	Coordinators

Note: The tables referred to in the first column appeared in the instructional materials.
*Partially determined by field test requirements.

TABLE 13

DEGREE OF ATTENTION TO NINE MAINTENANCE TASKS AS INDICATED THROUGH COORDINATOR INTERVIEWS

Task	Victory School Time Period			Thoreau School Time Period		
	1	2	3	1	2	3*
1. Planned specific activities for each tutor-tutee pair for which you are responsible.	yes	yes	yes	yes	somewhat	somewhat
2. Monitored tutoring sessions.	some pairs	some pairs	some pairs	some pairs	yes	yes
3. Assessed the effectiveness of each tutor-tutee relationship. Provided guidance or changed pairings, if necessary.	yes	yes	yes	yes	yes	yes
4. Provided feedback and guidance to the tutor(s).	yes	yes	yes	yes	yes	yes
5. Provided feedback and guidance to the tutee(s).	yes	yes	yes	yes	somewhat	yes
6. Praised the tutor for attaining his objectives, including increasing self-direction, if appropriate.	yes	yes	yes	yes	--	yes
7. Praised the tutee for attaining his objectives, including increasing self-direction.	--	no	yes	--	--	yes
8. Assessed whether the content of the tutoring session was appropriate for the tutee and proceeded accordingly.	yes	yes	yes	--	somewhat	yes
9. Related the content of the tutoring session to the tutee's regular instructional program.	yes	yes	yes	--	somewhat	yes

*This information applies only to the reading program at Thoreau School. No information was available for the math program for this time period.

At Victory School, the coordinator was a unit leader with teaching responsibilities for most children in the unit. As a unit member, she was in constant touch with the other teachers and, in fact, used some of the unit planning time to discuss the tutoring implementation. She therefore knew what was happening regarding tutoring at all times. At Thoreau School, on the other hand, the two coordinators were "special" teachers, organized outside of the units and in charge of the school's Reading Center and Learning Center. They were members of the IIC and so met regularly with unit leaders, but they had little opportunity to communicate officially and regularly with unit teachers regarding tutoring. Their uncertainty is therefore understandable, but does not necessarily mean that the maintenance tasks were not being completed. The reading coordinator did provide information for the third time period, however, which indicates that all the tasks were being accomplished for tutoring in the reading program.

In any case, the results in Table 13 for Thoreau School indicate that four of the nine tasks were completed, for all three time periods, according to recommendations. The coordinators either lacked information about the other five tasks or indicated that they were carried out during some of the time periods.

To supplement the implementation information obtained from coordinators, half of the adults identified as being involved in the tutoring procedure were randomly selected three times to indicate on a self-evaluation form which tasks they had accomplished. This pool of participating adults included the coordinators at both schools but not the unit leaders at Thoreau. At approximately the same seven-week intervals, these adults were asked to check which of the nine maintenance tasks they had accomplished. A total of 10 self-evaluation forms were completed by the Unit IV staff at Victory School and 22 forms were completed in Units B, C, and D at Thoreau.

An inspection of the self-evaluation results as a whole indicates that all the tasks were completed by one adult or another, during all three time periods, at each school. These results support the coordinator's view at Victory that seven of the nine tasks were completed, and provide the additional information that the remaining two tasks (5 and 7) were also accomplished by one or more of the adults during each time period. At Thoreau School the self-evaluation forms, taken as a whole, indicate that the tasks the coordinators were uncertain about (Tasks 6, 7, 8, and 9) were being accomplished by one or more other teachers. These forms also support the coordinators' views that Tasks 1 through 5 were being done.

The self-evaluation form asked each adult to identify himself as a teacher of a tutee, teacher of a tutor, coordinator, aide, or "other." This categorization afforded a detailed look at which group of adults was accomplishing each task. Each group of adults (teachers of tutees, teachers of tutors, etc.) was rated 1, 2, or 3, according to how often it listed itself as accomplishing each of the nine tasks over the three time periods. A brief summary of the data on who did what follows. At Victory School, the pattern of participation in tasks was close to that suggested in the tutoring materials. The only exception was the unusually

high involvement of the tutors' teachers in the planning of specific tutoring activities and relating these activities to the tutee's regular instructional program (Tasks 1 and 9). The pattern of participation at Thoreau School was also consistent with the recommendations in the tutoring materials, with the exception of the total lack of participation by those teachers who had only tutors participating in the project. This was a significant departure from the guidelines, which had called on these teachers to monitor sessions and provide feedback and praise to the tutors.

In conclusion, the question of whether the adults demonstrated their ability to implement the motivational-instructional procedure Guiding Older Children as Tutors can be answered positively with regard to the completion of 12 planning and 9 maintenance tasks. As a result of four interviews and the completion of a self-evaluation form by three random samples of adults, it can be concluded that these tasks were done at each school by one group of adults or another. Moreover, with the exceptions already noted, the pattern of participation of the adults in various roles (coordinator, teacher of tutees, etc.) in the planning and maintenance tasks was as recommended by the tutoring materials.

Usability of the inservice materials. In order to determine the usefulness of the tutoring materials (three chapters in the prototype IGM text and two sound-color films), a random half of the participating adults kept comment cards on the materials. In addition, coordinators were interviewed concerning the materials' usability.

While the materials were obviously successful in supporting implementation, as indicated by the results reported in the preceding section, much information was gathered concerning revisions necessary to make them more usable. For the printed materials, the most frequent comments comprised the following points:

1. The organization of the prototype IGM book used by the field test schools was a focus of criticism. It was felt that there was a confused mixture of information for the different categories of users, including: (a) central office personnel responsible for implementing IGM in several schools, (b) principals and coordinators responsible for organizing the use of one or more procedures in one school, (c) classroom teachers implementing the tutoring procedure, and (d) tutors and persons responsible for preparing tutors. Combining all this information in one volume resulted in an unwieldy book of ominous size.

2. Persuant to the first comment, it was recommended that information be divided among several books or manuals: first, an IGM inservice implementation guide to be used by district and school personnel responsible for local IGM inservice training; second, a book or chapter within a book devoted exclusively to providing teachers with an overview of the tutoring procedure along with necessary information for implementation; and third, a separate manual to be used by student tutors. This reorganization of information has largely been achieved in the current IGM materials listed earlier in Chapter I.

3. The field test personnel offered the practical suggestion of either not extending the checklists over more than one page (which makes them difficult to duplicate) or providing in an appendix a second set of all tables to be duplicated. In this way the book would not have to be torn apart to be used. All tables used in all four IGM procedures have been separately listed in an appendix of the new inservice implementation manual for IGM.

4. Teachers felt that the tutoring procedure as described by the materials involved too much "red tape." They felt that tutoring could be successful without the amount of assessment and setting of long-range objectives prescribed by the materials. It should be noted that much of the "formality" of the implementation at the two schools was necessitated by the field test design. However, current IGM materials related to tutoring stress that much of the formal assessment and record keeping is optional (depending on how the school wishes to evaluate its own tutoring program).

5. The teachers and coordinators had many suggestions concerning what should be included in the manual for tutors. These are too numerous to mention here. However, most feasible suggestions were incorporated into the new manual Tutoring Can Be Fun.

Although chapters one, two, and five of the prototype IGM text provided most of the information needed to implement the tutoring procedure, two films were also available to school personnel. The film Individually Guided Motivation: An Overview is intended to introduce the four motivational-instructional procedures which make up the IGM system. It was used by both field test schools during their first inservice session. Both schools found the film satisfactory, although the principal at Thoreau suggested that more information on the motivational principles could have been included.

The second film, Guiding Older Children as Tutors, is divided into two parts, with the second portion, "Learning To Be a Tutor," designed for use in tutor preparation. This feature proved very valuable to the teachers, who repeatedly commented on the excellence of the film in general.

Some specific suggestions for improvement included showing tutees giving their tutors explicit problems, to demonstrate how the tutors would handle these situations. Another proposal related to changing a segment where a teacher was shown asking the tutee how he liked being tutored. The teacher seemed strained and not very personable. Another suggestion was to include the fact that the tutors are expected to prepare specific activities for each tutoring session. On the whole, the tutoring film was extremely well received and was used repeatedly by both field test schools.

Feasibility of the tutoring procedure. One important factor in the feasibility of any procedure is the amount of staff and student time required to use the procedure. The faculty members at each school spent varying amounts of time, depending on how involved they were. During

the initial six weeks to two months of planning the procedure and preparing the tutors, the coordinators spent from 5 to 12 hours a week on tutoring-related tasks. Once the sessions were underway, one-half to one hour a week was needed to observe and provide feedback and reinforcement to the tutors.

An additional 12 to 24 hours were spent over the course of the year in assessing the tutees on achievement. Half this time was a result of an extra requirement of the field test design, while the remaining half was part of the assessment prescribed in the IGM book. Another 2 to 3 hours were spent by all participating unit teachers in assessing their students on level of motivation. Repeated evaluations of the tutees' motivation during the tutoring period, of the tutors' ability to conduct the sessions, and of the adults' ability to implement the procedure took another 3-1/2 hours over the course of the year.

All staff members participated in an initial one-and-one-half to two hours of inservice. The teachers of the tutees spent approximately a half hour per week preparing activities for the tutoring sessions. Finally, the tutors and tutees themselves spent between 20 and 30 minutes twice or three times a week in tutoring sessions. At Victory School an average of 29 tutoring sessions were held, while at Thoreau the reading tutors and tutees held 48 sessions and the math pairs used 52 sessions during the course of the year.

As the field test drew to a close, it was evident that the teachers felt the procedure required too much time. They looked forward to using tutoring again, but on a less formal and therefore less time-consuming basis. It should be noted that the current tutoring materials have cut back on the prescribed amount of assessment and have generally made the procedure more informal.

As a final note on feasibility, the teachers perceived the tutoring procedure as valuable and reported that the students responded enthusiastically to it. These student reactions to the tutoring procedure are reported in Chapter VI.

SUMMARY

In this chapter, adults' responses to the four motivational-instructional procedures were described. In general, it was found that adults, after studying the prototype materials, could implement the IGM procedures properly. The current IGM materials reflect the suggestions for revisions derived from the field test results.

On the whole, the field test results for adults were quite positive. The materials--with revision--are usable, and the procedures are feasible for use in elementary schools in view of the time and effort required to implement them. The next four chapters examine the effects of the procedures on the second target group, the students.

III

EFFECTS OF ADULT-CHILD CONFERENCES ON CHILDREN'S INDEPENDENT READING

Research on the reading conferences began in 1966. This effort has included several informal studies, one controlled experiment, and finally the field test study described in the preceding chapter. All this research has demonstrated positive contributions of the conference procedures to children's independent reading. More important, however, the research has provided knowledge of the conditions which appear to contribute to the effectiveness of conferences and those which do not. This knowledge, in turn, has been incorporated into the IGM materials.

The first informal study of the reading conferences was done in an inner-city school in a large Wisconsin city during 1966-67 (see Klausmeier, Quilling, & Wardrop, 1968). The project was undertaken by Mae Elsdon, the school's learning specialist, because teachers in the intermediate I & R unit (approximately third grade level) were concerned about the lack of pupil interest in independent reading. It was decided to use individual conferences combined with a system of concrete rewards to try to increase independent reading. Briefly, the project involved the following conditions: Books appropriate for various reading levels were made available in the classroom and library. A reward system was set up whereby each child received a reward for reading two books, another reward after five books, and then an additional reward following each successive five books read. The rewards were pencils, erasers, crayons, etc. Individual conferences were conducted by volunteer aides from local women's groups. Each child participated in a weekly individual conference, lasting 5 to 15 minutes, during which he could talk to an adult about the books he had been reading. A list of books read by each child was maintained by the volunteers.

The project lasted for nine months during which the 72 students in the project read a total of 2,074 books, the median being 21. These figures are impressive because most of these children were doing no independent reading prior to the project. The students also showed progress in reading achievement. On the Stanford Achievement Test given in March, it was found that these students had gained 1.5 years on the Word Meaning subtest and 1.2 years on the Paragraph Meaning subtest over the scores obtained at the beginning of third grade (a time interval of five months). This is an encouraging result because these children were considerably below grade level to begin with, and such children usually fall farther and farther behind each year.

The following year, 1967-68, a project on individual conferences was initiated at a school in a medium-sized Wisconsin city (see Schwenn, Sorenson, & Bavry, 1970). The specific purpose of the study was to provide

information concerning the relative effectiveness of concrete rewards and conferences, since both were used in the first project. While there were problems with the study due to lack of appropriate control groups and sometimes inadequate baseline measures, the findings with regard to concrete rewards vs. conferences were clear-cut. It was found that first and second grade children who received only the individual conference increased their independent reading as much as children who received rewards in addition to conferences. Third and fourth grade children who received both conferences and rewards read more books than children who received only rewards. Finally, with only a few exceptions, fifth and sixth grade children who only received concrete rewards did not increase their independent reading. From this pattern of results it was concluded that the conferences themselves are important in increasing independent reading, and concrete rewards are superfluous.

During 1968-69, a controlled experiment was carried out on the independent reading conferences. In this experiment, to be described in detail, an attempt was made to define precisely both the objectives and procedures of the conferences.

CONTROLLED EXPERIMENT ON INDIVIDUAL READING CONVERENCES

BY ELIZABETH SCHWENN, JUANITA S. SORENSON, AND JAMES BAVRY[1]

The experiment was conducted to ascertain the effects of adult-child conferences on the amount of independent reading by children who did little independent reading prior to the initiation of conferences. Either teachers or an aide conducted the conferences, applying motivational principles and conference techniques as described earlier in Chapters I and II.

Participating Students

The elementary school where this experiment was carried out was in a low socioeconomic area of a Wisconsin city of about 200,000 people. The students were of racially diverse backgrounds, with about 35 percent classified as disadvantaged. In age levels they were equivalent to second, fourth, and sixth graders. In accordance with the experimental design, complete sets of reading and achievement data were collected for 68 second-grade students, 58 fourth-grade students, and 49 sixth-grade students.

Research Design

Gathering baseline information. The number of books that each student read during an eight-week baseline period early in the school year was recorded. Each student, with assistance and weekly reminders from the teacher, kept a record of the titles of the books he read and the dates when he completed them. The books read during this baseline period were classified as "above," "at," or "below" grade level, using

[1] This section is an edited abstract of the research report by Schwenn et al. (1970).

standard reference catalogues. A value of 3 was assigned to above-level books, 2 to at-level books, and 1 to below-level books. Each student's reading value score was simply the sum of the values assigned to all the books he read. For example, a child who read five books with a value of 3 was given a reading value score of 15. Another who read four books, two of 3 value and two of 1 value, received a reading value score of 8. Students were placed in rank order according to this reading value score. Those students with value scores in the top third of the whole school population were excluded from the experiment; this decision was based on the practical supposition that because the top third of the children were already doing a great deal of reading, motivational procedures to increase their reading would not benefit them as much as they would the lower two-thirds. These top children were, however, considered to be an "ideal" group in independent reading, and the children who had conferences were compared with them at the end of the experiment. A reading achievement score on a standardized test was obtained for each of the students who were in the bottom two-thirds of the child population in independent reading value scores.

Assigning students to experimental groups. The I & R units in the schools were organized according to homerooms. Within each homeroom six groups were formed. Students who were low both in reading value score and in reading achievement were randomly assigned to one of three groups: a control group, which received no conferences, a teacher-conference group, which had all their conferences with their homeroom teacher, or an aide-conference group, which had all their conferences with an instructional aide. Students who were low in reading value but high in reading achievement were also randomly assigned to a control group, a teacher-conference group, or an aide-conference group. As will be described later, the goals of the adult-child conference, as well as the actual conference procedure, differed for students low in reading value and reading achievement, as compared with those low in reading value but high in reading achievement.

Conference Procedures

The experiment and inservice education were conducted by R & D Center personnel with the assistance of the building principal and unit leaders. Three teachers in the second grade, three in the fourth grade, and two in the sixth grade conducted conferences. One aide conducted the conferenoes in all three grades. (The aide was a mature, college-educated woman who had exceptional ability and great enthusiasm for working with children of low reading achievement.) All children, including those with high reading value scores who were excluded from the sample, kept a record of the books they read during the experimental period, the period when the conferences were held. The conferences were held regularly once per week over an eight-week period, and lasted an average of 8 to 12 minutes. Thus, there were only eight conferences for the experimental groups. The locations of the conferences varied: a hallway, a small workroom, a carrel, a corner of a classroom, or the teacher's desk.

Before initiating the conferences, a list of behavioral objectives to be achieved by the reading conferences were studied by the teachers

and the aide, and the conference procedures were discussed and practiced. Specific objectives were classified into three areas: (a) behaviors related to the reading conferences, (b) behaviors related to the child's reactions to reading, and (c) behaviors related to independent reading and reading skills. The objectives were discussed by R & D Center personnel with the eight teachers and the aide to be sure that they were clearly understood. During the conference period, data were gathered regarding children's attainment of each objective.

In the conferences, the adults attempted to implement the principles appropriate to this motivational-instructional procedure, as described earlier in Chapters I and II. These included securing the child's attention, modeling, goal setting, feedback, and reinforcement. The objectives and conference procedures were deliberately varied, however, according to the children's needs. For those students who were low in reading value score but high in reading achievement, the adult emphasized the use of modeling and reinforcement to encourage independent reading. With students low in both motivation and reading achievement, much more emphasis was placed on improvement of reading skills by having the child read orally in the conference and by informal drilling on word recognition and comprehension skills. Feedback and reinforcement, along with goal setting, played a major role in conferences with this type of child.

Materials for the conferences included an excellent supply of books kept in each homeroom, forms on which students could record the title of books they read, and conference comment cards that were kept by the adult conference leader. About seventy paperback books, covering a wide variety of interest areas and a broad range of reading difficulty, were placed in each homeroom of about 25 students. All students in the homeroom, including the high achievers not in the study and all of the control students, had access to the books during independent study time as well as before and after school. This, of course, had a tendency to increase the amount of reading of all students, not just those getting the conferences.

Results

Table 14 shows, for each grade level, the average number of books read during the eight-week baseline period, the average number of books read during the eight-week conference period, and average gains in the number of books read. For each condition, including the no-conference control, more books were read during the conference period than during the baseline period. The average gain was 7.00 books for the control condition, 9.95 for the teacher-conducted conferences, and 11.72 for the aide-conducted conferences. The average gains were markedly and significantly greater for the teacher- and aide-conference conditions than for the no-conference condition, for each grade. Thus, children in all grades who received conferences increased their independent reading more than children who did not receive conferences, and it made little difference whether the conference was conducted by a teacher or an aide.

Average grade-equivalent scores on standardized tests of reading are shown in Table 15. Scores for tests administered in September and in April are presented, as well as average gains in score during the eight-month period between test administrations. Scores for each grade

TABLE 14

AVERAGE NUMBER OF BOOKS READ DURING THE BASELINE AND EXPERIMENTAL PERIODS AS A FUNCTION OF GRADE LEVEL AND CONFERENCE CONDITION

Grade		Conference Condition: No Conference	Teacher	Aide	Average Gain
2	Baseline	3.36	3.88	3.06	
	Experimental	13.00	18.63	16.13	
	Gain	9.64	14.75	13.07	12.49
4	Baseline	3.75	3.85	3.77	
	Experimental	11.17	11.77	16.38	
	Gain	7.42	7.92	12.61	9.32
6	Baseline	4.00	3.75	3.40	
	Experimental	6.80	9.50	11.80	
	Gain	2.80	5.75	8.40	5.65
	Average gain	7.00	9.95	11.72	

are given separately for high- and low-achievement groups. The data for the teacher- and aide-conference groups are combined, since these groups did not differ.

In none of the grades was there a significant difference in amount of gain in achievement between the conference and no-conference conditions. This lack of difference between conditions was true for both high- and low-achieving students. More important than the lack of difference between groups, however, were the remarkable gains made by the low-achieving students during an eight-month period from September through April. Students in the second grade gained a year in vocabulary. Students in the fourth grade gained almost two years. The gain for the sixth grade low achievers was practically a year. This much gain is not ordinarily expected in inner-city or other schools where children are below grade level and tend to keep falling further behind with each successive year of schooling. Because the no-conference groups showed as much growth as the experimental groups, the gain obviously cannot be attributed solely to the reading conferences. It seems very likely, therefore, that the increased emphasis in all the homerooms on reading contributed to the high gain in achievement in both the control and the conference groups.

Data were also gathered on the independent reading of the "ideal" students in each grade, who had been eliminated from the project because they already had done a large amount of independent reading during the baseline period. It proved very interesting to find out how students

TABLE 15

AVERAGE GRADE EQUIVALENTS IN READING ACHIEVEMENT FOR THE BASELINE AND EXPERIMENTAL PERIODS IN GRADES 2, 4, AND 6 AS A FUNCTION OF ACHIEVEMENT LEVEL AND CONFERENCE CONDITION

Grade	Achievement Level		Conference Condition: No Conference	Conference Condition: Conference
2	High	Baseline	2.0	2.2
		Experimental	2.9	3.3
		Gain	.9	1.1
	Low	Baseline	1.3	1.5
		Experimental	2.3	2.5
		Gain	1.0	1.0
4	High	Baseline	4.3	4.5
		Experimental	6.1	5.6
		Gain	1.8	1.1
	Low	Baseline	2.2	2.2
		Experimental	4.0	4.2
		Gain	1.8	2.0
6	High	Baseline	7.4	7.2
		Experimental	7.6	7.8
		Gain	0.3	0.6
	Low	Baseline	4.0	5.2
		Experimental	4.7	5.8
		Gain	0.7	0.6

Note: Scores for the second graders from Gates-MacGinitie Reading Tests, Vocabulary, Grade 2, Primary; scores for the fourth and sixth graders from Iowa Test of Basic Skills--Reading Skills Section.

receiving conferences compared with these ideal students at the end of the experimental period. The comparisons made for the three grades are shown in Figure 4; the low- and high-achievement students within the conference condition were compared separately with the ideal group for each grade.

