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A project has been planned to help individualize instruction and change the learning climate by using elementary school pupils to assist each other in learning. A "tutorial community" is being established involving an entire ghetto school of 1,500 students (Pacoima Elementary School, Los Angeles) in intra- and intergrade tutoring, student self-tutoring, and tutoring by teachers, parents, and volunteers. Major features of the program are (1) the central role of students as tutors and helpers, (2) explicit procedures for facilitating change and affective growth (including periodic workshops for various groups of participants), (3) gradual development of the tutorial community (over a seven-year period, taking one grade each year), (4) application of empirical evaluation-revision strategy (the experience of one year being used to review procedures in that grade and to redesign plans for the grade ahead), (5) team approach and community involvement (including joint participation of teachers, administrators, parents, and the research and development staff on work groups to formulate behavioral objectives, select and develop materials, plan evaluation procedures). (Included are a list of tutorial, learning, and school support activities in which students will be involved; description of a hypothetical day in a first grade class; evaluation plans; lists of expected outcomes; and specific procedures for phasing the first 13 months of the study.) (JS)

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TECHNICAL MEMORANDUM

(TM Series)

A STUDY TO DEVELOP A TUTORIAL COMMUNITY IN THE ELEMENTARY SCHOOL

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INTRODUCTION

THE PROBLEM

In recent years education has undergone many changes; earlier apathy has been replaced by increased public interest, along with extensive government financial support for research, materials development, equipment and facilities acquisition and teacher training. Instruction has been enriched and modified: a growing number of learning laboratories and materials development centers; augmented use of television, motion pictures, and visual aids; the introduction of programmed instruction; and team teaching have contributed to the change. But in spite of all the ferment, results have not fulfilled expectations.

Too many students leave the elementary school without sufficient mastery of the basic skills of listening, speaking, reading and writing. Too few have developed enthusiasm for learning or for school, and only a few possess any real capability for self-directed learning. Many are already on the road to becoming early dropouts. This is especially true of minority or "disadvantaged" children; the average minority child today only completes the eighth grade. High achievers frequently become bored and are under-achievers in relation to their potential. This situation is unlikely to change until educational programs become truly responsive to individual differences in learners and until the entire classroom atmosphere changes in significant ways.

Education that treats people as individuals has become a cliché without ever becoming a reality. In the average first-grade class there is usually a range of three years in achievement by the end of the school year. This range is extended through the years so that by the sixth grade one can typically find at least a six-year range of achievement. One teacher with a class of 30 or more students finds it almost impossible to attend to such wide ranges of individual differences in aptitude, abilities, interest, motivation, problems, and achievement levels.

Typically a teacher has the responsibility for the learning of 30 or more students. The teacher establishes daily learning objectives, chooses activities, obtains and prepares materials, does the teaching, and keeps records. The student has little opportunity for initiative in learning, for making real choices, for self-learning, for questioning, or for facilitating the learning of others (although he frequently can and does hinder it).

Students frequently have poor judgment because of their meager experience; because they have had little experience in making large numbers of small decisions, they are unequipped to make larger ones. Since tasks are generally imposed by the teacher as the authority figure, the student takes little responsibility for his own learning. Many tasks imposed by the teacher have little meaning for the student or do not coincide with his own perceived or unperceived needs and wants, so he may become disinterested, frustrated, and sometimes rebellious.

The student has little feeling that this is "my school," "my class," "my education," and "my educational community," "where I come for important

reasons, where I am an important and respected component, where I can get help in accomplishing important tasks, and where my behavior can affect others in significant ways." On the contrary, the student tends to feel that "the school is a place where I have to come, where adults don't care about me and try to get me to do things that please them, and where other children are competing to look better than me or to make me look bad." Older and younger students have little feeling of being part of the same community; contacts between students of different grades are infrequent, and when they occur, students often treat each other with disdain. Competition among students is fostered and one student's success may be bought at the expense of another's. Children rarely enjoy the success of their classmates, and more often take pleasure in their failure. Many of the rewards for success are based on the satisfaction of feeling better than someone else. All this is evident despite the fact that teachers care about children, and are dedicated to the goals of education.

If learning to learn and self-directed learning are important educational objectives, as they should be in a world that changes so rapidly, then development of these capabilities, and practice in meaningful endeavors that foster them, should not be delayed until the student is in college or graduate school. On the contrary, self-learning should be encouraged and planned for from the earliest possible moment (beginning in the kindergarten or preschool) and should continue throughout the student's school career. Unfortunately, the prevailing atmosphere and conditions in the elementary school do little to foster self-learning; most students have to be spoon-fed and closely supervised to be kept "actively" engaged in "educational" activities.

Improvement in materials, equipment, facilities, and teaching procedures will have little effect as long as students feel no responsibility for learning, do not care about the school, the teachers, each other, and (worst of all) themselves. What is needed is a radical change in the total atmosphere; the school must become a learning community with its various members joined in a common effort to improve the learning of all.

A POSSIBLE SOLUTION

A promising resource for helping to individualize instruction and for changing the learning climate in the classroom that has received attention recently is the student himself--the use of elementary school pupils to assist each other in learning.