In Grade 2, during the eight-week baseline period, the ideal group had read an average of 13 books, whereas high achievers who later received conferences had read 4 books and low achievers had read 3 books. As shown in Figure 4, the ideal students read an average of 19 books during the conference period, while the high achievers and low achievers receiving conferences read 17 and 18 books, respectively. To sum up, the students of both high and low achievement who received conferences read significantly fewer books than the ideal group during the baseline period, but neither of

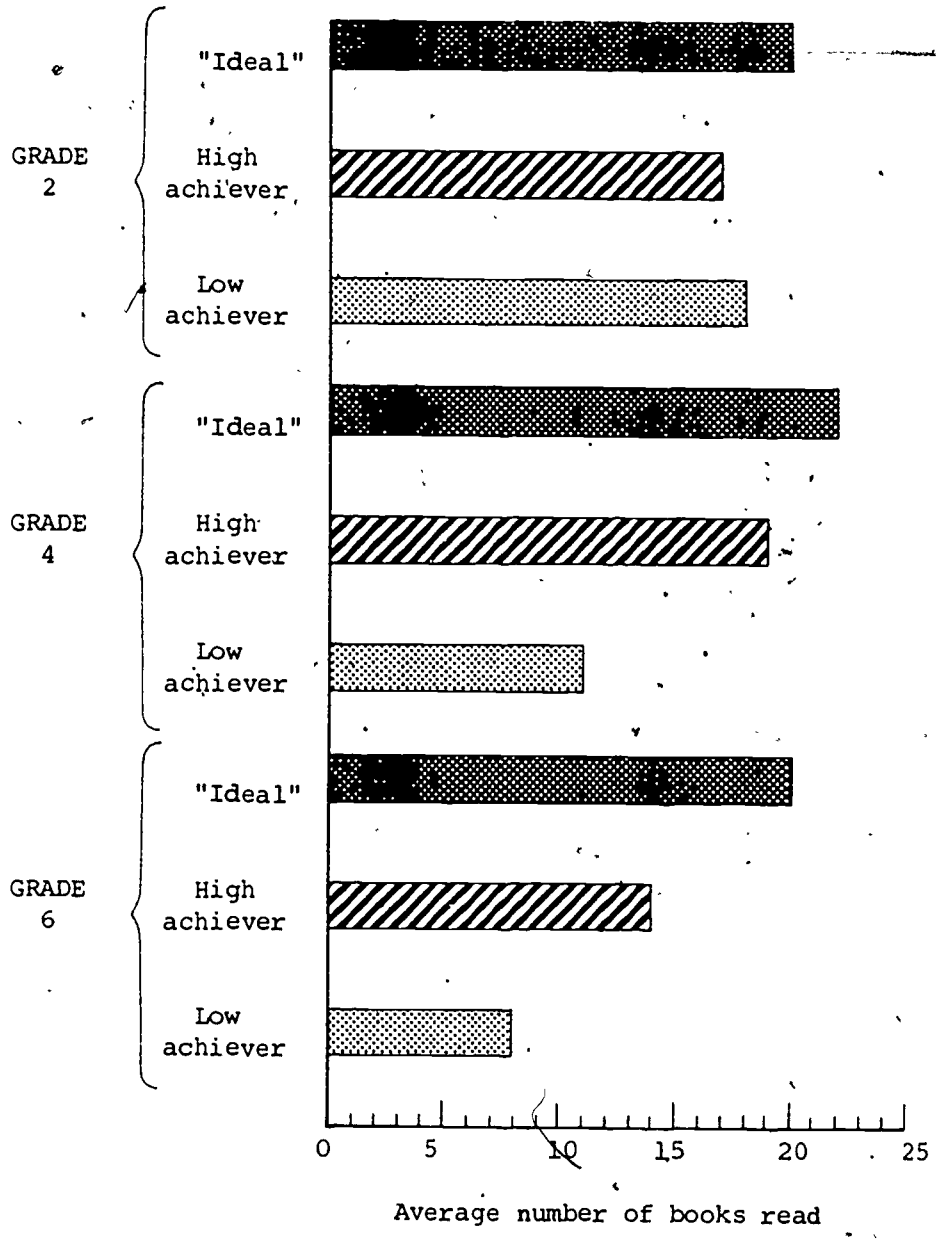

Figure 4. Average number of books read during the experimental period by "ideal" readers and by high and low achievers who received conferences.

these groups differed significantly from the ideal group at the end of the experiment. The conference groups gained much more than did the ideal group; actually, they almost caught up with the ideal group in the amount of independent reading.

Similar results were obtained in Grades 4 and 6, where the conferences almost eliminated reading differences between the high achievers in the conference condition and the ideal group. At these grade levels, however, the conferences were not sufficient to bring the low achievers up to the level of reading done by the ideal students. It is important to remember that the low-achieving students in the conference groups did, of course, increase their amount of independent reading over the low-achieving students in the no-conference group.

Discussion

This study demonstrated that an inexpensive procedure was highly effective in increasing the independent reading of children. It is impossible to reach a final conclusion about the extent to which any one motivational principle by itself contributed to the increases obtained. Very probably the individual attention, positive reinforcement, feedback, modeling of desired behaviors, goal setting, and availability of attractive books all contributed to increasing the student's motivation to engage in independent reading. Many of the children in the present experiment made remarkable progress during the eight-week conference period. However, it cannot be determined from the study how many of them continued reading after the conferences stopped.

FIELD TEST RESULTS ON THE EFFECTS OF CONFERENCES ON CHILDREN'S INDEPENDENT READING

BY DEBORAH M. STEWART, MARY R. QUILLING, AND DOROTHY A. FRAYER[2]

In Chapter II, the field test evaluation of the independent reading conference procedure was described in terms of the characteristics, treatment, and responses of the adult target group. The procedures and results of the study with respect to the student target group are now summarized.

Participating Students

The field test was carried out in six multiunit schools in Wisconsin. Students had a wide range of reading achievement and represented all grades from 2 to 6, as well as a variety of populations ranging from rural to large city. As shown in Table 16, approximately 340 students participated in conferences and remained at the participating school throughout the conference period.

[2]This section is an abstract of sections of the report by Stewart, Quilling, & Frayer, 1971.

TABLE 16

DESCRIPTION OF PARTICIPANTS IN THE INDEPENDENT READING CONFERENCE FIELD TEST

School	Site Description	STUDENTS			CONFERENCE LEADERS		LOCAL COORDINATORS	
		Grade	Number in Unit	Number Conferring	Number	Characteristics	Number	Characteristics
A	small city, in state university area, many faculty children	2	46	18 (19)	4	parent volunteers	1	unit leader
		3	32	12			1	teacher
B	rural/small town (pop. 2,045)	2	89	27 (30)	12	high school students, members of Future Teachers Association	1	principal
		3	99	28 (30)			2	unit leaders
					1	aide		
C	small city, manufacturing center, higher SES	3-4 Unit	189	64	3	aides	1	principal
		5-6 Unit	157	57 (60)	18	teachers	2	unit leaders
D	large city, industrial mixed, some children of blue-collar workers and some higher SES	4	39	13 (14)	4	aides	1	principal
		5	50	14			2	teachers
		6	34	14				
E	medium to large city, governmental center	4	87	28 (30)	8	parent volunteers	1	principal
		5	83	28 (30)			1	unit leader
F	rural (pop. 707)	4	61	18 (20)	6	teachers	1	principal
		5	62	20	4	aides	1	unit leader

Note: Parentheses indicate number of pupils initially selected to receive conferences where different from the number remaining at the school during the entire field test.

Design and Procedure

There were two expected major outcomes from the student target group:

1. Children read more (more books or longer books or both).

2. Children express more positive attitudes toward reading.

The secondary objectives, which might be observed for some but not all children, were as follows:

3. Children's word recognition skills and reading comprehension improve.

4. Children read more rapidly.

5. Children read more frequently when they have completed assigned tasks.

6. Children continue to read more books after conferences are discontinued.

Pupil performance was evaluated with respect to both the primary objectives--the amount of reading and attitude toward reading--and the secondary objectives--reading skills or achievement and continuing effects of the independent reading conferences. The design of the evaluation for the pupil target group is outlined in Table 17; students selected to receive conferences, as described below, were divided randomly into three treatment groups to participate in the conference program at various times and for different lengths of time. This design permitted the evaluators to gain additional information about the effects of varying length of conference periods and, with the provision that two-thirds of the students had conferences during each of the eight-week periods, enabled schools to schedule conference leaders' time efficiently. Selection, randomization, and data collection procedures, outlined in Table 17, were carried out at all six sites.

All students in the participating grades in each school maintained lists of books completed during an eight-week baseline data collection period. At the end of the baseline period, R & D Center staff visited each of the six schools to compose, on a random basis, the three treatment groups made up of students selected to receive conferences. One-third of the students, or a minimum of 30, from each participating unit or grade were identified as those who read fewer books than their peers. The total number of students in each school and the number receiving conferences are shown for each unit or grade in Table 16. Student record sheets were kept during the baseline period and the two conference periods in order to assess attainment of the first primary objective for students--increased reading. Attitudes toward reading, as well as reading skill or achievement, were assessed prior to the first conference period and again 16

TABLE 17

WITHIN-SITE IMPLEMENTATION DESIGN

Dates	Procedure		
Sept. 21 - Nov. 11	Collect baseline data on amount of reading		
Nov. 12 & 13	Identify conferees and randomly assign to groups		
	Group 1	Group 2	Group 3
Nov. 16	Administer attitude and achievement tests, introduce new books		
Nov. 16 - Dec. 18 Jan. 4 - Jan. 29	Hold conferences, collect reading data	Hold conferences, collect reading data	
Feb. 1 - Mar. 26		Hold conferences, collect reading data	Hold conferences, collect reading data
Mar. 29 - Apr. 2	Administer attitude and achievement tests		

weeks later, after both eight-week conference periods had been completed. To assess attitudes, students in Grades 2 and 3 were given the Primary Pupil Reading Attitude Inventory (PPRAI) (Askov, 1970), while students in Grades 4 to 6 listed four gift preferences and four favorite free-time activities, since no formal instrument was available. Reading achievement was measured by various levels of the Gates-MacGinitie Reading Tests, Primary B for second grade students, Primary C for third graders, and Survey D for fourth, fifth, and sixth graders.

All of the selected students had conferences with an adult once a week for at least eight weeks, the period shown effective in prior research. Students assigned to Group 2 received conferences for 16 weeks. Throughout the period in which they conferred, children maintained the Student Record Sheets, entering the title and completion date of each book read. Conference leaders kept information about the conferences and the children's progress and interest on Conference Record Cards. During on-site monitoring or program implementation, adult conference leaders were asked whether students read more frequently after assigned tasks were completed, and whether the increase in reading brought about by the conferences continued after the conference period ended.

Results

Descriptive and inferential statistics were calculated with respect to each objective listed earlier. Since instrumentation was alike within the primary levels and within the intermediate levels, analyses were performed for the combined age/grade groups within each level. Three main effects appeared in all analyses of variance: change, blocks, and conference groups. Change from preconference to postconference was the main effect of interest in each analysis of variance. Block effects included all the groupings over which the experimenters had no control--school, grade, and sex. Conference groups contrasted the various experimental groups to which students were randomly assigned: Group 1, conferences during the first eight-week period; Group 2, conferences during both eight-week periods; and Group 3, conferences during the second eight-week period.

Determining whether the conference procedure leads to a significant positive change was of primary importance. It was also of interest to determine whether this change occurs systematically across conference groups and blocks. The following discussion presents results for the primary-level children first, and then gives results for the intermediate level.

Effects of conferences on primary-age children. An analysis of variance of the number of books read at the primary level indicated significant change from the preconference period to the conference period; thus, the independent reading conferences positively influence the amount of independent reading. Inspection of means in Table 18 reveals that an average of 5.5 more books were read during the conference period than during the baseline. A significant interaction of Change and Schools suggests that the degree of change from preconference to conference reading varied among schools. Although the effect of conference groups was not significant, it may be noted from Table 18 that Group 2 pupils, who had conferences for 16 weeks, showed a greater change in the average number of books read over an eight-week period than did pupils having conferences for only 8 weeks. The means presented in Table 18 also show that students in School A made the greatest absolute increase in number of books read, but students in School C read nearly 13 times as many books during conferences as during the baseline period. In School A, during-conference reading was over five times that of baseline; in School B, about double baseline.

Attitudes toward reading, as measured by the PPRAI, a forced-choice technique, did not change significantly overall from preconference to postconference testing as a function of conferences alone, but were related to differences in school, grade, sex, and conference group. Variations in change in attitude within schools may represent an effect of conference leader-pupil assignment, which was not investigated. Mean changes in attitudes shown in Table 19 were generally positive for students in Grade 2 and negative for Grade 3. All negative attitude changes are associated either with the first conference period (Group 1) or the 16-week period (Group 2). Apparently the group starting conferences later indicated uniformly positive change in attitude.

TABLE 21

MEAN AMOUNT OF PRECONFERENCE AND CONFERENCE READING AND MEAN CHANGE IN NUMBER OF BOOKS READ BY GRADE, SCHOOL, AND CONFERENCE GROUP, GRADES 4-6; SCHOOLS C, D, AND F

Grade	School	Mean Pre-conference No. of Books	Mean Con-ference Period No. of Books	Mean Change in No. of Books by Conference Group			Mean Change in No. of Books
				1	2	3	
4	C	1.91	5.78	4.77	3.45	3.38	3.87
	D	4.22	10.12	3.37	7.33	7.00	5.90
	F	2.00	7.75	5.98	5.32	5.95	5.75
	Mean	2.71	7.88	4.71	5.37	5.44	5.17
5	C	1.58	2.75	1.25	.67	1.60	1.17
	D	6.32	14.63	7.33	3.50	14.10	8.31
	F	.92	6.50	6.92	5.40	4.42	5.58
	Mean	2.94	7.96	5.17	3.19	6.71	5.02
6	C	1.58	2.95	1.08	1.67	1.38	1.37
	D	4.44	5.13	.83	.58	.67	.69
	F	2.68	6.42	3.61	3.23	4.39	3.74
	Mean	2.90	4.83	1.84	1.83	2.15	1.93
Inter-mediate-Level Mean	C	1.69	3.83	2.37	1.93	2.12	2.14
	D	5.00	10.47	3.68	3.81	7.23	5.47
	F	2.68	6.42	3.61	3.23	4.39	3.74
	Mean	3.12	6.91	3.22	2.97	4.58	3.78

TABLE 19

MEAN PRECONFERENCE ATTITUDE SCORE AND MEAN CHANGE IN ATTITUDE BY GRADE, SCHOOL, AND CONFERENCE GROUP, GRADES 2 AND 3

Grade	School	Mean Pre-conference Attitude Score	Mean Change in Attitude by Conference Group			Mean Change in Attitude
			1	2	3	
2	A	5.32	1.50	-1.83	2.08	.58
	B	5.67	.21	6.86	1.25	2.77
	Mean	5.49	.85	2.51	1.66	1.67
3	A	4.75	- .50	- .50	.00	- .33
	B	6.20	- .58	-2.08	1.21	- .48
	C	7.47	- .60	- .29	1.50	.20
	Mean	6.14	- .56	- .96	.90	- .20
Primary-Level Mean	A	5.03	.50	-1.17	1.04	.12
	B	5.93	- .18	2.39	1.23	1.14
	C	7.47	- .60	- .29	1.50	.20
	Mean	6.14	- .43	.31	1.26	.49

Children of primary school age were tested on vocabulary and comprehension subtests of the Gates-MacGinitie Reading Tests. Alternate forms of the test were administered during November 1970 and March 1971; thus, without taking regression effects into account, grade score gains of approximately four months could be expected to occur. While raw scores were used in the analysis, for descriptive purposes the raw score averages were converted to grade scores and are presented in Table 20.

Analysis of variance showed significant improvement in both vocabulary and comprehension as a result of the conferences. On the average, gains of about four score points were observed on each test; these convert to grade score gains of three and four months for the two subtests and age/grade groups.

There was a significant variation in the gains as a function of grade and school. From the mean scores in Table 20, it may be seen that pretest averages for pupils in Grade 2 were about at grade level, and the same was true for Grade 3. Overall, second graders made greater gains than third graders. Children in School A--particularly in Grade 2--made greater gains than children in other schools, especially in vocabulary, thus accounting for the significant interaction found between Change, School, and Grade. It is noteworthy that School A's implementation was among the most highly rated.

School staff reported greater incidence of conferee's reading during free time, particularly at Schools A and B. Due to changes and expansion of the IMC at School A it was not possible to determine whether increased library use was due to the conferences or to the facility changes. At School B the IMC director reported definite increases in children's free-time reading and library use.

TABLE 20

MEAN PRECONFERENCE AND POSTCONFERENCE VOCABULARY AND COMPREHENSION SCORES AND MEAN PRECONFERENCE TO POSTCONFERENCE GAIN, GRADES 2 AND 3

Grade	Schools	Vocabulary Test			Comprehension Test		
		Preconference Mean	Postconference Mean	Mean Gain	Preconference Mean	Postconference Mean	Mean Gain
2	A and B	25.57 (2.3)	32.30 (2.7)	6.73	15.91 (2.2)	21.10 (2.6)	5.20 (.4)
3	A, B, and C	30.91 (3.4)	34.26 (3.7)	3.35	28.24 (3.5)	31.32 (3.8)	3.08 (.3)

Note: Grade scores are given in parentheses.

Effects of conferences on intermediate-level children. Due to irregularities in program implementation and data collection, analyses for Grades 4 to 6 are not based on data from all participants in the four schools (C-F). For analyses of variance of the changes in amount of outside reading and reading achievement, data from students in the following schools and grades were available: School C, Grades 5 and 6; School D, Grades 4 to 6; School F, Grades 4 and 5. The analysis of variance of changes in attitude involved students from Schools D and F only.

The number of books read by students in Grades 4 to 6 showed significant positive change as a result of the conferences. However, effectiveness of the conferences on amount of reading differed among grades, schools, and grades within schools. The average number of books read in the eight weeks prior to conferences, average conference-period reading, and mean change in number of books read are given in Table 21. Inspection of the table shows that sixth graders showed less increase than other age/grade groups. Overall, pupils in School D improved the most, but the sixth graders in School D improved less than any other grade group in any school. Differences among the three conference groups favored the second eight-week group but are not significant. Amount of preconference reading was highest in School D, where all but three of the students selected for conferences were reading from three to seven books in the preconference period; at other schools, three books were typically the maximum read by the children selected for conferences. During conferences, intermediate grade students read, on the average, more than double the number of books they had read prior to conferences. This effect was noted even in School D, where a large number of books had been read in the preconference period. In School F, where 14 of the 38 children read no books prior to conferences, and where no students selected to receive conferences had read more than three books during the preconference period, the increases in amount of reading were also large. The fourth graders in this school read, on the average, nearly four times as many books during conferences as they had in the preconference period, while fifth graders read six times as many.

To assess intermediate students' attitudes toward independent reading, each student was asked to list four things he would most like to receive as gifts and the four activities he preferred to do in his spare time. Thus two indicators, each with a range from 0 to 4, were obtained. Only Schools D and F returned complete information on attitudes toward reading. In those two schools change in attitude as a result of conferences was significant, as was the interaction of the change in attitude with conference groups and schools. The number of times a book was listed as one of four preferred gifts increased at all grade levels, as shown in Table 22. Whereas almost no children listed books before the conference program, three out of four indicated this preference after participating in conferences. Changes in listing reading as a preferred activity were fewer. Higher-order interactions make it difficult to interpret the significant change in attitude as a result of conferences.

In addition to the vocabulary and comprehension subtests of the Gates-MacGinitie Reading Tests, the intermediate-level children also received the subtests of speed and accuracy. As in the primary grades, alternate forms were administered in November 1970 and in March 1971.

TABLE 21

MEAN AMOUNT OF PRECONFERENCE AND CONFERENCE READING AND MEAN CHANGE IN NUMBER OF BOOKS READ BY GRADE, SCHOOL, AND CONFERENCE GROUP, GRADES 4-6; SCHOOLS C, D, AND F

Grade	School	Mean Pre-conference No. of Books	Mean Con-ference Period No. of Books	Mean Change in No. of Books by Conference Group			Mean Change in No. of Books
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	D	4.22	10.12	3.37	7.33	7.00	5.90
	F	2.00	7.75	5.98	5.32	5.95	5.75
	Mean	2.71	7.88	4.71	5.37	5.44	5.17
5	C	1.58	2.75	1.25	.67	1.60	1.17
	D	6.32	14.63	7.33	3.50	14.10	8.31
	F	.92	6.50	6.92	5.40	4.42	5.58
	Mean	2.94	7.96	5.17	3.19	6.71	5.02
6	C	1.58	2.95	1.08	1.67	1.38	1.37
	D	4.44	5.13	.83	.58	.67	.69
	F	2.68	6.42	3.61	3.23	4.39	3.74
	Mean	2.90	4.83	1.84	1.83	2.15	1.93
Inter-mediate-Level Mean	C	1.69	3.83	2.37	1.93	2.12	2.14
	D	5.00	10.47	3.68	3.81	7.23	5.47
	F	2.68	6.42	3.61	3.23	4.39	3.74
	Mean	3.12	6.91	3.22	2.97	4.58	3.78

TABLE 22

MEAN PRECONFERENCE AND POSTCONFERENCE ATTITUDE TOWARD READING AND MEAN CHANGE IN ATTITUDE BY GRADE, SCHOOL, AND CONFERENCE GROUP, GRADES 4-6; SCHOOLS D AND F

Grade	School	Listing Book as Desired Gift						Listing Reading as Free-Time Activity					
		Mean Pre-conference Score	Mean Post-conference Score	Mean Change by Conference Group			Mean Change	Mean Pre-conference Score	Mean Post-conference Score	Mean Change by Conference Group			Mean Change
				1	2	3				1	2	3	
4	D	.00	.71	88	.50	.75	.71	.29	.55	.38	-.33	.75	.26
	F	13	.87	1.28	.60	.35	.74	.13	.19	.33	-.15	.00	.06
	Mean	.06	.78	1.08	.55	.55	.72	.21	.39	.35	-.24	.37	16
5	D	.00	1.07	1.83	.67	.70	1.07	.17	.59	1.67	.00	-.40	.42
	F	.03	.86	.75	1.20	.54	.83	.17	.13	-.21	.10	.00	-.04
	Mean	.01	.86	1.29	.93	.62	.85	.17	.36	.73	.05	-.20	.19
6	D	.00	.44	.33	.83	.17	.44	.11	.28	.17	.33	.00	.17
Inter-mediate-Level Mean	D	.00	.74	1.01	.67	.54	.74	.22	.50	.74	.00	.12	.28
	F	.08	.87	1.02	.90	.44	.79	.15	.16	.06	-.02	.00	.01
	Mean	.04	.80	1.01	.78	.49	.76	.18	.32	.40	-.01	.06	.14

The analysis of variance of standardized test scores of students in Grades 4 to 6 indicated that the change from preconference to postconference reading performance was significant overall and for all four variables--vocabulary, comprehension, speed, and accuracy. Raw score means and their grade equivalent conversions are presented in Table 23. It is apparent from inspection of the mean gain data that Grade 4 pupils made relatively greater improvement in vocabulary and comprehension, while for Grade 5 and 6 pupils it was in speed and accuracy. Much larger than expected grade score gains of one year were observed for Grade 4 pupils in comprehension and for Grade 6 pupils in speed. However, lower than expected mean gains were recorded for Grade 4 in speed and accuracy. The variation in performance among the three grade levels was significant, as were differences among schools and between sexes within grades. Differences between conference groups were not significant.

The reported effects of conferences on students' free-time reading were generally positive at the intermediate level. Most students maintained the reading habits developed during the conference period. The librarian at School F noted that the number of books normally checked out per day was nearly doubled as an apparent result of the independent reading conferences.

Discussion

The results of the field test study for both primary- and intermediate-level pupils are in accord with the results of the previously reported controlled experiment. Overall, children participating in the conferences showed increases in amount of independent reading, more positive attitudes toward reading, and increases in reading achievement test scores from the preconference to the postconference period. Moreover, evidence suggested that children continue to read independently after the conferences are discontinued.

Because the conference program was implemented by staffs in six different school settings, the results of the field test support the conclusion that the conferences are successful in meeting pupil objectives of more reading, improved attitudes toward reading, and improved reading skills. However, it should be noted that varying degrees of success in meeting the pupil target group objectives resulted from different levels of attainment of objectives by the adult target groups, as reported in Chapter II. In general, for all grade levels, the higher the adults scored on knowledge and application of program principles and procedures, the more effective were the conferences in meeting pupil objectives.

In summary, the research on this motivational-instructional procedure, as reported in the present and preceding chapters, leads to two conclusions: (a) When conferences are properly implemented by adults, children show dramatic increases in amount of reading, attitudes toward reading, and reading skills; and (b) the multimedia educational materials developed for this motivational procedure are effective in imparting to adults the knowledge and skills needed to implement properly the independent reading conferences.

TABLE 23

MEAN PRECONFERENCE AND POSTCONFERENCE VOCABULARY, COMPREHENSION, SPEED, AND ACCURACY SCORES AND MEAN PRECONFERENCE TO POSTCONFERENCE GAIN, GRADES 4-6; SCHOOLS C, D, AND F

Test	Grade	Schools	Preconference Mean	Postconference Mean	Mean Gain
Vocabulary	4	C, D, F	21.56 (4.2)	25.87 (4.7)	4.31 (.5)
	5	C, D, F	24.61 (4.5)	26.27 (4.7)	1.66 (.2)
	6	C and D	33.63 (6.3)	34.07 (6.5)	.44 (.2)
Comprehension	4	C, D, F	24.72 (3.7)	31.77 (4.7)	7.05 (1.0)
	5	C, D, F	28.79 (4.2)	31.46 (4.6)	2.67 (.4)
	6	C and D	40.01 (6.1)	41.23 (6.5)	1.22 (.4)
Speed	4	C, D, F	14.54 (4.5)	15.16 (4.6)	.62 (.1)
	5	C, D, F	14.72 (4.5)	16.30 (4.9)	1.58 (.4)
	6	C and D	17.70 (5.4)	20.52 (6.5)	2.82 (1.1)
Accuracy	4	C, D, F	12.81 (4.4)	12.41 (4.2)	-.40 (-.2)
	5	C, D, F	12.73 (4.5)	14.87 (4.9)	2.14 (.5)
	6	C and D	17.11 (5.5)	19.63 (6.1)	2.52 (.6)

Note: Grade scores are given in parentheses.

IV

EFFECTS OF GOAL-SETTING CONFERENCES ON CHILDREN'S LEARNING OF SUBJECT MATTER

During 1967-68, and again during 1969-70, controlled experiments were carried out by Center staff to investigate conditions under which individual goal-setting conferences are effective in motivating children to learn subject-matter content. The results of these two experiments, described in the first two sections of this chapter, were incorporated into the multimedia education materials developed for this motivational-instructional procedure. The effects of the group conference procedure on the pupil target group, as determined by a field test, are summarized in the final section of the chapter.

CONTROLLED EXPERIMENT ON GOAL-SETTING CONFERENCES IN ARITHMETIC

BY BARBARA J. KENNEDY[1]

Participating Students

The experiment was carried out during the 1967-68 school year in an inner-city multiunit school in a Wisconsin city with a population of about 100,000. The 48 children participants were selected from among the 142 students in an I & R unit which contained children of ages equivalent to third and fourth graders. The majority of the children were black.

Research Design

Early in the school year, an arithmetic achievement test was administered to the entire population of 142 children. On the basis of their scores on this test, the students were grouped into six achievement levels from low to high. Each achievement-level group was put into a separate instructional group, with the exception of a large block of students at the middle level of achievement--scores of 40 to 60--which was divided into two groups as shown in Table 24. Three instructional groups were selected to participate in the experiment--Group II, Group IIIB, and Group V, which represented one group of low, one group of medium, and one group of high arithmetic achievers.

The arithmetic instruction in these groups was based on the use of individual progress folders developed by the mathematics consultant for the school system. A sample of an individual progress folder is given in Table 25. The folders were designed in checklist form to include all the major concepts from the third grade arithmetic curriculum. The concepts

[1] This section is an edited abstract of the research report by Kennedy, 1968.

TABLE 24

ARITHMETIC INSTRUCTIONAL GROUPINGS BY ACHIEVEMENT LEVEL IN I & R UNIT

Achievement-Level Groups	Instructional Groups
Group I (scores 0-20)	N = 9
Group II (scores 20-40)	*N = 17
Group IIIA	N = 25
Group IIIB (scores 40-60)	*N = 24
Group IV (scores 60-80)	N = 27
Group V (scores 80-100)	*N = 23
Group VI (scores 100-130)	N = 17

*Groups selected for participation in the experiment.

were further analyzed into subconcepts, and each was stated in logical sequence as a pupil behavior indicative of skill mastery. Alongside the statement of each subconcept was a square to be colored in by the student following the completion of instruction and testing of that skill.

Within each classroom the folders were used in the following manner. Each lesson was presented initially to the class as a whole, and later to remedial subgroups if considered necessary by the teacher. It should be noted that this procedure did not permit some students to move ahead as rapidly as they might have, and it also tended to force lower achievers to move ahead before they were ready. Thus the instruction was not truly arranged to encourage large differences in rate of progress.

Following the presentation of a lesson, the relevant test was administered. Acquisition of the concept or skill was defined as achieving a perfect score on the test. Admittedly it would have been better to use a lower score, such as 80 or 90, to allow for error of measurement. When the student had a perfect score, he colored in the square in his folder adjacent to the statement of that concept or skill. If the student did not make a perfect score he could attempt the test again, either during free class time or after school hours. There was no limit on the number of times a test could be attempted by a student.

TABLE 25

SAMPLE SECTION FROM AN INDIVIDUAL PROGRESS FOLDER FOR GRADE 3

PLACE VALUE

- ☐ Read and write numerals to 100.
- ☐ Read and write numerals to 1,000.
- ☐ Read and write numerals to 10,000.

Count by:

- ☐ 2's to 100
- ☐ 10's to 300
- ☐ 4's to 100
- ☐ 5's to 150
- ☐ 3's to 99

- ☐ Write numerals for sets of tens and ones.
- ☐ Regroup for addition and subtraction.
- ☐ Write numerals for sets of hundreds, tens, and ones.
- ☐ Write numerals for sets of thousands, hundreds, tens, and ones.

Explain tens and ones; for example that 12:

- ☐ is 1 ten, 2 ones
- ☐ is 10 + 2

- ☐ Write numerals showing tens and ones.
- ☐ Rename tens and ones.

Explain ones, tens, and hundreds; for example that 245:

- ☐ is 2 hundreds, 4 tens, 5 ones
- ☐ is 200 + 40 + 5.

Explain place value; for example that 2,872:

- ☐ is 2 thousands, 8 hundreds, 7 tens, 2 ones
- ☐ is 2,000 + 800 + 70 + 2

From each of the three instructional groups, 16 students were randomly selected and divided among four treatment groups. Children in three of the groups had individual conferences with a teacher once a week for six weeks. During these conferences, the child's progress was briefly discussed and goals were set for the following week. Children in the fourth group had no conferences. The four treatment groups are described as follows:

Do Best: Each week the teacher had an individual conference with the child in which he told the child to do his best during the coming week.

Self-Set: Each week the teacher had an individual conference with the child in which he asked the child to state how many concepts or skills he would try to master during the coming week.

Teacher-Set: Each week the teacher had an individual conference with the child in which he gave the child a specific goal for the coming week and told him to try to reach it.

Control: The child kept his folder, including records of tests, but had no conferences. Children in the control group were, however, in the same classes as the children who had conferences.

For each child, a record was kept of the number of squares colored prior to the experiment and during the conference period. Initial acquisition was measured by the number of squares filled in during the conference period. Following completion of the six-week experiment, an arithmetic achievement test designed for use in conjunction with the folders was administered as a retention test.

In addition, a preference inventory was administered before the goal-setting conferences started and again as a posttest to measure attitude change toward arithmetic. The preference inventory consists of a series of pairs of pictures of students engaged in various academic activities. For each pair of pictures, the child selects that one representing the activity he would prefer, given a choice between the two. There are parallel forms of the test for boys and girls, differentiated only by the sex of the children portrayed in the drawings.

Conference Procedures

All the goal-setting conferences were conducted by the unit leader. She was familiar with the background and scholastic performance of each child in the study. Although this unit leader instructed some of the children in other subject fields, she did not teach any of the arithmetic groups from which the children were drawn. Further, the three teachers whose students were involved in the experiment did not know which treatment each child was receiving. These procedures were followed so that the teacher could not inadvertently teach a child differently depending on which treatment that child was receiving.

An attempt was made to keep the social content of the conferences identical across treatment groups. All children were given praise and encouragement with statements such as "You're doing fine." The only differences in the conferences related to the goal instructions. Conferences were held Monday through Friday mornings between the hours of 10:30 and 11:30. The day and time for each child was randomly assigned.

Results

Initial acquisition. The mean numbers of squares colored in by each treatment group, and broken down by achievement level, are presented in Table 26. In every treatment condition the Medium achievement group had the highest acquisition scores. However, the three groups were working on different tasks that probably were not of the same level of difficulty. Within the High group, the children who were allowed to set their own

TABLE 26

MEAN ACQUISITION SCORES AS A FUNCTION OF ACHIEVEMENT LEVEL AND TREATMENT GROUP

Achievement Level	Do Best	Self-Set	Teacher-Set	Control
High	30.75	57.25	45.75	38.25
Medium	68.25	66.75	67.75	59.00
Low	9.75	6.50	11.75	9.25
Treatment Means	36.25	43.50	41.75	35.50

weekly goals scored highest on acquisition. In the Low group, the best performance was from the children who had their weekly goals set for them by the teacher. The overall treatment means indicate superior performance by the Self-Set and Teacher-Set goal groups, followed by the Do Best and the Control groups, respectively.

The means for the three planned comparisons--Conferences vs. No Conference; Do Best Goals vs. Specific (Self-Set and Teacher-Set) Goals; and Self-Set Goals vs. Teacher-Set Goals--are presented in Table 27.

TABLE 27

COMPARISON MEANS FOR ACQUISITION SCORES IN ARITHMETIC

Comparison		
1	Conferences	No Conferences
	40.5	35.5
2	Do Best Goals	Specific Goals
	36.25	42.62
3	Self-Set Goals	Teacher-Set Goals
	43.5	41.75

Although none of these comparisons reached statistical significance at the .05 level, the results are in the hypothesized direction; that is, the children receiving conferences attained higher than did those not receiving conferences, specific goals led to higher attainment than general (do best) goals, and self-set goals produced higher achievement than teacher-set goals.

Retention. Retention scores were also obtained for the pupils at the end of the experiment. As was the case with the acquisition scores, the students who had conferences achieved a higher average retention score than those who did not, and those who set specific goals retained more than those who were told to do their best. There was no significant difference between students who set their own goals and students who had their goals set by the teachers. However, high-achieving students scored higher when they set their own goals, while low-achieving students scored higher when the teacher set their goals.

Attitude Change. Attitude scores were calculated by tallying the number of times each child selected arithmetic as a preferred activity. High-achievement children had highly favorable changes in attitudes toward arithmetic when working toward specific goals and negative attitude changes when working toward general goals. Children at the medium achievement level had positive attitude change toward arithmetic in the general goal treatment and no attitude change in the specific goal treatments. Children of low achievement, unfortunately, had negative change under both treatments. This result will be discussed further in the next section.

Discussion

Some comments are in order concerning the limitations and difficulties imposed on this study by its having been conducted in a classroom situation. First, the teachers of these classes were required to introduce, for six weeks, an instructional technique which allowed for maximum individual mobility of students. This required considerable daily planning, constant regrouping of students within a class, and continuous scoring of tests and bookkeeping. As one example of this, the highest acquisition score by a student for a single week was 50 items, and the average weekly item scores for the children across all treatments were: High, 7.67; Medium, 10.91; and Low, 1.55. Thus, the sheer mechanics of testing and record keeping were considerable. Further, there is no guarantee that procedures were followed in an identical manner by the three teachers.

Another problem of the study was that the arithmetic items were not of equal difficulty for the three achievement-level groups. Also, the numbers of items that could be completed and the squares which could conceivably be filled per week by the different classes varied. The fact that the Medium group had the highest scores is explained mainly in terms of the difficulty of the material and how the teacher handled the situation. The Medium group began work at the base level in the folder that was appropriate for them, and thus were able to proceed very rapidly. On the other hand, the High group worked at a higher difficulty level, but were given easier tests which they could pass only on their request during free time or after school. The Low group also began work at the same base level in the folders as the Medium level. However, instruction for these children proceeded much more slowly and opportunities for individual mobility were limited. The concepts were probably too difficult for some of those children. They did not learn much arithmetic, as indicated by their low scores; and still worse, their attitudes toward arithmetic deteriorated. All this could have been avoided by starting them at an appropriately easier and lower level.

Two other features of the experiment which imposed limitations on the results were the relatively short time period (six weeks) and the small number of children in each cell (N = 4). Both these restrictions were necessitated by practical factors involved in such an experimental setting. For example, the size of the classes was inadequate to increase the number of students in the experiment, and the constraints of the curriculum and teaching devices prevented extension of the experimental period.

Two other factors which should be taken into account when judging the results have to do with the students themselves. Teacher reports indicated that all students enjoyed working with the individual progress folders and with the tests. Therefore, the motivation induced by the instructional method alone may have been great enough to offset some of the effects of the conferences. This is suggested by the data in a few places where mean control scores are superior to a particular treatment mean. The other factor which probably played a significant role in offsetting treatment effects was student discussions with one another. This is impossible to overcome in such a school research setting. Teachers reported that the students from different treatments compared their goal statements and also competed to color in as many squares as possible in their folders. Attempts were made to minimize comparison and competition by allowing the students to bring their folders up to date only once a week, but the effectiveness of this technique was limited.

Despite these many limitations, middle- and high-achieving students who set their own goals learned more arithmetic than did those of the same achievement levels in the control groups or those who had goals set by the teacher. Further, it is suggested that goal-setting procedures would also be effective with lower achievers if teachers start them at appropriate levels of task difficulty and use proper instructional materials.

CONTROLLED EXPERIMENT ON GOAL-SETTING CONFERENCES IN READING

BY JOHN P. GAA[2]

Participating Students

The subjects in the experiment (conducted during the 1969-70 school year) were students from Unit D (third and fourth graders) and students from Unit B (first and second graders) at a multiunit elementary school located in a low socioeconomic area of a middle-sized Wisconsin city.

There were 25 males and 27 females from Unit D and 24 males and 27 females from Unit B. Only those students who had not previously mastered the reading skill which was to be the subject of instruction during the conference period were included as subjects.

Research Design

Three treatment groups were employed in each unit: goal setting, conference, and control. The same R & D staff member conducted all conferences. On the basis of previous achievement test scores, students within

[2]This section is an edited abstract of the research report by Gaa, 1970.

a unit were blocked into three achievement levels (high, medium, and low). Sex was the other blocking variable. Experimental students were assigned to reading skill classes using a stratified random assignment procedure whereby each teacher had one student from each of the cells of the experimental design. Teachers were not told which treatment group their students were assigned to.

Reading instruction in both units followed the Wisconsin Design for Reading Skill Development, a product of the R & D Center. The Design identifies reading skills which are essential in Grades K through 6 and includes assessment exercises for each skill. Instruction is organized around six general skill areas which incorporate the specific reading skills. The general skill areas are: Word Attack, Comprehension, Study Skills, Self-Directed Reading, Interpretive Skills, and Creative Skills. At the time of the experiment, Unit D was receiving instruction on Study Skills while Unit B was working on Word Attack. To ensure that students were allowed to progress as far as possible, teachers involved in the study were instructed to allow students to advance as quickly as they could toward achieving the goals they selected. With the exception of this stipulation, teachers were allowed to follow their normal teaching procedures.

Conference Procedures

Students in the goal-setting group received weekly individual conferences. During the initial conference, students were given an explanation of the meaning of goal setting and how it related to the reading skills class. The material to be covered during the week was briefly outlined and the Goal-Setting Checklist, consisting of behavioral statements of skill attainment in vocabulary appropriate to the student, was explained in this context. The Checklist was read to the student and he was asked to check the goals he would try to attain during the coming week. No guidance or feedback was given by the conference leader at this time. After selecting his goals, the student rated his confidence in attaining each goal he had set.

At the end of each week, the classroom teachers were given a list of the same behaviors contained in the student Goal-Setting Checklist. Teachers rated students on degree to which goals were attained.

On Monday of the second week, the goal-setting group received a second conference. Students received feedback on and reinforcement for their performance of the previous week. The conference leader compared the goals set by the student with the teacher's ratings of that student's achievement. This allowed the student to receive feedback on the appropriateness and accuracy of the goals he set during the previous week and on his general achievement level. The remainder of the second conference was devoted to setting goals for the coming week and to confidence ratings.

The third conference for the goal-setting group followed the procedure established for the second conference: feedback on appropriateness and accuracy of goals, discussion of the previous week's material, reinforcement for material learned, discussion of the material for the coming week, goal setting, and confidence rating. Achievement tests and attitude measures were administered to all students on Friday of the third week. Students in all treatment groups were administered the tests and attitude measures at the same time.

On Monday of the fourth week, all students in the study were given an individual goal-setting conference. This conference followed the procedure of the first conference received by the goal-setting group. The reason why all students, including those in the control group, received a goal-setting conference during the fourth week will become apparent in later sections.

The conference group was treated exactly like the goal-setting group except that students did not set specific goals, and therefore did not receive feedback concerning their performance in relation to specific goals. Instead, the conference leader pointed out general classroom goals and discussed the material to be covered during the coming week. The purpose of the conference group was to identify any treatment effect arising from the social interaction of the conferences rather than the goal-setting procedures. The conference group was assessed on attitude and achievement measures just as the goal-setting group was. The conference students received a goal-setting conference in the fourth week which followed procedures identical to the initial conference in the goal-setting group.

The control group consisted of students who did not receive any individual conferences during the first three weeks of the study. These students received the same classroom instruction as the goal-setting and conference students and were administered the same achievement tests and attitude measures. On Monday of the fourth week, the control students received a goal-setting conference with procedure identical to the initial conference received by the goal-setting group.

Results

Analyses were carried out separately for Unit D and Unit B on the following measures: (a) attitude toward reading--as assessed by scores on the Primary Pupil Reading Attitude Inventory (Askov, 1970); and attitude toward reading-skills class--as assessed by scores on the Reading Skill Attitude Inventory; (b) achievement--as assessed by scores on appropriate subtests of the criterion-referenced Wisconsin Tests of Reading Skill Development Battery and on experimenter-developed achievement tests for each unit, and (c) goal-setting behavior--as assessed by number of goals set, the absolute difference between number of goals set and number achieved, and ratings of confidence in ability to achieve the goals set. The measures of goal-setting behavior were collected during the goal-setting conference received by each group during the fourth week of the experiment.

Results for Unit D. A multivariate analysis of scores on both attitude assessment devices indicated no significant differences between the three treatment groups. However, the means were in the predicted direction. The mean of the goal-setting group was higher (reflecting a more positive attitude) than that of either the conference or control groups on the Skill Attitude Inventory and higher than the average of the conference and control groups on the Primary Pupil Reading Attitude Inventory. Univariate analyses carried out for each of the achievement measures revealed, in both cases, no significant difference between treatment groups. In both analyses, the only variable significantly related to scores on the achievement tests was prior achievement level. Scores on both achievement tests decreased as prior achievement level decreased.

In analyzing the goal-setting behavior of students in the study, three behaviors were used as dependent measures: the number of goals set, the absolute difference between the number of goals set and the number of goals achieved, and the confidence students displayed in their ability to attain their stated goals. A multivariate analysis of variance revealed that the only significant differences in goal-setting behavior appeared as a function of the comparison of the goal-setting versus non-goal-setting treatments.

The scores of the treatment groups for each of the goal-setting behaviors are shown in Figure 5. An examination of the figure reveals

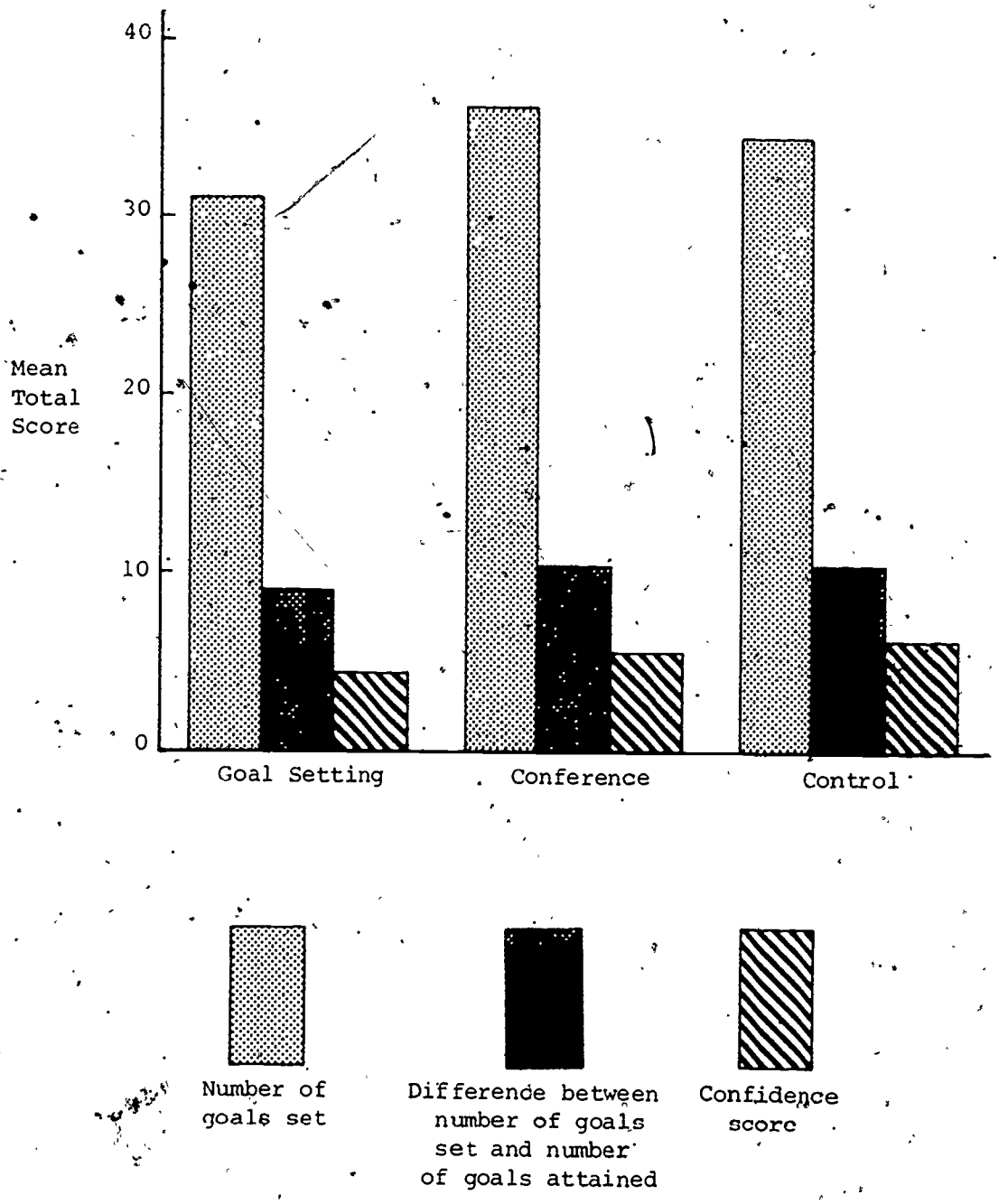

Figure 5. Mean number of goals set, mean difference between the number of goals set and goals attained, and mean confidence score by treatment group for Unit D.

a very interesting relationship. The goal-setting treatment group set fewer goals on the average, had a smaller difference between the number of goals set and the number of goals attained, and also displayed less confidence in their ability to attain the goals they had set. Given that the goal-setting students set fewer goals and that they achieved at approximately the same level as the other treatment groups, the finding that they showed a smaller difference between goals set and attained is not unexpected. With respect to the number of goals set and confidence in attaining these goals, an examination of the Goal-Setting Checklist and the Goal-Setting Confidence Rating Scale suggests that the average confidence score for the goal-setting students represents a more reasonable estimate of their abilities than simply indicating "lower scores." In both cases, the "scores" are consistent with the goal-setting students' realization that not all possible goals can be achieved or ought to be chosen, and that some help will probably be required in order for them to master a given skill.

In summary, the effect of the treatment in Unit D was apparent only in relation to goal-setting behavior. No significant differences were found in attitude or achievement between treatment groups. However, the goal-setting conference procedures had an effect on the ability of students to set meaningful goals and on their ability to establish reasonable confidence levels in relation to their goals.

After examining the results for Unit D, it was decided that a slight change in emphasis during the goal-setting conferences might prove beneficial in improving achievement levels. Therefore, in Unit B (where conferences were held after completion of the experiment in Unit D) more emphasis was placed on providing feedback to the student regarding his mastery of the reading skill. This slight change in emphasis did not entail altering the conference format as described earlier.

Results for Unit B. A multivariate analysis of variance of scores on the two attitude inventories revealed no significant effects of treatments. Moreover, treatments did not interact with either of the blocking variables of sex or prior achievement. An inspection of the treatment group means on the attitude inventories showed them to be virtually identical.

Analysis of scores on the experimenter-developed achievement test for Unit B showed no significant differences between treatments. However, the means were in the predicted direction, with the goal-setting group scoring higher than either the conference or control groups. Performance varied significantly as a function of prior achievement level.

Analysis of the scores on the appropriate subtests of the Wisconsin Tests of Reading Skill Development Battery indicated significant achievement differences between treatment groups. The comparison of the goal-setting treatment group with the non-goal-setting groups showed the scores of the goal-setting group to be significantly higher. The means for the three treatment groups on each of the three subtests administered in this unit are shown in Figure 6. The analysis indicated that the significant overall difference between treatment groups was consistent across the three subtests, and not the result of any one measure alone. As was true for all other achievement tests used in the study, there was a significant difference in scores as a function of prior achievement level. This difference simply indicates that those children with high prior achievement perform better than those with low prior achievement.

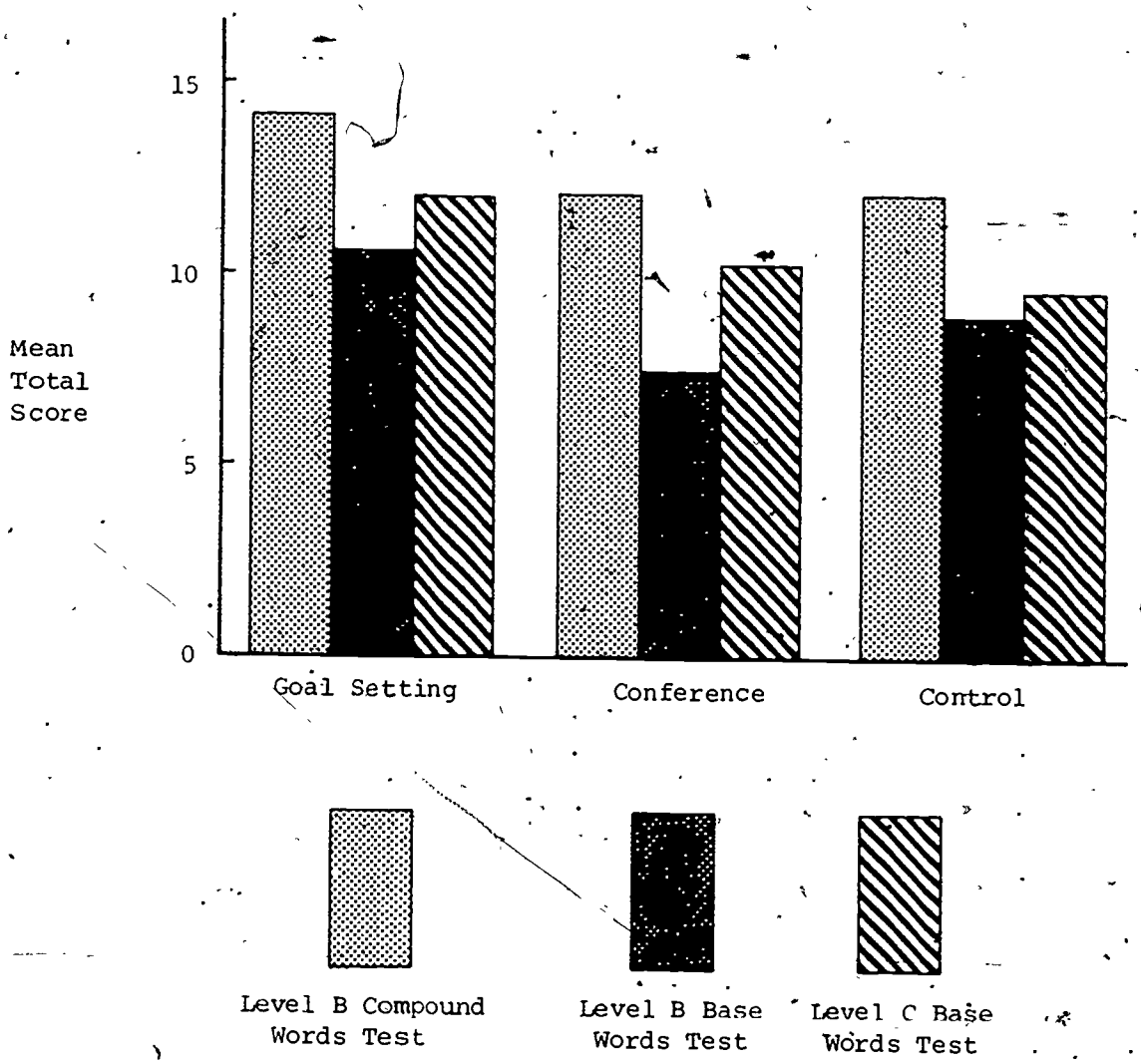

Figure 6. Mean scores on the Level B Compound Words, Level B Base Words, and Level C Base Words Subtests of the WTRSD Battery by treatment group for Unit B.

In analyzing the goal-setting behavior of the students, the same measures were used as in Unit D: the number of goals set, absolute difference between number of goals set and number achieved, and the confidence each student had in his ability to attain his stated goal. A multivariate analysis of variance showed the goal-setting versus non-goal-setting comparison to be the only significant source of variance. When the means for each of the treatment groups on the three goal-setting measures (Figure 7) are examined, the same relationship which was observed in Unit D is apparent: the goal-setting group set fewer goals, had a smaller difference between number of goals set and achieved, and had a lower confidence score. As was pointed out for Unit D, this effect seems to be related to the setting of accurate goals with realistic expectations of attainment.

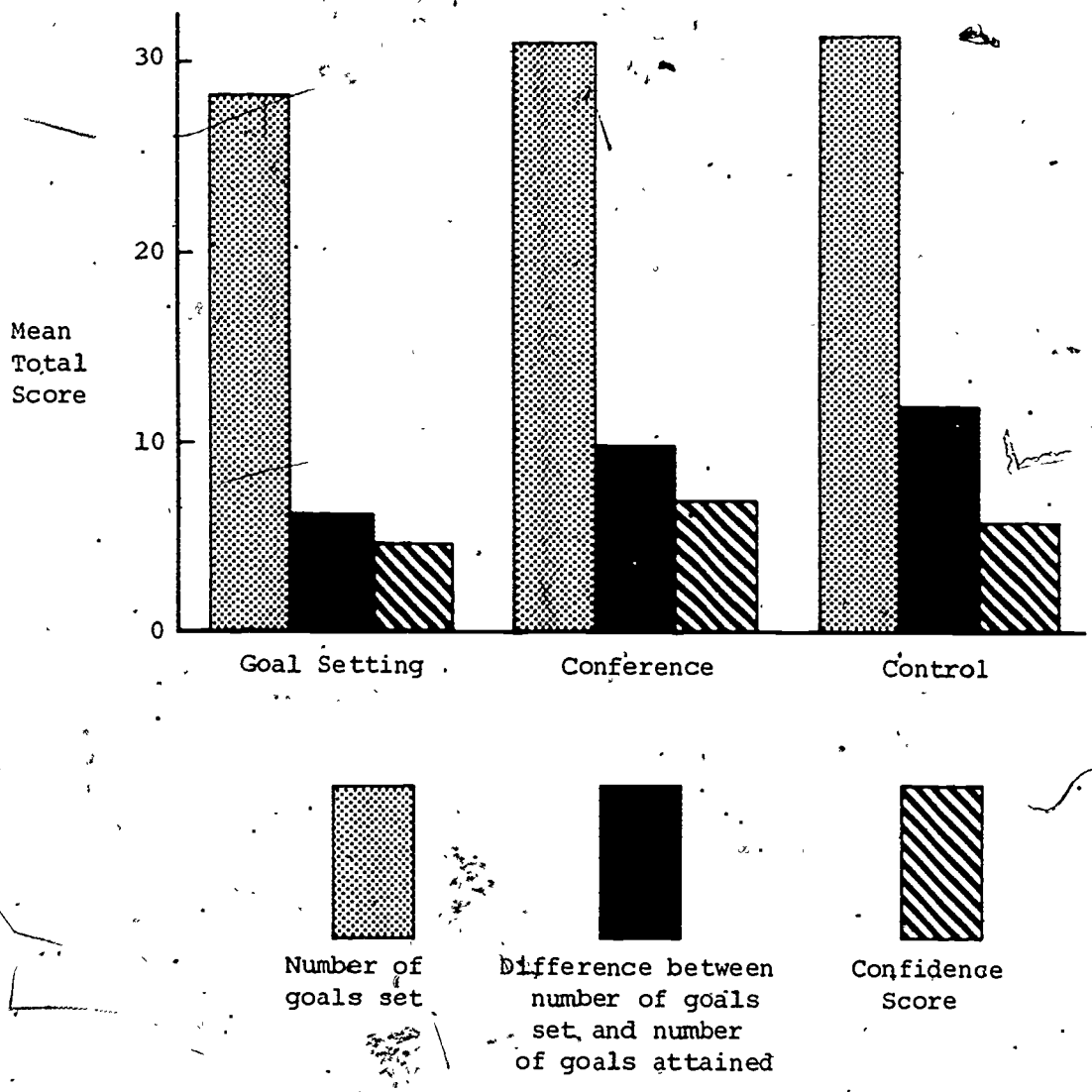

Figure 7. Mean number of goals set, mean difference between the number of goals set and attained, and mean confidence score by treatment group for Unit B.

In summary, the results for Unit B indicate that the treatments were related to achievement scores and goal-setting behavior, but not to attitude scores. The goal-setting group scored higher than the non-goal-setting groups on both the experimenter-developed and on the criterion-referenced achievement tests; however, the difference was significant only for the latter measure. In comparison with the other groups, the goal-setting group demonstrated a pattern of setting fewer goals, attaining more of the goals set, and rating themselves lower in probability of attaining their goals.

Discussion

In neither Unit D nor Unit B was there a difference in attitudes toward reading as a function of treatment. Because the duration of the study was only three weeks, the failure to find differences in attitude toward reading in general is not surprising; the likelihood of changing long-standing attitudes in so short a period is small. There was also no difference between treatment groups in their attitudes toward the reading-skills class. Intuitively, one would expect the goal-setting group to have a more positive attitude toward the class, due to generally higher achievement and more individual attention. It should be pointed out that the average attitude toward reading-skills class for all students was extremely positive, suggesting the existence of ceiling effects which effectively eliminated any chance of discriminating among groups.

In the case of both the experimenter-developed and the criterion-referenced achievement tests, an increase in the effectiveness of the goal-setting procedures was noted for the second unit tested, Unit B. After examining the results of Unit D, it had been decided to place more emphasis on providing feedback regarding the ability to handle the specific reading skills. With the change in emphasis, goal-setting students in Unit B showed significantly higher achievement on the criterion-referenced achievement tests and, although the differences were not statistically significant, attained a higher level of achievement on the experimenter-developed tests as well. In neither unit were there any differences between the conference and control groups. This finding is of importance, since it indicates that the higher achievement of the goal-setting group can be attributed to the goal-setting procedures themselves, rather than to a general "conference effect."

There can be little question of the effect of the goal-setting procedures on the ability of students to set more realistic goals. No differences were found on any of the goal-setting behaviors between the conference and control groups. Again, the differential effect found in the goal-setting versus non-goal-setting comparisons must be attributed to the goal-setting procedures employed, rather than to a general conference effect.

In both units, the goal-setting group set fewer goals than the other groups. This is interpreted as representing a more realistic statement of goals, a conclusion supported by the fact that the goal-setting groups showed less discrepancy between the number of goals set and number attained. In other words, the goals were more accurate and more realistic.

The consistency of goal-setting behavior between units is also apparent in the confidence levels displayed by the treatment groups. In both units, the goal-setting group had lower confidence scores than did the non-goal-setting groups. The lower confidence scores are again interpreted as reflecting more realistic appraisals by the students of their chances for success. It would seem that a greater percentage of goal-setting students realized that they would probably require help in learning and mastering the reading skills and that they might not be able to achieve all of the goals which they had set.

The two experiments described in this chapter provided valuable information concerning the effectiveness of the conferences with children under controlled conditions. The information concerning the value of

specific, self-set goals in increasing children's achievement, and the value of students' learning to set meaningful goals with realistic expectations of attaining them, has been incorporated into the teacher inservice education materials described in Chapter I. In Chapter II, the results of a field test of the materials as they affected the teachers, or adult target group, were discussed. In the following section the effects on children of the goal-setting procedure, when implemented by teachers in naturalistic school settings, are examined.

EFFECTS OF GOAL-SETTING CONFERENCES ON CHILDREN'S SUBJECT-MATTER LEARNING: FIELD TEST RESULTS

BY MARY R. QUILLING, THOMAS J. FISCHBACH, KAYE H. RENDFREY, AND DOROTHY A. FRAYER[3]

Participating Students

Three schools implemented the goal-setting conference procedure. A total of 52 pupils and 10 teachers participated, as indicated in Table 28.

TABLE 28

SUBJECTS IN THE GOAL-SETTING CONFERENCES FIELD TEST

School	Content Area	Unit	Chronological Age	Number of Pupils In Unit	Number of Pupils Chosen for Conference	Number of Conference Teachers
Grantsburg Elementary Grantsburg, Wis.	Mathematics	A	9-10	40	12	3
Robinwood Franklin, Wis.	Vocabulary	D	9-11	98	20	5
Morgan L. Martin Green Bay, Wis.	Word Attack Skills	A	8-9	125	20	2

Teachers from an intermediate unit of Grantsburg Elementary School in Grantsburg, Wisconsin, selected 12 fourth graders who had not been performing as well in math as was expected. From a unit of Robinwood School in Franklin, Wisconsin, there were selected 20 fourth and fifth grade students who had been meeting individually with their teachers to develop

[3] This section is an abstract of sections of the document by Quilling et al., 1971.

larger sight vocabularies, but who had not been progressing satisfactorily. At Robinwood School, conferences were a part of the regular instructional program; the goal-setting techniques were added to the conferences of the participating students. Using current records along with the Wisconsin Design for Reading Skill Development (WDRSD), 20 third grade students who had not mastered two objectives since the beginning of the year were identified from a primary unit of Morgan L. Martin School in Green Bay, Wisconsin.

Research Design

The inservice program for adults and subsequent assessment of their implementation of the goal-setting program was described in Chapter II. In general, it was found that adults followed the guidelines in the materials when implementing the program. Figure 8 shows the schedule

		Data Collection	
		Target Group I Teachers	Target Group II Pupils
4 weeks	Preconference period	Monitored in-service sessions	Baseline data, Achievement scores
	Identification of participants		
8 weeks	First implementation period	Tape-recorded conferences On-site visitations	Records of goal attainment
	Random assignment of former participants to continue or not		
8 weeks	Second implementation period	Tape-recorded conferences On-site visitations Teacher questionnaire	Records of goal achievement Parent questionnaire

Figure 8. Schedule of implementation of the goal-setting conference program.

of data collection during the field test. The data collected from participating students and their parents were used to answer the following questions:

1. How much does the rate of skill mastery change for students participating in the goal-setting conferences?

2. Do the effects of the goal-setting conferences, if any, endure after the conferences are discontinued?

3. What are parents' perceptions of program effectiveness, evidenced by changes they observe in their child's attitude toward school?

During both the preconference and implementation periods, teachers kept a running record of the skill attainment of the children. During the preconference period, baseline data were collected for all the students in the unit so that children could be identified who were not performing at the level established by the unit as minimally acceptable. The baseline score was simply the average number of objectives mastered during a week. Similar data were collected for the two implementation periods, during at least one of which students met with a teacher to set weekly goals in the chosen content area. At each conference, the students were given an opportunity to demonstrate mastery of the goals set the previous week. After providing feedback and reinforcement concerning goal mastery, the teachers helped the students set realistic goals for the coming week. A comparison of average weekly rate of skill mastery before and during the conferences provided a test of program effectiveness.

After this first implementation period, the participating pupils were randomly divided into two groups, one of which continued the conferences while the other did not. However, teachers continued to record the skills mastered weekly for students in each of the two groups. Durability of program effect was assessed by comparing the continuing and noncontinuing students' performances during the last period, and by comparing each school's rate of skill mastery during the (first) implementation and (second) partial implementation periods.

Two of the schools cooperated in distributing a questionnaire to the parents of the conference participants. The parent questionnaire was designed to determine if a child had discussed his feelings about the goal-setting conferences with his parents, and if there had been any noticeable change in the child's attitude toward school or toward the particular subject area in which the goal-setting conferences had been held.

Results

Rate of Skill Mastery. As indicated above, the first question regarding the effect of the program on pupils was related to the average number of skills mastered per week for each student during the preconference period and the two implementation periods. In addition, intelligence test scores were obtained for possible use as covariates. To answer this first question, the null hypothesis was posed--that there is no change in rate of skill mastery from the preconference period to the period when conferences and goal setting occur.

Because of differences in program implementation, subject matter, and measurement procedures, the data were analyzed separately by school. First, a change score for each pupil was computed by finding the difference between the average number of skills achieved weekly in the implementation and preconference periods. Preliminary analysis for each school indicated that the change score of a student was not related to his intelligence. Thus, analysis of covariance was unnecessary, and a two-tailed t-test for correlated data (baseline rate and implementation period rate) sufficed as the primary statistical test. In addition, the number of possible achievements was recorded so that the ratio of actual to possible achievements could be computed and the change in this ratio analyzed. Also, the probability of the observed number of positive and negative changes in rate of attaining objectives was computed by applying a binomial probability model assuming an equal probability of each.

In all three cases, the nondirectional null hypothesis was rejected. The analysis of the change in ratio yielded substantially the same results as the t-test for change scores; therefore, results for this analysis will not be reported. The probability of chance accounting for so great a number of positive changes in rate of attaining objectives was extremely low for each school. It is clear, from the analysis and inspection of the change scores, that definite gains occurred in all three schools. These results are summarized in Table 29.

Endurance of Conference Effects. After the first implementation period, the sample in each school was randomly divided into two groups of equal size. During the subsequent eight-week period, one group continued to attend weekly conferences and to set goals, while the control group did not. (At the Franklin School, the control group had conferences but were not asked to set goals.) The purpose of this phase of the study was to determine whether the program had long-term motivational effects on the children or whether the subjects would regress to former rates of skill attainment, either as the novelty wore off or at the termination of the program.

To answer these questions, a change score was computed for each subject to indicate the change in number of achievements per week from the conference and goal-setting period to the next period. The program could be judged to have a positive long-term effect if the following statements were supported by the data: (a) the rate of skill attainment for the group continuing conferences was not higher than that for the control group which had no conferences during the final period, and (b) the mean change in rate of skill attainment for the combined groups was nonnegative.

Both statements were tested statistically for each school. Because of the small numbers of participants in each school, the tests had low power. A liberal significance level (.10 instead of .05) was established for rejection, so that the tests would have sufficient power to detect real differences of practical importance. Descriptive statistics and inferential test results are summarized in Table 30. In regard to the continuation/control contrast, the changes in number of achievements favored the continuation group in Grantsburg and the control group in Franklin. For Green Bay, the differences between the two groups were negligible. Inferential tests, however, used data adjusted for the number of possible achievements for each pupil in each period in the two instances where available, because preliminary analysis during the second implementation period indicated that rate of skill attainment was positively correlated.

TABLE 29

SUMMARY OF ANALYSIS OF CHANGE IN AVERAGE NUMBER OF ACHIEVEMENTS PER WEEK BY SCHOOL

Statistic or Characteristic	School		
	Grantsburg	Franklin	Green Bay
Subject Area	Mathematics	Vocabulary	Word Attack
Sample Size	12	20	20
Average Change in Average Number of Achievements per Week*	2.46	5.16	0.383
Range of Change Scores			
Lowest	0.68	-2.38	0.167
Highest	4.07	9.75	0.625
Standard Deviation for Sample	1.16	3.56	0.12
t-Ratio for Test of Hypothesis of Zero True Change	7.34	6.49	14.21
Significance Level	0.0001	0.0001	0.0001
Degrees of Freedom	11	19	19
IQ (Lorge-Thorndike)			
Mean for Sample	104.7	89.6	83.4
Lowest	93	61	67
Highest	122	105	97

*Units used in different schools are not comparable.

to the number of opportunities for attainment. In other words, the child mastered a larger number of skills weekly when presented with more chances to master a skill. The covariance adjustment affects the outcome of the statistical test comparing the performance of the two groups in Green Bay; taking into account the possible number of attainments, the proportion of skills attained by the control group is lower than for the group with conferences, and this difference is statistically significant. There is no significant effect at Franklin, whether or not covariance adjustment is made. However, this lack of difference between the two groups can be attributed in large part to two subjects in the control group who had unusually high achievement rates in the second period. The t-ratio for the two groups, computed without these subjects, is statistically significant and favors the continuation group. Data could not be adjusted for the number of opportunities to attain a skill at Grantsburg and the effect was not significant, although on the average the continuation group attained

TABLE 30

SUMMARY OF DATA INDICATIVE OF LONG-TERM EFFECTS BY SCHOOL AND GROUP

Statistic or Characteristic	School and Group								
	Grantsburg			Franklin			Green Bay		
	Continuation	Control	Total	Continuation	Control	Total	Continuation	Control	Total
Sample Size	6	6	12	10	10	20	10	10	20
Number of Achievements Per Week (average)									
1st eight-week period	3.86	2.74	3.30	6.98	8.18	7.58	0.47	0.40	0.44
2nd eight-week period	4.88	3.10	3.99	7.33	12.47	9.90	0.32	0.26	0.29
Change	1.02	0.37	0.69	0.35	4.30	2.33	-0.15	-0.14	-0.14
Ranges									
1st eight-week period									
Low	1.43	1.14	1.14	3.63	3.88	3.63	0.375	0.250	0.250
High	5.57	3.70	5.57	10.88	12.25	12.25	0.500	0.625	0.625
2nd eight-week period									
Low	4.00	1.88	1.88	2.50	3.38	2.50	0.125	0.125	0.125
High	6.00	5.38	6.00	10.63	40.13	40.13	0.625	0.625	0.625
Change									
Low	-0.14	-0.71	-0.71	-1.38	-5.00	-5.00	-0.375	-0.375	-0.375
High	2.82	2.38	2.82	2.38	34.63	34.63	0.125	0.125	0.125
t-ratios									
Continuation-Control Contrast		0.99			0.82*			3.25*	
p		0.34			0.43			.005	
df		10			17			17	
Change from 1st to 2nd period for Combined Groups		2.11			1.11*			-5.05*	
p		0.06			0.28			.0001	
df		10			17			17	

*Covariate number possible.

.65 more skills weekly. From the experience at these three schools, then, there is some evidence to suggest that continuation of conferences facilitates attainment of objectives.

The comparison of performance in the first and second implementation periods yielded positive overall changes in two schools and a negative change in the other. In Grantsburg the observed change in rates of skill attainment for both groups was positive, and the mean gain for the entire group was large enough to be statistically significant. It may be inferred that for this school the gain in the second period--apparently a continuation of that in the first period--demonstrates the lasting effect of the program.

In Franklin, the rate of skill attainment for both groups also increased in the final period, but the overall change was not large enough to be statistically significant. In other words, the rate of skill attainment was steady from first to second period, and for both groups.

In Green Bay, the decrease was statistically significant. However, it should be observed that while some loss did occur for both continuing and control groups during the second eight-week period, the students never regressed to baseline rates of achievement. The difference in rates of achievement between the baseline period and the second eight-week period is quite large for both continuing and noncontinuing students.

The preceding results, while not definitive, suggest that the effects of the conference program do not dissipate greatly over time, and that the strong effects noted in the initial implementation period are not an artifact of the novelty of the procedure.

Parents' Assessment of Children's Attitudes. A parent questionnaire was distributed in Green Bay and Grantsburg to serve as an indirect measure of the students' attitude toward the goal-setting conferences. The Franklin school did not participate, since the teachers were already having individual conferences and felt that it would be difficult for the parents to differentiate between the conferences and the goal-setting technique. Twelve of the questionnaires--60 percent--were returned from Green Bay, where 20 third graders were participating in conferences to develop reading word attack skills. These children seemed to have favorable attitudes toward the conferences. Half the children had already mentioned the conferences to their parents, and after asking their children about them, nine of the parents indicated that their children's attitudes toward the conferences were positive. Only one child had a negative opinion and the other two did not have strong feelings either way. Specific comments reported by the parents indicated that the children especially enjoyed receiving extra attention from a teacher, and that they felt the conferences helped them accomplish more in reading than they had before. All but one of the parents who returned questionnaires had noticed some positive change in their children's attitudes, either in reading or toward school in general. The parents mentioned such changes as more interest in reading-skills class, more independent reading at home, improvement in specific skills such as sounding out words, greater confidence, and enthusiasm toward school. Ten of the twelve parents felt that the conferences should be continued; the remaining two were indifferent.

In Grantsburg, where the students were participating in goal-setting conferences in math, eleven of the twelve parent questionnaires were

returned. Six of the children had talked previously with their parents about the conferences. Nine of the eleven parents indicated that their children's attitudes were positive, and that the children felt the individual help gave them a better understanding of their work in math. Among the noticed changes in attitude were more confidence and interest in math, more initiative taken in doing math homework, and more enthusiasm for school in general. Eight of the parents favored continuing the conferences, two were indifferent, and one opposed continuing the program.

Discussion

Several conclusions are evident from the analysis of the data concerning changes in student achievement levels. First, the field test does provide evidence consistent with the research reported earlier in this chapter that conferences and goal setting together increase the rate of skill attainment. Despite a lack of uniformity in the conditions of the study in the three schools, there were positive and rather dramatic gains, in all cases, in the periods when conferences and goal setting occurred. Moreover, since large gains occurred at Franklin when only goal setting was added to a program which already included conferences, it would appear that both ingredients are necessary; certainly goal setting contributes to the effectiveness of the conference program. Second, it would appear that these positive results occur for a variety of age groups and a variety of different subject-matter areas. Children from age 7 to 12 participated in the program and set goals in arithmetic, work attack, and vocabulary.

In all schools, rate of attainment of pupils for whom conferences were discontinued after eight weeks remained high in relation to the preconference, or baseline, period. However, most pupils who discontinued conferences tended to attain not quite as many objectives as did those who continued. For two of the three schools, the strong effect of the program was at least maintained for pupils continuing conferences during the last period. In one school there was some dissipation of the initial effect, but performance did not regress to the baseline level. One might conclude from the study of long-term effects that, while continuation of conferences is beneficial, greater impact would be achieved by rotating the pupils exposed to the program. In other words, instead of continuing conferences for a few pupils over a long period of time, all or most of the original group might be dropped from the program at midyear or some other breaking point, and new pupil participants selected. This recommendation takes into account two facts: (a) that results are achieved relatively quickly and maintained at a satisfactory level even when conferences are discontinued, and (b) that limited resources are available to carry out the program in most schools.

Parents' perceptions of the effectiveness of the program were generally favorable. Many noticed positive changes in the attitude of their child toward school in general or toward the subjects which were discussed in the conferences.

In conclusion, the controlled experiments on goal-setting and the results of the field test indicate that, when properly implemented, short,

individual goal-setting conferences involving the teacher and student can yield dramatic increases in the student's subject-matter achievement. Guidelines for proper implementation, contained in the multimedia package for this motivational-instructional procedure, were all derived from the research reported in this chapter and include the following: (1) Children must receive instruction in setting realistic goals which they can expect to attain. (2) Children must then set their own goals, which should be specific rather than general in nature. (3) Children must receive feedback on their attainment of the goals they set.

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355 (Part 2 of 2 Parts)

effectiveness of individually guided motivation: a summary of the empirical evidence

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WISCONSIN RESEARCH
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CENTER FOR
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EFFECTIVENESS OF INDIVIDUALLY GUIDED MOTIVATION: A SUMMARY OF THE EMPIRICAL EVIDENCE

Edited by

Elizabeth Schwenn Ghatala

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WISCONSIN RESEARCH AND DEVELOPMENT CENTER FOR COGNITIVE LEARNING

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

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PURPOSE AND ORGANIZATION OF THIS REPORT

During the course of development of the system of Individually Guided Motivation (IGM), many research and evaluation studies have been carried out at the Wisconsin Research and Development Center for Cognitive Learning. Controlled experiments and other studies in school settings in the area of motivation have been contributed by the project staff of the principal investigator, Herbert J. Klausmeier; these contributors include Patricia Allen, Carma Averhart, James Berry, Doris Cook, Dorothy Frayer, John Gaa, Elizabeth Ghatala, Jan Jet[illegible], Barbara Kennedy, Peter Lamal, Richard Marliave, Nancy Nelson, Juanita Sorenson, and James Wardrop. Evaluation specialists, including Thomas Fischbach, W. D. Hubbard, Conrad Katzenmeyer, Mary Quilling, Deborah Stewart, and Nancy Zajano, have carried out the evaluation studies on IGM with cooperation from the project staff and school personnel. The purpose of the present effort is to bring together, in a systematic way, the empirical evidence pertaining to the effectiveness of IGM. This report, then, is intended for those who wish to become acquainted in some depth with the research on IGM, but who do not wish to read the numerous related Technical Reports in their entirety. Embodied in this report are edited excerpts from the most relevant of these research documents which have been issued by the Center since 1968, organized and placed in a context which provides a coherent picture of the evidence upon which IGM is based. A bibliography of Center research related to IGM is included at the end of this report.

The present effort is not intended as a guide for implementing any of the motivational procedures of IGM, nor is it intended to provide a comprehensive description of the IGM system. These types of information can best be obtained from the materials which have been shaped by the research reported herein. Current IGM materials are described in Chapter I, which also provides an overview of the IGM system. Chapter II outlines the results of research on the effectiveness of IGM materials with teachers and other school personnel responsible for implementing the system. The next four chapters report and summarize research findings regarding the effectiveness of the motivational procedures with students of different characteristics. The final chapter provides a summary.

V

EFFECTS OF GROUP CONFERENCES ON CHILDREN'S SELF-DIRECTED PROSOCIAL BEHAVIOR

During 1968-69, a controlled experiment was undertaken to assess factors related to the effectiveness of group conferences in improving children's self-directed prosocial behavior. The information resulting from this experiment was incorporated into the multimedia materials for this motivational-instructional procedure, and a field test of these materials was carried out during 1971-72. The results of that field test which pertain to adults' reactions to the materials were reported in Chapter II. In this chapter, the effects of the group conference procedure on children's behavior are examined.

CONTROLLED EXPERIMENT ON GROUP CONFERENCES TO DEVELOP SELF-DIRECTED PROSOCIAL BEHAVIORS

BY JUANITA S. SORENSON, ELIZABETH SCHWENN, AND JAMES BAVRY[1]

The staff of an entire elementary school participated in this experiment, which tested the effectiveness of procedures similar to those outlined for the group conferences in Chapters I and II. One purpose of the experiment was to compare the effects of conferring with children individually, in small groups of three or four, and in medium-sized groups of six or eight.

Participating Students

The elementary school in which the experiment was conducted drew from the lowest socioeconomic area of a Wisconsin city with a population of about 60,000. Approximately 35 percent of the 628 children participating qualified as disadvantaged under provisions of the Elementary and Secondary Education Act of 1965. The school was organized into five I & R units, and children from all units (spanning Grades K through 6) participated.

Research Design

Before being assigned to the various conference groups or the control group, all students rated themselves on the set of 20 behaviors listed in

[1] This section is an abstract of the research report by Sorenson et al., 1970.

Table 31. As the chart shows, the students assessed themselves on various behaviors on a scale ranging from "You almost always have to be told to do the job" to "You almost always do the job yourself." Neither the students nor the teachers saw these initial self-assessment sheets during the experimental period.

Teachers in each I & R unit--at least two teachers in the smallest units and three teachers in the larger units--independently assessed each child on the same 20 behaviors on which the students had evaluated themselves. The ratings of the teachers were then averaged for each behavior to obtain the final value designated for each child on the teacher assessment form. Teacher assessment forms were filed in the central office, and they too were not accessible during the experimental period.

Within each I & R unit, all students were randomly assigned, in approximately equal numbers, to one of four conditions: (a) a control group which received no conferences, (b) a treatment group which received individual, or one-to-one, conferences, (c) a treatment group in which the children participated in small-group conferences having three to four students, and (d) a treatment group in which children participated in medium-group conferences having six to eight students. All conferences within an I & R unit were conducted by teachers from that unit. Each teacher carried out individual conferences with six to eight students, two small-group conferences with three or four students, and one medium-group conference with six to eight students. At the end of the experimental period, each student again rated himself on the 20 behaviors and the teachers independently rated each student.

Conference Procedures

The control group did not receive conferences; however, they received regular instruction in the same groups with the children who had conferences. At times they were in the same rooms where the conferences were held. No effort was made to keep the conference students from showing their self-assessment sheets to control group children or to keep the conference students from discussing the conferences with those in the control group.

At the first conference, regardless of the size of the group, each student received a second unmarked copy of the student assessment sheet (Table 31), to be used as his goal-setting sheet. During the conferences, the students were encouraged by the teacher to discuss the behaviors listed on the sheet. The teacher endeavored to get the children to define the meaning of each of the behaviors through recalling or identifying everyday instances of the behavior. Each child was then encouraged to select a behavior, or group of similar behaviors, that he wanted to develop between conferences. The child checked where he presently ranked on that behavior and then set a goal for himself, placing another check beside the behavior to indicate the rating he would strive to attain by the next conference. At each succeeding conference, the child reported on the progress he had made toward his goal and filled out another assessment sheet. Thus, the

TABLE 31

CHECKLIST FOR STUDENT SELF-RATING OF PROSOCIAL BEHAVIORS

Name _____ Sex _____ Age _____ Date _____

Directions

Put an X under column 1 if you almost always have to be told to do the job.
Put an X under column 2 if you usually have to be told to do the job.
Put an X under column 3 if you sometimes do the job yourself and sometimes have to be told to do the job.
Put an X under column 4 if you usually do the job yourself.
Put an X under column 5 if you almost always do the job yourself.

	1	2	3	4	5
1. I listen to the teacher.					
2. I begin schoolwork right away.					
3. I correct mistakes.					
4. I work until the job is finished.					
5. I work when the teacher has left the room.					
6. If I make mistakes, I still keep working.					
7. I work on learning activities in free time.					
8. I get to class on time.					
9. I do extra schoolwork.					
10. I do my share in class projects.					
11. I read during free time.					
12. I ask questions about schoolwork.					
13. I have pencil, paper, and books ready when they are needed.					
14. I move quietly to and from my classes.					
15. I listen to the ideas of others.					
16. I help my classmates.					
17. I pick up when the work is finished.					
18. I take care of my clothing, books, and other things.					
19. I take care of the school's books, desks, and other things.					
20. I follow directions.					

goal setting was largely self-directed, with assistance from the teacher only on procedural matters. Not only did the children set their own goals, but they assessed their own progress in achieving their goals.

Throughout the conferences the teachers attempted to be nondirective. They let each child set his own goal and accepted the child's report of progress toward that goal. The main job of the teacher was to ensure that, through discussion, the children understood the reasons for each behavior and possible consequences of the behavior. In conducting the conferences, the adults attempted to accept the children's responses and rework them to get at real problems. The sincerity of the child's responses was never doubted overtly.

Within the small- and medium-sized groups, the adults attempted to maintain a mood of cooperativeness rather than competitiveness. The children were encouraged to listen to each other's ideas, particularly the reasons for and consequences of behaviors, and to build each other up rather than to criticize.

The motivational principles used with individuals and groups included focusing attention, reasoning, goal setting, feedback, and reinforcement. Attention was focused on specific behaviors by the behavior checklists and by the teacher-guided discussion. Reasoning was involved in two ways. The adult attempted to elicit from the children their reasons for working toward manifesting the behaviors, and the children discussed with one another and with the adult the possible consequences of their own behavior in various situations. In the group conferences, the adult tried to guide the children to a consensus about the relative importance of the behaviors to the individual and to the school as a whole. That is, the adult, in a nondirective fashion, aided the children in verbalizing and conceptualizing the reasons underlying their own behavior.

The goal-setting procedures using the checklist as previously described were followed regularly. At each session, then, every child checked one or more goals that he would try to attain by the next meeting.

Feedback was provided periodically by the adults to each child. The adult kept a conference comment card for each child, so that progress and problems could be noted. The feedback consisted of telling the child how many goals he had attained and how, in general, he was succeeding in developing the behaviors listed on his sheet.

Reinforcement was administered by the adult whenever a child showed progress toward his goal. This reinforcement consisted of praise during the conference and during regular instruction outside the conference. In the group conferences, not only were children directly reinforced but they also observed others being reinforced for attaining goals.

All children participated in four conferences. These were held during regular school hours, usually as part of the regular social studies instruction. Actual hours of the day during which conferences were held depended on unit programming. Usually each unit staff scheduled their conferences at the beginning of a week. The medium- and small-group conferences lasted about 20 minutes; the individual conferences were about 15 minutes.

Results

Pre- and postassessments of the 20 behaviors by both students and teachers were available for each student. In addition, the student goal-setting sheets (four for each student) and the teacher comment cards (one for each student) were also collected. One month after the completion of the experiment, a structured interview was held with the principal and unit leaders to obtain their evaluation of the project. The average pre- and postassessment ratings of the 20 behaviors by both students and teachers are given in Figure 9 for the four groups.

The ratings of both the students and the teachers increased markedly. It is interesting to note, however, that the students rated themselves higher than did the teachers; this discrepancy between teacher and student ratings was true for all units. The conclusions that follow are based on the information from all the units, as given in Figure 9. An analysis of variance with orthogonal contrasts among groups was carried out on the data. Probability of a Type I error was set at .05.

1. The gains from pre- to postassessment for the combined student and teacher ratings (i.e., teacher gain score and student gain score) were statistically significant. Moreover, they were large enough to be of great practical significance. Children in the no-conference control group gained significantly less than children in the three conference groups combined; children in the small- and medium-conference groups gained significantly less than children in individual conferences. The average gains for the four conditions were: control, 16.4; individual conference, 21.2; small-group conferences, 16.2; and medium-group conferences, 18.8.

2. The average gains computed from only the student self-assessments were: control, 4.7; individual, 7.7; small group, 4.4; medium group, 5.8. The gain for the individual conferences was significantly higher than for the other types of conferences, which did not differ much from one another. Students participating in the small-group conferences had a mean gain lower than that of any other condition, including the control.

3. The average gains computed from only the teacher ratings of the students' prosocial behaviors were: control, 11.7; individual, 13.5; small group, 11.7; medium group, 12.9. Again, of the three types of conferences, the individual conference was highest and the small-group conference lowest.

4. The students consistently rated their prosocial behaviors higher than the teachers rated them, the difference being highly significant. At the end of the experimental period the teachers' ratings had increased markedly, although the students' ratings were still higher than the teachers' ratings. The average change for the teachers' ratings of the students from the beginning to the end of the experiment was about 12; the average change in the students' ratings of themselves was about 6.

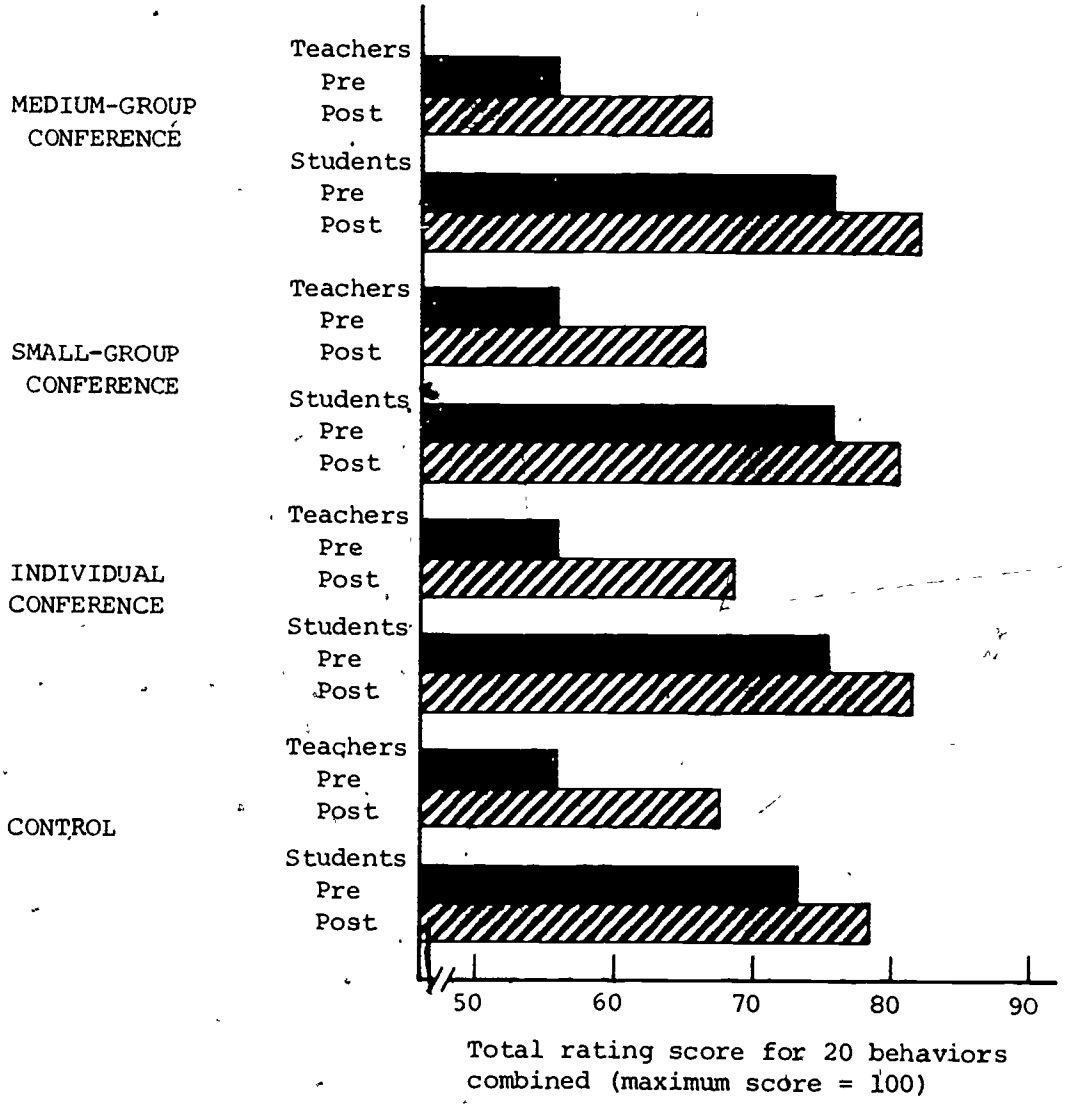

Figure 9. Average pre- and postassessment ratings of prosocial behaviors by teachers and students (summed across units).

At the end of the project, the unit leaders and principal responded to five questions during a structured interview. Among the comments made by the unit leaders were:

The children became much more aware of their behaviors, which before the project had never been discussed except when a child had done something wrong. The project focused on everyone's behavior--good or bad--but from a positive viewpoint.

Children with specific behavior problems improved noticeably during the project period and the informal conferences encouraged children to mention home conditions that teachers were not familiar with. This information was helpful to teachers in planning the child's educational program.

Children with a poor self-image gained the most from the conferences. Although the project period was too short to observe any carryover into academic work, Learning Center activities had less disturbance, less "goofing off," and more self-direction.

Teachers preferred the medium-sized group of six to eight students, from the standpoint of economy of time and lively group interaction. Leadership emerged in groups as the conferences proceeded. The students also expressed a preference for group conferences. However, teachers felt that individual conferences might be more effective with certain types of children. Teachers felt that control-group children benefited indirectly from the conference program; they felt that children in the control group became caught up in the general spirit of the experiment, since they were part of the same instructional group.

All the teachers were enthusiastic about the conferences for the intermediate-age children, feeling they encouraged the idea of working together toward "more of a family situation . . . talking freely about behaviors." A few of the teachers who worked with the intermediate-age children had had previous instruction and experience in this type of approach; others felt they would gain from more instruction in the technique.

The principal indicated that the conferences and the behavioral assessment sheets provided the teachers with a framework for viewing student behaviors positively. That is, instead of concentrating primarily on instances of misconduct by students, the teachers were encouraged to focus on positive behavior. Thus, the principal considered the greatest effect of the experiment to be in changing the direction of the teachers' thinking about student conduct. The fact that teacher ratings showed greater changes than student ratings during the experimental period supports this observation.

Discussion

It appears that the techniques utilized in the conferences were effective in helping children to improve their self-directed prosocial behavior. These techniques include: focusing attention on behavior; reasoning with children to help them understand what is meant by certain behaviors and to help them realize the consequences of their behavior

for themselves and others; guiding children in setting goals for improving their behavior; providing positive models for imitation; and providing feedback and reinforcement. It should be noted that one-to-one conferences were most effective, followed by medium-sized conferences of six to eight students. For the sake of economy of staff time and effort, it was decided to develop multimedia educational materials for group conferences of six to eight students. Also it was felt, on the basis of teacher comments, that the group interaction aspect of the procedure was more beneficial, since teachers could play a nondirective role with a group more easily than with an individual child. Since a major objective of this motivational procedure is to increase children's self-directiveness, the group conference was considered more appropriate for this end than the individual conference. Building upon information gathered in the experiment, prototype instructional materials--including a practical paper and a video tape--were developed so that teachers in other schools could implement the group conferences. The results of the field test of the materials for the pupil target group are reported in the following section.

EFFECTS OF GROUP CONFERENCES ON CHILDREN: FIELD TEST RESULTS

BY W. DONALD HUBBARD AND NANCY ZAJANO[2]

Participating Students

Eight Wisconsin multiunit schools were included in the field test. The majority of students in these schools were white and middle-class. Three schools were located in towns with fewer than 3,000 people, four were in towns with populations between 30,000 and 60,000, and one was located in a city of 173,000.

A total of 2,067 pupils and 99 teachers were involved in the field test. Six of the eight field-test schools included primary-age children in the program. More specific information regarding the number and age levels of the pupils within each participating unit, and the number of pupils involved in group conferences, is given in Table 32. Although the Franklin School is organized into two separate units--9 to 10 year olds and 10 to 11 year olds--the data from these two units were collapsed in order to form a unit that was more similar, in terms of age, to units in the other schools.

Objectives for Pupil Target Group

In Chapter II, the objectives of the group conference procedure for the adult target group were outlined, and data pertaining to achievement of those objectives were presented. In general, it was concluded that adults in the eight schools implemented the program more or less according to guidelines in the inservice materials. Given that the objectives for the adult target group were reached to some minimal degree,

[2] This section is an abstract of sections of the document by Hubbard & Zajano, 1973.

TABLE 32

GROUP CONFERENCES FIELD TEST POPULATION

School	Age/Grade Level of Units	No. of Students Total	No. of Students Conferees	No. of Teachers (Including Unit Leaders) Total
Franklin (Appleton)	Total*	195	118	6
Black Earth	K,1,2	101	0	6
	3,4	106	83	5
	5,6	112	0**	5
Galesville	Gr. 1,2,3	121	57	8
	4,5,6	203	150	6
Chegwin (Fond du Lac)	Gr. 2	60	9	3
	3,4,	102	20	5
	5,6	127	29	6
Huegel (Madison)	5,6,7 yrs.	118	8	5
	7,8,9 yrs.	64	14	3
	9,10,11 yrs.	93	22	4
McKinley (Manitowoc)	Gr. 3,4	74	39	3
	5,6	172	75	6
Stangel (Manitowoc)	7,8 yrs.	175	43	7
	11,12 yrs.	160	50	5
Port Edwards	Gr. 1,2	116	113	6
	3,4	145	115	6
	5,6	131	99	5
TOTAL	19 units	2067	1044	99

*Two units; data collapsed.
**Conferences conducted, data unavailable.

the objectives for the pupil target group could be assessed. The objectives for the latter target group, stated as questions to be answered by the field test, were:

1. Does the incidence of identified prosocial behaviors increase for students involved in the group conference procedure?

2. Do students involved in group conferences perceive an increased incidence of their prosocial behavior?

3. Do students continue to exhibit the identified prosocial behaviors, after the conferences are discontinued, at a level higher than the baseline level?

Procedures and Pupil Assessment

The implementation of the conferences at each of the schools was described, in some detail, in Chapter II and will be only briefly summarized here. Each school identified the prosocial behaviors it considered most important and stated these in the form of a checklist. These checklists varied in length and substance from school to school and between units in schools. Five schools chose to have different checklists for each of their units, while the remaining schools had one schoolwide checklist. In addition to the checklist, each school identified its criteria for selecting children to participate in the conferences. The teachers attended inservice sessions where they studied Center-developed materials covering the motivational principles of focusing attention, reasoning, modeling, goal setting, feedback, and reinforcement to be used in the conferences and the planning and organizational requisites for implementation.

The teachers at each school then collected baseline information by giving each child a rating on each behavior on the checklist. These ratings took the form of a 3, 4, or 5 point scale, corresponding to a range of "never" to "always." A typical checklist included three ratings: "seldom," "sometimes," and "usually." In four schools, each child was rated by one teacher, while in the remaining four schools, several teachers rated each child or reviewed the ratings given by another teacher. In addition, in all but one of the 19 units the pupils rated themselves on each behavior on the checklist.

Using the group formation guidelines and the baseline ratings, school personnel selected children to participate in the group conferences, with each conference focusing on one behavior. All schools had begun holding conferences by November 30, 1971.

The descriptive characteristics of the group conferences are contained in Table 33. A total of 243 conference groups were formed in the 18 units for which data were available. The range in the number of conference groups per unit was extensive, going from one group to 44 groups. On the average, the conference groups contained between six and seven members and met two or three times. The smallest group size

TABLE 33

DESCRIPTIVE CHARACTERISTICS OF THE GROUP CONFERENCES HELD IN FIELD TEST SCHOOLS

School	Age/Grade Level to Unit	No. of Conference Groups	Mean No. of Students Per Conference Group	Mean No. of Conference Meetings
Franklin	Total	44	6.6	2.0
Black Earth	K,1,2	0	---	---
	3,4	18	6.1	2.4
	5,6	0*	---	---
Galesville	Gr. 1,2,3	13	5.5	2.5
	Gr. 4,5,6	32	7.2	2.9
	Both units	5	6.2	2.6
Chegwin	Gr. 2	4	3.2	3.2
	3,4	4	7.2	2.5
	5,6	7	5.6	3.1
Huegel	5,6,7 Yrs.	1	8	2
	7,8,9 Yrs.	3	5	2
	9,10,11 Yrs.	5	5.6	2.8
McKinley	Gr. 3,4	6	7.3	3.8
	5,6	14	5.8	2.7
Stangel	7,8 Yrs.	9	5.8	2.4
	11,12 Yrs.	10	5.8	2.9
Port Edwards	Gr. 1,2	25	7.3	2.9
	3,4	27	7.4	2.7
	5,6	16	6.7	2.4
		243	6.5	2.6

*Groups formed; data unavailable.

TABLE 34

RATINGS OF FIELD TEST FACULTIES ON NINE ITEMS RELATED TO IMPLEMENTATION

Requisite	School: Franklin	Black Earth	Galesville	Chegwin	Huegel	McKinley	Stangel	Port Edwards	Mean
Mastery of the knowledge of the theory, principles, and methods of group conferences.	-	-	5	3	3	-	2	4	3.2
Attendance by all participating faculty at an in-service program which consists of three to four hours of training, including conference simulation.	4	3	4	3	4	4	5	5	4.0
Development of behavior checklist to meet local criteria for prosocial behavior.	5	5	5	5	5	5	5	5	5.0
Collection by the teachers of baseline behavioral ratings on all students.	5	3	4	4	4	5	4	5	4.2
Selection of students for conferences on the basis of a broad range of behavior patterns.	5	3	5	3	2	4	3	5	3.8
Maintenance of a regular conference schedule, with regular assignments of personnel.	3	2	5	3	2	5	5	5	3.6
Establishment of conference sites with a fair degree of privacy.	5	3	4	5	3	5	-	-	4.2
Maintenance of current records concerning conference attendance and conference results.	5	2	5	3	2	4	3	5	3.6
Utilization of motivational principles as described in the practical paper.	2	5	4	4	3	5	-	-	3.8
Mean	4.2	3.3	4.6	3.7	3.1	4.6	3.9	4.9	4.0
Standard Deviation	1.11	1.09	.53	.82	.99	.48	1.12	.35	1.05

Note: Ratings are on a scale from 1 to 5.

was two, while the largest group size was ten. A few conference groups met only once, while a few other groups met four times. The duration of the group meetings averaged 19.5 minutes for initial conferences and 14.8 minutes for follow-up conferences. The shortest meeting was 6 minutes long, while the longest meeting was 40 minutes.

In order to keep track of which children were in conferences, what behavior they discussed, and whether they attained their goals, a Group Conference Record was kept by 18 of the 19 participating units. For the purpose of the field test, conferences were scheduled to end during February 1972. At this time a postassessment was completed by teachers and pupils. Each pupil was rated on each behavior on the checklist.

Between 6 and 11 weeks after the last conference was held at each school, a 30 percent sample of the pupils in the field test again rated themselves and were rated by teachers on the behavior checklist. These ratings served as a retention check of the prosocial behaviors acquired during the conference period.

Results

Before data relating to each of the questions listed earlier are presented, it should be pointed out that the effectiveness of a procedure is dependent on the degree to which it is implemented according to the guidelines of the developers. As revealed in Chapter II, there was variability among schools in the effectiveness with which adults implemented the group conference program. Thus, the effect of the procedure on children should be viewed as a function of the level of implementation by adults in each school. An index of the degree of successful implementation was obtained by rating the participating adults in each school on nine items related to an effective implementation. Table 34 contains the ratings of the eight faculties.

The primary purpose of obtaining data on the degree of implementation was to study its relationship to the effectiveness of the procedure on the pupil target population. A secondary purpose was also present. Although a single procedure was implemented in all the schools, each school established its own objectives for its pupils. In fact, in all but three schools the behavior checklists were devised on a unit-by-unit basis. Thus, there is no single factor by which to evaluate the effectiveness of the procedure on the pupil target population as a whole. The field test may be more accurately described as a set of relatively independent studies of the procedure. In order to gauge the effectiveness of the procedure in general and at the same time to avoid an inflated significance level, it was necessary to divide the accepted α level, .05, among the several studies. The data on the degree of implementation provided a mechanism for dividing the α level in a manner that reflected an expectation for positive results.

The .05 α level was divided in such a way that the school/unit with the higher levels of implementation received the higher α values. Thus, if a school/unit obtained a higher level of implementation, the probability was greater that its effectiveness with its pupils would be attributed to the procedure. This condition guarded against the converse situation--

that effectiveness of a school/unit would be related to a procedure that was implemented at a relatively low level.

Table 35 contains a roster of the schools and units by their level of implementation. Also listed are their composite implementation rating and assigned α value. Galesville and Chegwin each used schoolwide behavior checklists. This permitted a schoolwide evaluation of the pupil target population in these schools. Note that the total α value is less than .05. Should any school/unit yield a significant effect and should the other yield positive results, then it can be said with 95 percent confidence that the program yields an effect greater than zero. In the following discussions, we will examine data pertaining to increased incidence of prosocial behavior as a result of conferences, pupils' perception of their behavior, and duration of the effects of the conferences.

Incidence of identified prosocial behaviors. Two levels of analysis were utilized to provide information on incidence of prosocial behaviors. First, a comparison was made of pre- and postconference teacher ratings of all the behaviors on the school/unit checklist for each child participating in the conferences. This analysis was aimed at ascertaining the effect of conferences in increasing prosocial behavior in general. Table 36 shows the mean gain scores by level of implementation for the school/units. None of the school/units attained the level of significance set for their level of implementation. Moreover, when mean gains of conferees on all behaviors were compared with gains made by nonconferees, the results were equivocal--some comparisons favored the conferees, others the nonconferees. It should be noted that nonconferees were considerably higher on preconference ratings of the behaviors contained in the behavior checklists of all schools/units. Thus for the purpose of comparing the two groups, regression analyses were used to control for this discrepancy.

The second level of analysis of the incidence of prosocial behavior was specifically related to increases in those prosocial behaviors which were actually discussed in the conferences. Table 37 contains the mean gain scores of the conferees on the conferred behaviors. The standard deviations, school/unit sizes, and probabilities that the mean gain scores equal zero are also included.

There is very strong evidence that the conferees attained increased incidence of the prosocial behaviors that were discussed in their group conferences. All of the mean gain scores are positive, and nine of them attain the significance level set for their level of implementation.

There is also some evidence that the school/units in the lowest level of implementation were not as effective in this regard as the school/units in the other levels of implementation. This is not a conclusive result, however, because there were some exceptions and the lower numbers of conferees in the lowest implementation level affected the probabilities of relatively high mean gains.

To put the results shown in Table 37 in better perspective, an analysis was performed that used the incidence of the conferred behaviors for the nonconferees. The analysis was performed by studying the relationship between the nonconferees' preconference levels of incidence of the conferred behaviors and their postconference levels of incidence of the same behaviors. On the basis of this relationship,

TABLE 35

ROSTER OF FIELD TEST SCHOOLS BY LEVEL OF IMPLEMENTATION WITH IMPLEMENTATION RATINGS AND α VALUES

Level of Implementation	School/Unit		Implementation Rating	α Value
4	Port Edwards	G 1,2	4.9	.007
		G 3,4	4.9	.007
		G 5,6	4.9	.007
3	*Galesville	Total	4.6	.006
3	McKinley	G 3,4	4.6	.006
		G 5,6	4.6	.006
2	*Franklin	Total	4.2	.001
2	Stangel	7,8 Y	3.9	.001
		11,12 Y	3.9	.001
2	*Chegwin	Total	3.9	.001
1	Black Earth	G 3,4	3.3	.0005
1	Huegel	5,6,7 Y	3.1	.0005
		7,8,9 Y	3.1	.0005
		9,10,11 Y	3.1	.0005

*One schoolwide checklist used.

TABLE 36

MEAN GAINS FOR THE CONFEREES ON TEACHER RATINGS OF ALL BEHAVIORS BY IMPLEMENTATION LEVEL FOR EACH SCHOOL/UNIT (STANDARD DEVIATION AND PROBABILITIES INCLUDED)

Level	School/Unit		N*	Mean Gain	Standard Deviation	Probability**
4	Port Edwards	G 1,2	113	-.04	.59	.25
		G 3,4	115	.16	.64	.008
		G 5,6	32	-.05	.66	.67
3	Galesville	Total	207	.14	.77	.009
	McKinley	G 3,4	39	.09	.69	.42
		G 5,6	75	.00	.69	1.00
2	Franklin	Total	118	.15	.71	.02
	Stangel	7,8 Y	43	.21	.74	.07
		11,12 Y	50	.31	.70	.003
	Chegwin	Total	58	-.07	1.03	.61
1	Black Earth	G 3,4	83	-.16	.61	.02
	Huegel	5,6,7 Y	8	.30	.56	.17
		7,8,9 Y	14	.21	.73	.30
		9,10,11 Y	22	.51	.74	.004

*Number of conferred behavior ratings.
**Mean gain equals zero.

TABLE 37

MEAN GAINS FOR THE CONFEREES ON TEACHER RATINGS OF THE CONFERRED BEHAVIORS BY LEVEL OF IMPLEMENTATION FOR EACH SCHOOL/UNIT (STANDARD DEVIATION AND PROBABILITIES INCLUDED)

Level	School/Unit		N*	Mean Gain	Standard Deviation	Probability**
4	Port Edwards	G 1,2	169	.20	.61	3.3×10^{-5}
		G 3,4	200	.57	.70	7.0×10^{-24}
		G 5,6	103	.26	.67	1.5×10^{-4}
3	Galesville	Total	195	.45	.89	2.9×10^{-11}
	McKinley	G 3,4	34	.09	.62	.40
		G 5,6	60	.42	.74	5.5×10^{-5}
2	Franklin	9,10,11 Y	260	.27	.73	1.1×10^{-8}
	Stangel	7,8 Y	43	.49	.77	1.8×10^{-4}
		11,12 Y	39	.77	.58	3.9×10^{-10}
	Chegwin	Total	54	.04	.94	.74
1	Black Earth	G 3,4	84	.04	.65	.58
	Huegel	5,6,7 Y	8	1.25	.71	1.1×10^{-3}
		7,8,9 Y	14	.35	.84	.14
		9,10,11 Y	27	1.15	.53	1.0×10^{-11}

*Number of conferred behavior ratings.
**Mean gain equals zero.

prediction formulas were computed and used to determine an expected level of incidence for the conferees. The differences between the expected levels and the observed levels provided a basis for comparing the conferees with the nonconferees. Table 38 contains the mean differences between the observed and expected levels of incidence of conferred prosocial behaviors. Standard deviations, number of behaviors, and probabilities that the mean differences equal zero are included.

No comparison contained in Table 38 approaches the level of significance for its level of implementation; that is, the groups cannot be distinguished. Considering the fact that the nonconferees were considerably higher on preconference ratings of conferred behaviors, the fact that there was no significant difference between the groups following the conferences indicates that the conferences reduced the differences between them. In summary, it can be concluded that the conference procedure increased the incidence of the prosocial behaviors which were discussed in the conferences, but did little to increase those prosocial behaviors not discussed.

Student's perception of their prosocial behavior. Students' pre- and postconference ratings of their prosocial behavior were compared for (a) all behaviors on a school/unit's checklist, and (b) those behaviors which were actually discussed in the conferences. The first comparison showed moderate increases in conferees' ratings of themselves with respect to prosocial behaviors in general. However, in only one school/unit was the preconference to postconference gain significant.

Table 39 contains the mean gains on the conferred behaviors for the conferees as seen by the students themselves. The data strongly support the conclusion that the conferees perceived an increase in those prosocial behaviors that were discussed in their group conferences. Eleven of the 13 mean gains were positive. Five of the positive gains attained the level of significance set for their levels of implementation. Although these results are not as conclusive as those obtained using the teacher ratings, they do indicate a positive effect of the procedure on student perception of their prosocial behavior. The data also support a moderate relation between the effectiveness of the procedure and the level of implementation of the school/unit.

As with the teacher ratings of conferred behaviors, an analysis was carried out to compare ratings by conferees with those of nonconferees. The nonconferee ratings on the conferred behaviors were used to compute prediction equations. The conferees' preconference ratings were then converted to expected postconference ratings. The differences between the expected ratings and the observed ratings provided a basis for comparing the conferees with the nonconferees. Table 40 contains the mean differences by level of implementation for each school/unit. Standard deviations, numbers of conferred behavior ratings, and the probabilities that the mean differences are zero are also included.

There was little difference between the observed levels of the conferred prosocial behaviors and the expected levels. None of the mean differences attained the level of significance set for the

TABLE 38

MEAN DIFFERENCES BETWEEN OBSERVED AND EXPECTED LEVELS OF TEACHER RATINGS OF INCIDENCE OF CONFERRED PROSOCIAL BEHAVIORS BY LEVEL OF IMPLEMENTATION FOR EACH SCHOOL/UNIT (STANDARD DEVIATION AND PROBABILITIES INCLUDED)

Level	School/Unit		N*	Mean Difference	Standard Deviation	Probability**
4	Port Edwards	G 1,2				
		G 3,4	203	-.16	.62	.06
		G 5,6	103	-.11	.50	.15
3	Galesville	Total	195	-.24	.88	.05
	McKinley	G 3,4	35	-.57	.63	.03
		G 5,6	60	-.53	.70	.02
2	Franklin	9,10,11 Y	261	.01	.61	.59
	Stangel	7,8 Y				
		11,12 Y				
	Chegwin	Total	54	-.33	.82	.09
1	Black Earth	G 3,4	68	-.34	.70	.05
	Huegel	5,6,7 Y	8	1.06	.79	.10
		7,8,9 Y	15	.14	.57	.35
		9,10,11 Y	27	.02	.49	.64

*Number of conferred behavior ratings.

**Mean difference equals zero.

TABLE 39

MEAN GAINS FOR THE CONFEREES ON STUDENT RATINGS OF THE CONFERRED BEHAVIORS BY LEVEL OF IMPLEMENTATION FOR EACH SCHOOL/UNIT (STANDARD DEVIATION AND PROBABILITIES INCLUDED)

Level	School/Unit		N*	Mean Gain	Standard Deviation	Probability**
4	Port Edwards	G 1,2	169	.01	.70	.85
		G 3,4	200	.25	.87	7.0×10^{-5}
		G 5,6	103	.36	1.09	1.1×10^{-3}
3	Galesville	Total	195	.45	1.33	4.3×10^{-6}
	McKinley	G 3,4	34	-.09	.79	.51
		G 5,6	60	.00	.74	1.00
2	Franklin	9,10,11 Y	260	.33	.92	2.2×10^{-8}
	Stangel	7,8 Y	43	.02	.96	.89
		11,12 Y	39	.31	.89	.03
	Chegwin	Total	54	.63	.99	1.1×10^{-5}
1	Black Earth	G 3,4	84	.25	.85	8.4×10^{-3}
	Huegel	5,6,7 Y***				
		7,8,9 Y	14	.36	.93	.17
		9,10,11 Y	27	.33	1.00	.10

*Number of conferred behavior ratings.
**Mean gain equals zero.
***No student ratings available.

TABLE 40

MEAN DIFFERENCES BETWEEN OBSERVED AND EXPECTED LEVELS OF STUDENT RATINGS OF INCIDENCE OF CONFERRED PROSOCIAL BEHAVIORS BY LEVEL OF IMPLEMENTATION FOR EACH SCHOOL/UNIT (STANDARD DEVIATION AND PROBABILITIES INCLUDED)

Level	School/Unit		N*	Mean Difference	Standard Deviation	Probability**
4	Port Edwards	G 1,2				
		G 3,4	203	-.24	.63	.02
		G 5,6	103	.20	.86	.13
3	Galesville	Total	195	-.09	1.09	.29
	McKinley	G 3,4	35	-.35	.61	.08
		G 5,6	60	-.16	.62	.16
2	Franklin	9,10,11 Y	261	.06	.69	.25
	Stangel	7,8 Y				
		11,12 Y				
	Chegwin	Total	54	-.09	.70	.35
1	Black Earth	G 3,4	68	.07	.67	.36
	Huegel	5,6,7 Y				
		7,8,9 Y	15	.20	.61	.29
		9,10,11 Y	27	.03	.73	.66

*Number of conferred behavior ratings.
**Mean difference equals zero.

particular level of implementation. This is an indication that the conferees did not perceive an increase in their prosocial behavior beyond what would be anticipated from the nonconferees' perceptions. As previously indicated, the nonconferees had a conclusive advantage over the conferees on the preconference levels of prosocial behavior. Thus, the data suggest that this advantage was reduced after the implementation of the group conference procedure.

In summary, there is some evidence that students did perceive in themselves an increased incidence of those behaviors discussed in the conferences. This perception of increased incidence did not extend to any large degree to those prosocial behaviors which were not discussed in the conferences.

Duration of conference effects. The primary question of interest was whether students continued to exhibit the identified prosocial behaviors at a level higher than the baseline level after the conferences were discontinued. Teacher and student ratings of the prosocial behaviors were collected between 6 and 11 weeks after the conferences ended. The ratings were those for a random sample of students, using the checklists developed by the local faculties.

The incidence of those prosocial behaviors that were discussed in group conferences was significantly greater than baseline level, both in terms of the teachers' ratings of the behaviors and the students' ratings. Tables 41 and 42 contain the mean gains for the conferees on the ratings for the conferred behaviors. The data reported for the teachers' ratings provide strong evidence that the increased incidence of conferred prosocial behaviors were maintained after the conferences were discontinued. Twelve of the 14 mean gains were positive, 8 mean gains attained the appropriate level of significance, and the negative mean gains were from the lower levels of implementation. The data reported for the students' ratings are not so conclusive. Nine of the 13 mean gains were positive, 2 of the mean gains attained the appropriate significance level, and 3 of the 4 nonpositive mean gains were from the lower levels of implementation. Considered together, the data in Tables 41 and 42 indicate that significant increases in the incidence of prosocial behavior were maintained after the group conferences were discontinued.

As in previous analyses of the incidence of conferred behaviors, a regression analysis was performed to effect a comparison between the conferees and the nonconferees. Expected ratings for the conferees after the conferences were discontinued were computed on the basis of the relationship between the nonconferees' preconference ratings and their ratings after the conferences were discontinued. The difference between the expected ratings and the observed ratings provided an indication of the extent of the influence of the group conference procedure on the conferees beyond a level attained by those who did not attend group conferences. Essentially the same results were obtained from these analyses as from previous ones. There was no statistically significant evidence to distinguish the nonconferee from the conferee. Thus, after the conferences were discontinued the conferees maintained their parity with the nonconferees, who, it must be remembered, were far superior to the conferees before initiation of the group conferences.

TABLE 41

MEAN GAINS FOR THE CONFEREES ON TEACHER RATINGS OF CONFERRED BEHAVIORS BY LEVEL OF IMPLEMENTATION FOLLOWING THE DISCONTINUATION OF THE CONFERENCES (STANDARD DEVIATION, GROUP SIZES, AND PROBABILITIES INCLUDED)

Level	School/Unit		N	Mean Gain	Standard Deviation	Probability
4	Port Edwards	G 1,2	39	.36	.74	2.3×10^{-3}
		G 3,4	38	.63	.63	6.1×10^{-6}
		G 5,6	22	.55	.74	1.4×10^{-3}
3	Galesville	Total	36	.55	.85	3.8×10^{-4}
	McKinley	G 3,4	9	.22	.67	.34
		G 5,6	11	.54	1.03	.11
2	Franklin	9,10,11 Y	75	.60	.74	1.1×10^{-10}
	Stangel	7,8 Y	21	.90	.76	1.4×10^{-5}
		11,12 Y	20	.80	.77	1.4×10^{-4}
	Chegwin	Total	11	-.09	1.28	.82
1	Black Earth	G 3,4	22	-.09	.68	.53
	Huegel	5,6,7 Y	4	1.50	.58	6.7×10^{-3}
		7,8,9 Y	9	.44	.88	.17
		9,10,11 Y	10	1.10	.57	1.1×10^{-4}

TABLE 42

MEAN GAINS FOR THE CONFEREES ON STUDENT RATINGS OF CONFERRED BEHAVIORS BY LEVEL OF IMPLEMENTATION FOLLOWING THE DISCONTINUATION OF THE CONFERENCES (STANDARD DEVIATION, GROUP SIZES, AND PROBABILITIES INCLUDED)

Level	School/Unit		N	Mean Gain	Standard Deviation	Probability
4	Port Edwards	G 1,2	39	.23	.74	.04
		G 3,4	38	.32	.99	.05
		G 5,6	22	.45	.91.	.03
3	Galesville	Total	36	.69	1.02	2.6×10^{-4}
	McKinley	G 3,4	9	-.22	.67	.34
		G 5,6	11	.18	.60	.34
2	Franklin	9,10,11 Y	75	.39	.94	2.1×10^{-4}
	Stangel	7,8 Y	21	-.33	1.15	.20
		11,12 Y	20	.60	1.05	.05
	Chegwin	Total	11	.36	.98	.24
1	Black Earth	G 3,4	22	.00	.76	1.00
	Huegel	5,6,7 Y	-	-	-	-
		7,8,9 Y	9	-.11	1.05	.76
		9,10,11 Y	10	.50	.85	.08

In summary, using teacher ratings on conferred prosocial behaviors for the conferees, there is strong evidence that students continue to exhibit the identified prosocial behaviors. Data from the students' own ratings of the same behaviors also support this conclusion, although to a lesser degree.

Discussion

The results of the field test related to the effectiveness of the group conferences in increasing the incidence of children's prosocial behaviors were, in general, quite favorable. Both teacher and student ratings showed an increased incidence of those prosocial behaviors discussed in the conferences. This increase was maintained after the conferences were discontinued. The increases were largely specific to those behaviors actually discussed, and showed only moderate generalization to other prosocial behaviors. The conferences were effective in eliminating differences between the initially superior nonconferees and the children selected for the conferences. Finally, there was moderate evidence that the effectiveness of the conferences with the pupil target group depended upon the level of implementation of the program achieved by the adult target group. This latter result, which is not unexpected, points to the importance of making necessary revisions of the instructional materials related to the group conference procedure, as suggested by the adult field test participants and noted in Chapter II.

VI

EFFECTS OF OLDER CHILDREN TUTORING YOUNGER CHILDREN

A controlled experiment to ascertain the effects of specified tutoring arrangements was carried out during 1966-67. The results of this initial experiment, which are reported in the first part of this chapter, were so encouraging that the tutoring procedure was subsequently incorporated as a motivational-instructional procedure in IGM. The teacher materials for tutoring were described earlier in Chapter II, along with the largely positive field test results dealing with adult implementation of the procedure and its feasibility in school settings. In the latter part of this chapter we describe the reactions of children to the tutoring procedure, when implemented by adults using the tutoring materials.

CONTROLLED EXPERIMENT WITH OLDER CHILDREN TUTORING YOUNGER CHILDREN

BY MARY R. QUILLING, DORIS M. COOK, JAMES L. WARDROP, AND HERBERT J. KLAUSMEIER[1]

Participating Students

The experiment was carried out in a multiunit school in the inner area of a large Wisconsin city. The large majority of tutors and tutees were black; the neighborhood was economically poor. Twenty-two primary school children of age six and seven were tutored individually in mathematics, each by a different sixth-grade boy or girl. The tutors came from the same neighborhood as the tutees. In the experiment there was one experimental group of 22 tutees. There were also two control groups of 17 and 18 children, respectively. A total of 57 children were enrolled in the primary unit from which the experimental and control groups were drawn.

Procedure

All 57 primary-age children received the same type of instruction in mathematics for four days of each week. A televised mathematics program, Patterns in Arithmetic, Grade 1, was used with all 57 children. Teachers gave lessons complementing the TV presentations. Many concrete objects were used in the teacher presentations. Teacher-made mimeographed worksheets supplemented the workbook which accompanied the TV series. Individual instruction was given by the teachers to pupils who

[1]This section is an edited abstract of the research report by Quilling et al., 1968.

had difficulty grasping the TV presentation. In addition to this instruction, the 22 children in the experimental group were tutored by a sixth grade tutor of the same sex. Each sixth grader spent a half hour per week with "his" tutee playing arithmetic games, manipulating concrete objects, and helping with problem solving. These sixth grade tutors also met for a half hour each week for instruction on tutoring. During these meetings they were briefed on the mathematics skills which the primary students were practicing and they learned tutoring procedures.

Design

The primary student population was stratified according to sex and randomly assigned either to the experimental group or to one of the two control groups. The sixth graders were stratified by sex and homerooms before being randomly assigned to the children to be tutored. Eleven girls and 11 boys were selected as tutors. The tutors reported to the classes of the tutees in two groups, at times which were convenient to the particular homeroom teacher. The three teachers of the primary children rotated their instructional groups at three-week intervals, so that each teacher worked with the experimental group and the two control groups twice during the second semester of the 1966-67 school year.

Before the experiment began, the primary children were administered a teacher-constructed test having a sample of items dealing with math concepts which had been presented during the first semester. At the conclusion of the experiment another teacher-made test was administered, this one measuring understanding of concepts presented during the second semester. A teacher-made questionnaire was used to measure the tutees' attitudes toward school and toward arithmetic.

The sixth grade tutors and the sixth grade children who were not tutors (control group) were given a personality inventory that yielded subscores on individualization, power, esteem, centrality, grouping, identification, dependency, and complexity.

Results

Three analyses were performed. The first examined the effect of the tutoring on the arithmetic understanding of primary children. In the second, attitudinal differences as a result of tutoring were considered. Finally, personality inventory scores on the sixth grade tutors and sixth grade children who did not tutor were compared.

An analysis of covariance was performed on the younger children's arithmetic test scores. The teacher-constructed posttest was used as the dependent variable, with the pretest as the covariate. Data for both the pretest and posttest were available for 45 children.

The analysis indicated that the tutored group performed significantly better than did the control group. This effect was significant beyond the 6 percent level of confidence. There was also a highly significant ($p < .005$) sex effect reflecting the superior achievement of the girls.

Figure 10, a graph of subgroup means on the posttest, portrays both the difference between boys' and girls' performance and the large difference favoring the experimental group.

A multivariate analysis of variance was performed on the personality scores of the sixth graders. The difference in self-concept as measured by the inventory was not significant. Analysis of the primary children's attitudes toward school, where total score indicated number of items for which a positive response was given, revealed no significant difference between the experimental and control groups.

Discussion

Since children who were tutored had a higher level of achievement than children who were not tutored, the use of sixth grade tutors was judged to be effective. Teachers noted, however, that some tutor-tutee pairs were not compatible and worked well only when the teacher was near. It should be noted that in the experiment, the older students were randomly assigned to the younger children. To avoid the possibility of negative experiences on the part of either the tutor or the tutee, the incompatible pairs might have been switched when difficulties arose. Tutoring might then have had a more positive effect on both arithmetic achievement and attitude.

In addition to providing evidence that tutoring by older children can have positive effects on the achievement of younger children, this study also indicated that more positive attitudinal effects of tutoring might be obtained if compatible tutor-tutee pairs are identified and if tutoring sessions are monitored to assure that the members of pairs continue to relate well to one another. These suggestions were incorporated into the tutoring inservice materials which were utilized in the 1972-73 field test study reported below.

EFFECTS OF TUTORING ON CHILDREN'S MOTIVATION AND ACHIEVEMENT: FIELD TEST RESULTS

BY NANCY ZAJANO AND W. DONALD HUBBARD[2]

Participating Students

Students at Victory and Thoreau, two multiunit schools located in a middle-class area of Milwaukee, participated in the field test. The adults implementing the procedure at each school determined the subject matter and the students to be involved in tutoring. Table 43 reflects these decisions. At Victory School, tutoring was done in one unit of fourth to sixth graders. All of the 31 fourth graders in Unit IV were selected as tutees because they were judged by their teachers as below their expected level on the Word Attack component of the Wisconsin Design for Reading Skill Development. At the end of the tutoring procedure, 22 of these had actually received tutoring. Twelve sixth graders were originally chosen as tutors. Two "very quiet" boys dropped out

[2]This section is an abstract of sections of the report by Zajano & Hubbard, 1975.

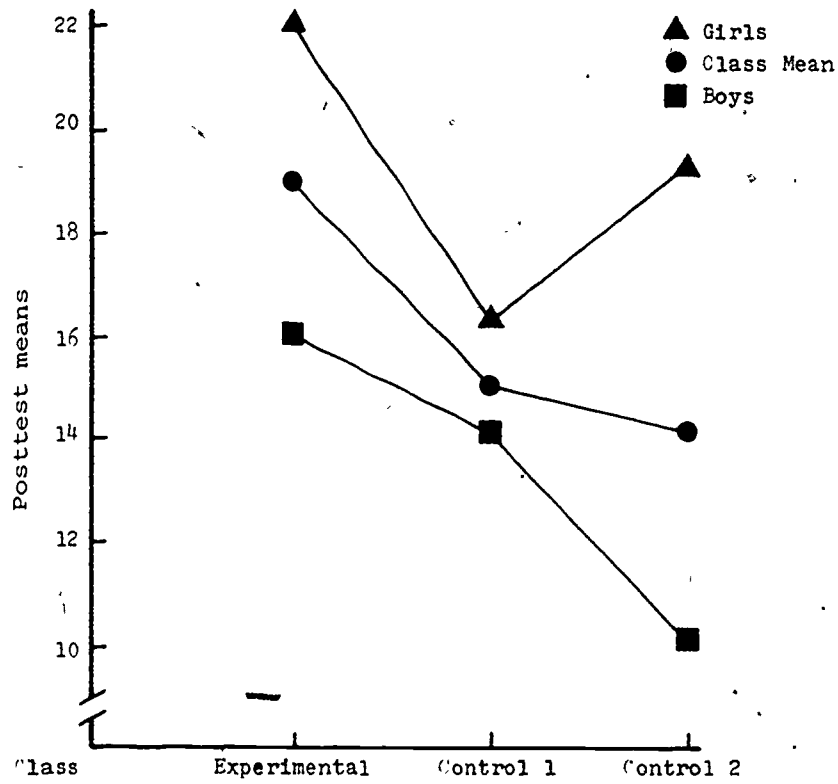

Figure 10. Posttest means for subgroups on first grade teacher-constructed test.

TABLE 43

TUTORING FIELD TEST PARTICIPANTS

School	Content Area	Unit	Age/Grade	Number of Pupils In Unit	Tutees	Comparison	Tutors	Local Coordinator	Participating Adults (including principal)
Victory									7
	Word Attack Skills	IV	9-11 4th-6th	134	22	--	10	Unit Teacher	
		III	8-9 3rd-4th	91	--	30	--	--	
Henry David Thoreau									17
	Reading	B	7 2nd	167	6	24	--	Reading Center Teacher	
	Reading	C	8-9 3rd-4th	151			6	Reading Center Teacher	
	Math				6	26		Learning Center Teacher	
	Math	D	10-11 5th-6th	146	--	--	6	Learning Center Teacher	
TOTAL				689	34	80	22		24

during the preparation period, which left a total of 10 tutors and 22 tutees for the procedure at Victory. Each tutor instructed only one tutee at a time. Because all the fourth graders in Unit IV were designated to be tutees, the fourth graders in Unit III were called upon to serve as a tutee comparison group.

At Henry David Thoreau School, teachers and pupils in three units participated. In Unit B, 30 pupils were selected as potential tutees, 6 of these were chosen randomly to become tutees, while the remaining 24 served as a comparison group. These 6 pupils were tutored in reading by 6 tutors from Unit C. In addition, the Unit C staff identified 32 pupils as potential tutees for math. Six of these were chosen randomly, with the remaining children serving as a comparison group. Unit D provided 6 math tutors for the Unit C tutees.

Design

Local procedures. The planning and implementation tasks carried out by local coordinators and staff at each school were described in detail in Chapter II (see especially Tables 12 and 13). Prototype IGM materials (Chapters one, two, and five of the book Individually Guided Motivation: Guidelines for Implementation [Klausmeier, Frayer, & Quilling, 1972] and two films) were used by adults to guide such activities as conducting a local inservice, selecting the subject-matter areas for tutoring, choosing tutees and tutors, and setting up tutoring times and places. The specific procedures which evolved from these activities at each school are described briefly.

At Victory, all the fourth graders in Unit IV were selected to be tutored on the Word Attack component of the Wisconsin Design for Reading Skill Development. Twenty-two students from this unit were eventually tutored on a total of 12 Level C skills. Each of four homeroom teachers submitted the names of sixth graders who they thought would be effective and responsible tutors. The coordinator then selected the pupils who had completed all the Word Attack skills.

All the Unit IV pupils were grouped for reading according to skill needs. Consequently, each of the four homeroom teachers had tutees in their reading-skill groups at one time or another. It was the responsibility of the skill group teacher to prepare specific tutoring activities for each tutee in his group.

Tutor preparation consisted of eight sessions, each lasting 40 minutes. A supervisor from the Milwaukee Central Office assisted by preparing five of the tutors while the coordinator prepared the other five. The format for the sessions was basically the same for all tutors. The tutoring sessions began in mid-December and were held twice a week. Each tutee participated in an average of 12 tutoring sessions, with the range extending from one session to 32 sessions. Tutoring ended in late May.

At Thoreau the areas for tutoring were reading (Unit B) and math (Unit C). Six tutees from each unit were randomly selected from a larger pool of students who showed a lack of achievement, motivation, and social skills. Twelve tutors were chosen who exhibited patience, interest, understanding, and a knowledge of the subject matter. They

were matched with their tutees on the basis of personality, sex, and race.

The tutee's homeroom teacher was responsible for preparing specific tutoring materials for the reading tutees, while the math skill group teachers had this duty for the math tutees. The two coordinators were responsible for preparing the tutors and organizing the times and places for each pair to meet.

Tutor preparation at Thoreau consisted of six sessions lasting 30 to 40 minutes. Tutoring itself started in mid-November for the math tutees and consisted of 52 sessions. The reading tutees held their first of 48 sessions in early December. The tutoring sessions were 20 to 30 minutes long, were held three times a week, and ended in early May.

Objectives and measuring instruments. A summary of the field test objectives with respect to participating students is shown in Table 44, along with the instruments and timetable for measuring each objective.

Two instruments were used to ascertain whether the tutee's motivation and self-direction increased during the tutoring procedure. Each instrument included items to assess both motivation and self-direction. The first instrument consisted of the first ten items of Table 2.2 of the prototype IGM book. It measured the pupil's "general level of motivation" by asking such questions as whether he attends to tasks, begins tasks promptly, returns to tasks voluntarily after an interruption, etc. All children in the participating units were assessed with this instrument by their homeroom teacher both before and after the tutoring procedure. In addition, the children identified as tutees and comparisons for the tutees were also assessed midway through the tutoring procedure. At Thoreau the tutees and their comparison group were also assessed immediately prior to tutoring. Consequently, four scores were available for the Thoreau tutees and their comparisons, three scores for the Victory tutees and their comparisons, and two scores were available for the remaining children in the participating units. The teachers were not always consistent about including every child on these assessments. Consequently, the number of available scores varied from assessment to assessment, especially at Victory.

The second instrument dealt with the tutee's motivation and self-direction during the tutoring session, and his attitude toward the tutored subject matter outside of the sessions. The tutor answered the first eight items dealing with the tutee's behavior during the sessions, while the tutee's teacher completed the last three items concerning the tutee's behavior outside the session. Table 5.4 from the prototype IGM book was used to provide this assessment, although its format and vocabulary were revised to make it easier for the tutor to use. This assessment was completed three times, approximating the beginning, midpoint, and end of tutoring sessions.

The instruments used to assess the tutees' skill achievement were selected by each school as a result of their choice of the tutored subject matter. At Victory, it was first thought that the Level B skills for the Word Attack component of the Wisconsin Design would be the appropriate level for tutoring. Upon completion of the criterion-referenced tests for this level, it was discovered that

TABLE 44

SUMMARY OF THE TUTORING FIELD TEST OBJECTIVES, INSTRUMENTATION, AND TIMETABLE

Objective	Instrument	Population	Timetable
PROCEDURE:			
1. The tutee increases his motivation and self-direction	Table 2.2 (first 10 items)	All students in participating units	Victory: Baseline, End-tutoring Thoreau: Prebaseline, End-tutoring
		Tutees and comparison group	Victory: Baseline, Mid-tutoring, End-tutoring Thoreau: Prebaseline, Baseline, Mid-tutoring, End-tutoring
	Table 5.4	Tutees	Beginning, Mid- and End-tutoring
2. The tutee increases his skill achievement in the subject matter of the tutoring sessions	Criterion-referenced or diagnostic tests	Tutees and comparison group	Victory: Baseline, Mid-tutoring End-tutoring Thoreau: Prebaseline, Baseline, Mid-tutoring, End-tutoring
3. The tutor demonstrates his ability to conduct tutoring sessions	Table 5.2	50% random sample of tutors	Completed self-evaluation forms at 7-week intervals
		Two to four tutors	Observed by Center staff during each of three visits

Note: The tables referred to in the second column appeared in the IGM book.

all the potential tutees had mastered this level. Because of the need to reassess at a higher level and because of the time consumed in this process, the original plan of having a prebaseline assessment was discarded for Victory. A baseline score was then obtained on the Level C Wisconsin Tests of Reading Skill Development: Word Attack, for both the potential tutees and their comparison group. Mid-tutoring and end-tutoring scores were also gathered.

At Thoreau, a prebaseline and a baseline assessment were accomplished for both reading and math tutees and their comparison groups. The reading coordinator developed her own test of 10 reading skills, borrowing items from various standardized tests as well as devising some of her own. The math tutees were assessed on the diagnostic tests accompanying Books 2 and 3 of the Addison-Wesley Elementary School Mathematics Program, currently in use at Thoreau. Mid-tutoring and end-tutoring assessments were also made.

To evaluate the tutors' performance, a different 50 percent random sample of tutors completed a self-evaluation form at seven-week intervals during the procedure. Table 5.2 in the IGM book listed 17 specific tasks to be accomplished by the tutors. This table was used both for self-evaluation and for evaluation by a Center staff member who observed tutors during three visits to each field test school.

Results

Tutees' general level of motivation and self-direction. Each item on the instrument for measuring students' general level of motivation and self-direction provided a three-point scale on which teachers rated the degree to which students demonstrated such behavior as "attends to learning tasks." Thus, the students' average scores on this instrument ranged from 1 to 3. The data provided by this scale of general motivation and self-direction were analyzed separately by school in a number of ways. The mean scores for the tutees were first considered over time. They were then contrasted with those of the comparison group, and with those of the remaining students in the participating units. Finally, as a sidelight, the tutors' scores were compared to those of the tutees and the others in the units.

The results for this measure at Thoreau were clear: (1) there was, basically, no consistent change in the tutees' (including both math and reading tutees) level of motivation during the course of the tutoring procedure, (2) there was little difference on this measure between the tutees and their comparison group, or between tutees and other students in the participating units, and (3) the tutors at Thoreau scored higher on general level of motivation and self-direction than did the tutees and other students, both at the beginning and end of the tutoring procedure. This latter result, which was also obtained at Victory, merely confirms the good judgment of the teachers who selected the tutors in the first place.

At Victory, the results with respect to general level of motivation were more encouraging. The mean scores of the tutees during the baseline, mid-tutoring, and end-tutoring periods of the procedure

were 1.39, 2.10, and 1.82, respectively. The means for the comparison group for the same three time periods were 1.84, 1.97, and 2.02, respectively. The tutees improved .71 from baseline to mid-tutoring and then dropped .28 from mid-tutoring to end-tutoring, thereby increasing .43 in general motivation overall. The comparison group started out .45 higher than the tutees and increased .18 overall.

The mean scores for all other students in the unit (students who were neither tutees, potential tutees, tutors, nor in the comparison group) were 2.17 and 2.27 for the baseline and end-tutoring periods, respectively. Therefore, the average baseline score for the tutees was .78 lower than that for the other students. At the end of tutoring the tutees' mean was .45 lower. Therefore, at the end of the procedure the tutees (who were selected for tutoring because of generally low motivation) were closer to the rest of the students in their unit.

Tutees' motivation toward tutoring. The instrument for assessing this objective consisted of 3-point rating scales for selected tutee behaviors within the tutoring session (ratings given by tutors) and scales for behaviors related to the tutees' persistence, independence, and interest while working on the tutored subject matter outside of the sessions. These latter ratings were completed by the teachers responsible for preparing a tutee's specific tutoring activities. The tutees were assessed three times on this instrument. The first administration was two to three weeks after tutoring started, with the second and third administrations following at seven-week intervals.

At neither school did tutees show much increase on this measure of motivation across time periods. However, at both schools the initial mean scores were so high (2.55 out of 3.00 at Victory and 2.20 at Thoreau) that there was little room for improvement. At least motivation remained at a high level throughout the tutoring period. Interestingly, the tutors at both schools consistently gave higher ratings to tutees than did teachers. Whether this result reflects a difference in the internal standards of the tutors and teachers or an actual difference in the tutees' behavior during and outside of the session is unclear.

Tutees' achievement. Achievement was assessed through repeated testing of the tutees and the comparison groups with the instruments selected by the schools. The achievement data were analyzed separately for each school.

At Victory School the instrument used to assess this objective was the 16 subtests of the Wisconsin Test of Reading Skill Development (WTRSD): Word Attack, Level C, Form P. Of the 16 skills tested, 12 were the subject of tutoring. The reported scores take account of when the tutoring on these skills occurred, using data from only those testing occasions immediately prior to and immediately following the tutoring session. Three tutoring interims are differentiated. The first tutoring interim (between the baseline and mid-tutoring testing) consisted of 14 tutees being assisted on an average of 2.1 skills. The second interim (between the mid- and end-testing occasions) included 13 tutees coached on an average of 1.6 skills. Six tutees were tutored on an average of 2.0 skills over a period of time that overlapped both interims. The mean percent correct items for these three sets of tutees are shown in Table 45. An overall pre- and

TABLE 45

MEAN PERCENT CORRECT ITEMS FOR THREE SETS OF TUTEES ON WTRSD LEVEL C SUBTESTS FOR TUTORED SKILLS

Set of Tutees	N*	Baseline	Mid-tutoring	End-tutoring
Tutored in first interim	29	70.4	84.9	
Tutored in second interim	25		71.9	81.0
Tutored in both interims	12	64.0	72.4	75.4
Overall pre-post	66	69.8		81.7

*Combination of students and skills.

posttutoring mean score is also included. This latter pair of scores is a weighted mean of the pre- and post-mean scores given for the three sets of tutees. To compute the overall pre and post mean scores, the end-tutoring mean score was used for the post score of the set of tutees participating during both interims, while the mid-tutoring mean score was used as the pre-score for the tutees who took part only during the second interim.

The data reported in Table 45 reveal a substantial increase in the reading achievement of the tutees. Two of the sets of students attained mean scores that surpassed the 80 percent mastery level, and the overall posttutoring score was above the mastery level. The other set of tutees was tutored during both interims. They had substantially lower mean baseline scores than the other two groups, but during the first interim their mean scores were raised to the pretutoring level of the other two groups. The tutoring that was continued during the second interim, however, did not yield the posttutoring mean score level of the other two. The effect of the tutoring was not extended much through additional tutoring.

In order to create a true comparison group for these sets of tutees, an attempt was made to select a combination of students and skills identical to that of each set of tutees. In other words, if six tutees were tutored on Skill 1 during the first interim, then six Skill 1 scores from the comparison students were randomly selected to contrast with those of the tutees.

The first step in this process was to reduce the number of students in the comparison group from 30 to 22, the size of the tutee group. This was done through random sampling. The next step was to record all the baseline scores from the 22 comparison students that fell within the range of baseline scores exhibited by the tutees. This set of baseline scores yielded a pool of students who would have been eligible for tutoring. The subsequent mid- and end-tutoring scores for this simulated comparison group were contrasted with those of the tutees. The scores were randomly drawn under the following conditions: each skill was represented in the same magnitude that

it was for the tutees, and the mean number of skills within each interim was the same as for the tutees. For example, if Skill 2 was included eight times in the total tutee score, then eight randomly selected scores on Skill 2 were included for the total comparison group score. The match was not perfect. The range in the number of skills per student was somewhat lower for the simulated comparison group than for the tutees (1-5 vs. 1-7). The mean scores for the three simulated sets of students are shown in Table 46. The overall pre-post scores were calculated in the same manner as for the tutees.

TABLE 46

MEAN PERCENT CORRECT ITEMS FOR THREE SETS OF STUDENTS IN THE COMPARISON GROUP ON WTRSD LEVEL C SUBTESTS FOR TUTORED SKILLS

Set of students (simulated)	N*	Baseline	Mid-tutoring	End-tutoring
First interim	29	64.3	75.2	
Second interim	25		81.4	85.3
Both interims	12	60.7	72.9	78.3
Overall pre-post	66	65.2		74.4

*Combination of students and skills.

In creating this simulation it cannot be assumed that the students in the comparison group received instruction in the selected skills. It can be assumed, however, that the students had skill deficiencies similar to the tutees. Some of them (perhaps many) must have received instruction in the selected skills. Victory is a multiunit school using the Wisconsin Design for Reading Skill Development. It is standard operating procedure for multiunit schools to provide instruction that accommodates the skill deficiencies of the students.

The data reported In Table 46 show an increase in the reading achievement level that is slightly less than the one found for the tutees. There is a 9 percent increase for the simulated comparison group when contrasting the overall pretutoring score with the overall posttutoring score. The tutees had a 12 percent difference between these two measures. It can be concluded that the tutees at Victory did increase their reading achievement somewhat more than the simulated comparison group.

At Thoreau School, the two sets of tutees were tutored in different subject-matter areas (reading and math); thus it was not possible to obtain a single set of data to assess the increase in all of the tutees' achievement. Therefore, the data for each set of tutees was treated separately.

The tutees' mean scores for the skills on which they were tutored are reported in Table 47. These scores reflect the testing occasions immediately preceding and following the tutoring sessions for each skill.

TABLE 47

MEAN SKILL SCORES FOR THREE SETS OF THOREAU TUTEES ON THE READING ACHIEVEMENT BATTERY FOR THE TUTORED SKILLS (SCALE OF 0-10)

Set of Tutees	N*	Prebaseline	Baseline	Mid-tutoring	End-tutoring
Tutored in first interim	8	6.63	6.50	9.50	
Tutored in second interim	6		5.16	7.50	9.33
Tutored in both interims	11	5.27	6.36	8.18	8.36
Overall pre-post	25	5.68	6.68		8.96

*Combination of students and skills.

Some tutees started and finished a set of distinct skills prior to the mid-tutoring testing and then started on a new set for the second interim. They also worked on other skills during a period that overlapped both interims. To be precise, of the six reading tutees, five were tutored on an average of 1.6 skills during the first interim. Four of the six were tutored on an average of 1.7 skills during the second interim, while all six were tutored on an average of 1.8 skills during a period that overlapped both interims. Two pretutoring scores and a posttutoring score were calculated from a weighted mean of the two scores prior to the tutoring session and the score that follows the session. For the combination of students and skills that overlapped both interims, the tutoring session was the total time of those interims.

There is evidence in Table 47 that the tutees increased their reading achievement level. The overall posttutoring score is less than one percent from the mastery level of 9.0 established by the coordinator, and two of the sets of tutees attained posttutoring levels of achievement far in excess of that level. The other set of tutees were tutored in both interims. As in the Victory data, there does not seem to be a cumulative effect to the tutoring procedure. An interesting artifact in the Table 47 data is that, for those tutees receiving tutoring in the second interim only, there was a substantial increase recorded in their achievement level between the baseline and mid-tutoring occasions, a period during which these students were not tutored. This increase is larger than the one obtained for the tutoring period and indicates that some of the increase reported for that period may not be the result of the tutoring procedure.

A true comparison group was formed for the Thoreau tutees in a manner similar to that for the Victory tutees. Six students were randomly selected from the comparison group, and those prebaseline scores that fell within the range of the tutees scores were recorded. With only six students and nine skills to include in the calculations, there was not as much latitude in setting up the combinations of students and skills similar to that of the tutees. Combinations were selected to meet the following criteria: the number of tutored skills per student should be the same as for the tutees, the number of students and skills for each tutoring interim should be the same as for the tutees, the students in the category "Both interims" should have score characteristics similar to those of the tutees, all tutored skills should be represented. One other characteristic was not obtained: the skills themselves were not represented in the same proportion as they were for the tutees. Considerably more manipulation was required in creating this simulated set of data than that required for the Victory data.

Table 48 contains the mean skill scores for the simulated comparison group. The same qualification applies in this analysis as in the Victory analysis. No assumption can be made that instruction was provided for each of the selected student-skill combinations. However,

TABLE 48

MEAN SKILL SCORES FOR THREE SETS OF STUDENTS FROM THE THOREAU COMPARISON GROUP ON THE READING ACHIEVEMENT BATTERY FOR THE TUTORED SKILLS (SCALE OF 0-10)

Set of Students (simulated)	N*	Prebaseline	Baseline	Mid-tutoring	End-tutoring
First interim	8	5.75	8.25	9.50	
Second interim	6		5.17	7.17	7.17
Both interims	11	5.45	6.55	8.09	8.27
Overall pre-post	25	5.44	7.24		8.40

*Combination of students and skills.

the selected students do have skill deficiencies similar to those of the tutees and they are in a multiunit school that consciously provides instruction that accommodates students' skill deficiencies. The data indicate less of an increase in the reading achievement level of this simulated comparison group than that of the tutees. Thus, the Thoreau reading tutees did increase their achievement level.

The math achievement levels for the Thoreau tutees were assessed by the diagnostic tests accompanying the Addison-Wesley Elementary School Mathematics Program (Books 2 and 3). Comparing the mean scores

of the tutees and comparison students on this diagnostic battery across the testing periods showed a slightly greater increase in math achievement for the tutees.

Refinement in the analysis of these data was complicated by the nature of the tests and the decision rules used by the tutoring coordinator in assigning the tutored material to the tutee. The tests were not single-skill tests, as were the ones used for the reading tutees. For the mathematics tutees each item on a particular test was referenced to a distinct skill. Considering the battery of tests as a whole, the items were interrelated to form several strands of content, but the strands were not distinct, nor were they specified by authors. For example, Item 5 on test one might be related to Item 7 on test two on the basis of the mathematical operation involved in both items (both addition). Item 5 on test one might also be related to Item 8 on test two on the basis of the content of the items (both problem solving). To compound this confusion, the tutoring coordinator selected items for the content of a tutoring session by using his best judgment as to the specific instructional need of the tutee. Thus, it is speculative to designate "tutored skills," and impossible to create a simulated comparison group.

The alternative that is available is to analyze the proportion of the tutored items that were answered correctly before and after the tutoring session. Table 49 contains data relative to these proportions for the tutoring interim occurring between the baseline and mid-tutoring testing occasions for six tutees, on an average of 14.2 items.

TABLE 49

NUMBER OF TUTORED ITEMS CORRECT AND INCORRECT FOR THE FIRST TUTORING INTERIM FOR THE THOREAU MATH TUTEES

Baseline Testing Occasion	Mid-tutoring Testing Occasion		
	Correct	Incorrect	Total
Correct	45	6	51
Incorrect	27	7	34
Total	72	13	85

The data reported in Table 49 indicate that there was an increase in the math achievement level of the tutees. The baseline mastery rate was .60 and the mid-tutoring mastery rate was .85. In addition, 79 percent of the 34 incorrect items in the baseline testing were correct at the mid-tutoring testing. A similar analysis was performed on the same items for the comparison group. The mastery level increased from 74 to 87 percent over the same period, and 70 percent of the incorrect items at the baseline testing were correct at the mid-tutoring testing.

The same analysis was performed for the tutoring interim between the mid-tutoring and end-tutoring testing occasions. Seven tutees were tutored on an average of 11.7 items during this time.

Although not as conclusive as in the previous analysis, there is evidence of an increase in the tutees' math achievement. The mastery levels increased from 56 to 70 percent, but only 48 percent of items incorrect prior to tutoring were correct following tutoring. In an analysis of the same items taken from the comparison group, the mastery rates increased from 82 to 83 percent, and 63 percent of the incorrect items were correct at the end of the period.

There were four tutees who were tutored on an average of 6.8 items for a period that overlapped the testing interims. The data from these students yield dramatic evidence of the increase in the tutees' math achievement. They also indicate marginal gains for extended tutoring periods. The mastery rates increased from 4 to 89 to 93 percent, and 88 percent of the incorrect items in baseline testing were correct at mid-tutoring testing, with another 4 percent of them correct at the end-tutoring testing. From a similar analysis performed on the items in the comparison group, the mastery rate increased from 75 to 84 to 86 percent, and 69 percent of the incorrect baseline items were correct in the mid-tutoring testing, while 3 percent more of them were correct at the end-tutoring testing.

Combining the data from all sets of tutees, the mastery levels of the tutees increased from 50 to 80 percent, and 73 percent of the incorrect items were correct following tutoring. The data from the comparison group show that their mastery rate increased from 78 to 84 percent, with 68 percent of the incorrect items correct at the end of the period. These data are not conclusively supportive of the effect of tutoring on the Thoreau math tutees. The increase in the mastery level was much greater for the tutees than for the comparison group, but the percent of incorrect items that were correct after tutoring was not as different for the two groups as one might expect. Considering all the evidence, however, there is some support for the conclusion that the Thoreau tutees increased in math achievement as a result of the tutoring procedure.

To summarize the data pertaining to the tutees' increased achievement level, there was evidence in all three tutoring situations that the desired effect was obtained. The evidence was found in two cases (Victory reading and Thoreau reading) by considering only the skills that were tutored and contrasting those gains with comparable results from a simulated comparison group. In the case of Thoreau math, the favorable contrast was obtained by compiling data from only those test items that covered the content of the tutoring sessions.

Tutor ability to conduct sessions. A different 50 percent random sample of tutors evaluated themselves three times on whether or not they had completed the 17 tasks listed in Table 5.2 of the prototype IGM book. This self-evaluation was first completed three weeks after the tutoring sessions began, and was repeated twice at seven-week intervals. Each tutor was told to think, while assessing himself, only of the tutoring sessions he had just finished. A total of 33 self-evaluation forms were completed. In addition, the same evaluation

form was completed for 17 of the tutors by a Center observer during three monitoring visits to the field test schools. These visits took place at approximately the same times as the tutor self-evaluations. No attempt was made to randomly select tutors to be observed; rather, the Center visitor monitored whichever tutor-tutee pairs were available. An attempt was made to see as many different tutors as possible. Often, however, all tutors were holding sessions at the same time, so it was not possible to monitor each session completely.

A mean percent score was tabulated to reflect the number of tasks the tutor accomplished. If no response was recorded for an item the total number of items was adjusted accordingly, so that the mean percent score reflects the number of Yes responses relative to the number of items answered. This procedure was adopted because on some occasions the Center observer was not able to observe an entire session, and consequently could not record whether or not each task was completed. It also was used because occasionally tutors inadvertently omitted an item while completing the self-evaluation forms.

The mean percent scores for the tutor self-evaluations were generally quite high, with the range extending from 89 to 98 percent. The overall total of 93 percent of the tutoring tasks completed speaks well for the tutors' perception of how they were accomplishing their jobs.

The Center observations of the tutors' performance yielded a slightly lower evaluation. The scores ranged from 85 percent for Thoreau reading tutors to 91 percent for Thoreau math and Victory reading tutors, with an overall total of 89 percent of the tutoring tasks accomplished. When tutor and Center evaluations were combined to form a single assessment of the tutors' ability to conduct tutoring sessions, the grand mean percent for both schools was 92 percent. It can be concluded that the tutors did successfully carry out the tutoring procedure as prescribed by the IGM inservice material.

Discussion

The results of the field test indicate that the tutoring procedure has modestly positive effects on children's motivation and achievement. Specifically, with regard to general level of motivation and self-direction, the results indicated a positive effect of tutoring at Victory School, but no effect of tutoring on this variable at Thoreau. With regard to motivation and self-direction toward the tutoring sessions (as assessed by the tutor), and toward the tutored subject matter (as assessed by the teacher), there was no increase at either school, but tutees at both schools demonstrated a fairly high level at the beginning of the tutoring procedure and maintained it throughout.

With respect to tutee achievement, the results indicated a positive effect of tutoring when the analysis considered only the tutored skills or items. This positive effect was apparent at both schools and in both of the suject-matter areas of reading and mathematics.

Finally, self-evaluation and Center observation affirmed that a high percentage of the tasks recommended in the IGM materials were actually accomplished by tutors during their sessions with younger children.

In summary, the tutoring field test results with respect to children's reactions to the procedure, when viewed in the context of the adults' positive reactions to tutoring as reported in Chapter II, support the conclusion that the tutoring procedure is an effective device for increasing student achievement. Moreover, with the many changes in the format of the materials (again as described in Chapter II) which were suggested by the field test adults, the tutoring procedure is now easier to implement and should be regarded as a feasible procedure for the elementary school.

VII

SUMMARY

It should be apparent from the preceding chapters of this report that much effort has been expended by Professor Herbert Klausmeier and his staff in research on motivation, conceptualization of the IGM system, and the development and refinement of the IGM materials. The evaluation staff of the Center has carefully evaluated the materials in terms of their effectiveness with adult and child target groups.

As with any product developed by the Center, the development of IGM was undertaken to meet specific educational needs. These are: (1) to assure a high level of motivation to learn on the part of each individual child, and (2) to promote the acquisition by each child of such prosocial behaviors as self-control and self-reliance. A framework for the actual development of the IGM procedures and materials was provided by the Instructional Programming Model of the Center's System of Individually Guided Education (IGE). The programming model (see Figure 1, in Chapter I) specifies the sequence of activities necessary for attaining the educational objectives of the school, while at the same time meeting the needs of each individual child by accommodating instruction to individual differences in skill level, rate and style of learning. Thus, IGM is designed to attain certain motivational objectives set by the school while taking into account the motivational level and needs of each child.

As described in Chapter I, operationally IGM consists of four motivational-instructional procedures, which are organized ways of working with a child or group of children to attain motivational objectives. The motivational-instructional procedures are: (1) adult-child conferences to encourage independent reading, (2) teacher-child conferences for goal setting, (3) guiding children toward self-directed prosocial behavior, and (4) guiding older children in tutoring younger children. Each of these procedures can be incorporated into the instructional program in one or more subject-matter areas, so that the teacher's motivational efforts and instructional activities--like the child's motivation and learning--are integrally related in IGM. Each of the motivational-instructional procedures has been developed to attain specified motivational objectives through the systematic application of fundamental principles of motivation, which were derived from the best available psychological theory and empirical research. These principles--related to such processes as attention, observational learning, and reinforcement--have been translated into prescribed teacher behaviors which, when carried out, result in increased motivation and learning on the part of the children.

Each of these motivational-instructional procedures has been the focus of a controlled experiment in which the effectiveness of the procedure was tested under various conditions. The results of these

experiments, reported in Chapter III through VI, indicated that each of the procedures had positive effects upon one or more indicators: measures of motivation, measures of achievement, and measures of attitudes toward the subject matter or school in general. In addition, each experiment provided valuable information concerning the conditions for optimal success of a given procedure.

Based upon the results of the controlled experiments, materials were developed to guide teachers and other appropriate school staff who might be interested in implementing one or more of the procedures. These materials, described in Chapter I, attempt to provide teachers with the knowledge and skills necessary for proper implementation. The materials include printed information in the form of a book and assorted manuals and films; they all aim to demonstrate the application of motivational principles within the context of each procedure. The current IGM multimedia materials were constructed following field test evaluations of earlier-developed, prototypic materials.

One objective of each field test was to determine the effectiveness of the multimedia materials with adults. That is, following study of the materials, could teachers carry out the planning and implementation tasks necessary for proper (as defined by the materials) installation of the procedure? Further, could teachers acquire from the materials sufficient skill in applying the motivational principles with children? The results of the field tests with respect to the adult target group are related in detail in Chapter II.

Since the above objectives were achieved at an acceptable level by most adults in each field test, the materials were judged to be instructionally effective. More important, the formative evaluation of the materials provided information which was utilized to produce second-generation materials which are more acceptable to adults. The revised materials are considerably better organized and carry much less of an informational load than the early materials. Moreover, through feedback from teachers, ways were found to simplify the planning and installation tasks, so that the procedures were rendered more feasible in terms of the time and effort required to implement them.

The second objective of the field tests was to determine the effect of each procedure upon participating children. Each procedure was known to be effective when conditions were rather rigorously controlled by Center researchers. However, would positive effects on children's motivation and learning still be attained when the procedure was implemented by typical school personnel in naturalistic school environments with children of various characteristics?

The results of the field tests with respect to the pupil target group are extensively reported in Chapters III through VI. The results for each procedure are briefly summarized here. Children who participated in adult-child conferences to encourage independent reading showed increases in amount of independent reading, more positive attitudes toward reading, and increases in reading achievement test scores from the preconference to the postconference period. Moreover, evidence suggested that children continue to read independently after the conferences are discontinued. Because the procedure was implemented by staffs in six different school settings, the results of the field test lend generality to the conclusion that the reading conferences are

effective in meeting pupil objectives of more reading, improved attitudes toward reading, and improved reading skills.

Children who participated in goal-setting conferences with their teachers showed, in most cases, positive and rather dramatic gains in skill attainment during the periods when conferences were held. Rate of attainment by pupils for whom conferences were discontinued after eight weeks remained high in relation to the preconference or baseline period. Since the field test sampled from a relatively wide age range (7 to 12 years) and from a variety of skill areas (arithmetic, word attack, vocabulary), it would appear that the positive effects of the procedure are quite generalizable to many ages and skill areas.

The field test of the third procedure, guiding children toward self-directed prosocial behavior, indicated that children who participated in the group conferences generally exhibited an increase in prosocial behaviors. Teacher and student ratings showed an increased incidence of those prosocial behaviors discussed in the conferences. This increase was maintained after the conferences were discontinued. The increases were largely specific to those behaviors actually discussed in the conferences and showed only moderate generalization to other prosocial behaviors.

Younger children who were tutored by older children showed positive attitudes toward the tutoring sessions and increased achievement which was specific to the skills actually covered in the tutoring sessions. The tutoring procedure did not appear to increase the tutees' general level of motivation. The procedure was judged to be effective in meeting specific motivational and skill-achievement objectives.

Considered on the whole, the results of the field tests with respect to effectiveness of the IGM procedures with children are remarkably favorable. The evidence highly recommends the IGM procedures as effective techniques for improving student motivation and conduct. Moreover, these benefits in improved student motivation and conduct can be easily obtained by schools whose teachers and administrators are willing to invest a nominal amount of time and other resources in implementing IGM.

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