Melaragno and Newmark (1967), in working with first-grade Mexican-American children in the area of reading, had fifth- and sixth-graders tutor first-graders, and first-graders tutor each other, with considerable success. They found that with training, elementary school pupils were able to assist other pupils in achieving specific, behaviorally-defined objectives and that a positive relationship developed between the learner and tutor. The learner not only profited from the instruction, but enjoyed receiving help from schoolmates. Tutors took their roles seriously, had a sense of importance, and seemed to derive pleasure out of the success of the learner. In several cases, teachers reported that an older tutor who was doing poorly in his own class, and who was considered a discipline problem, improved in his work and his attitude toward learning as a result of the tutoring responsibility. Despite the fact that some of the tutoring took place before school started, students volunteered to do more tutoring. Parents of

tutors told school administrators of their pleasure at the student's participation in this project. Parents also received training as tutors and worked with their own children with positive results.

Lippitt and Lohman (1965) also report of successful experiences with sixth-graders tutoring first- to fourth-graders. They found older students eager to volunteer for this type of involvement. The students reacted with high motivation to the discipline of the training program. They received deep personal satisfaction out of this opportunity to help, and gained insight into themselves. Their own relationships to their teacher improved, and their motivation to learn increased. The younger children seemed quite ready to accept the older students in this role, and applied themselves seriously to the learning tasks. Some teachers reported that less time was spent in straightening out altercations among children of different ages on the playground and in the halls. Also, teachers noted that when sixth-graders were tutoring, teachers had opportunities to give individual attention to children who needed it but who otherwise would not have gotten it.

Featherstone (1967) reports enthusiastically on experimental primary schools in England that emphasize self-learning and children learning from each other. In these schools, children have options concerning the day's routine. Children work independently and with each other much of the time and, in addition to teaching other students, assist in facilitating the learning process in such ways as keeping their own records. Discipline in these schools seems to be less of a problem, and the purposeful self-discipline of the children is quite astonishing to visitors. Students

apparently learn more if the teacher is important, but does not take over the entire instructional responsibilities. Many of the difficulties that plague formal first-grade classes seem to disappear.

Experience indicates that children, with proper training and support from adults, are able to function effectively in the role of helpers and teachers of other children, and find this experience meaningful, productive, and a source of much learning. According to Lippitt and Lohman (1965) several factors seem to underlie this success. An older child communicates effectively with the younger child because his language and manner of speech are closer to the younger one's level (in other words, the tutor speaks the learner's language). The older child provides a more realistic level of aspiration for the learner, whereas an adult's abilities, skills, and standards seem to be beyond the learner's grasp. The older child is less likely to be perceived as an "authority figure" with its inhibiting effects. Being placed in a position of responsibility has an important motivational effect on the tutor, and assisting other children to learn helps him to test, develop, and internalize his own knowledge. It gives him insights into the learning process and a better appreciation for the progress he has made already in school. The recipient of the tutoring has an opportunity for positive relationships with older students in which he develops a more realistic image of the next steps in the growing up process. Using children as tutors enables more children to receive more individual attention and a greater amount of total practice on learning tasks.

The tutorial process has great potential for planned development as an educational force, provided that children receive appropriate training for

their roles as tutors and helpers. However, its impact is likely to remain limited as long as it is a piecemeal program, an appendage to the regular curriculum and teaching procedures, a procedure used mainly for remedial work; rather, it must be a means to change the total classroom atmosphere in order to eliminate some of the conditions that made remediation necessary in the first place.

At present, elementary school children receive tutorial help sporadically--sometimes from older schoolmates, sometimes from parents, sometimes from high school or college students--depending on who is available and what particular project is being tried out. Some children receive help one semester and not the next, some for only part of a semester, and others not at all. Tutoring by older elementary school children frequently is done only by the brighter students or high achievers. Most children go through the entire six or seven years without ever having been involved in such a relationship either as a learner or as a tutor. Few children ever participate in establishing, clarifying, or selecting objectives or in choosing methods and procedures for achieving them.

For maximum impact and effect on education, the tutorial concept must be broadened and extended so that the total climate of learning is changed in such a way as to significantly affect all children, at all grade levels.

PURPOSE, SCOPE AND LOCUS OF STUDY

PURPOSE

What we propose as the ultimate objective is the development of a functioning, operational "tutorial community," involving an entire elementary school. It will serve as a prototype model where people can observe a totally innovated school in operation, and can receive experience in operating and developing a tutorial community.

We propose to create a school in which students at every grade level interact with other students as learners and as tutors, one in which the traditional barriers and distinctions between teacher and learner are broken down (since every individual in the community is both teacher and learner). Such an environment explicitly recognizes the extent to which students learn by themselves and from each other, and plans for its continued development in achieving both cognitive and affective goals of the school.

We plan to expand the concept of "community" by providing explicit means for the active interaction of students, parents, teachers, administrators, and researchers in planning and conducting instructional and support activities, and in improving interpersonal relations and communication among all individuals connected with the school program. Thus, the ultimate outcome is a learning community in which all of these individuals share responsibility, pride, concern and satisfaction in a cooperative effort to improve the learning of all. Graduates of this school would be recognized by their capability for self-directed study, by their positive attitudes

towards learning and the school, by their higher levels of academic achievement, and by their concern for the growth and development of their peers.

SCOPE

The tutorial community will be established in a single elementary school of approximately 1400 students (40 classes, grades K-6). It will be developed gradually over a seven year period, taking one grade at a time and using the experience of one year to revise the procedures in that grade and redesign the plans for the grade ahead. All students and teachers, at all grade levels, will be involved directly by the seventh year.

Although the development of the tutorial community will be accomplished over a seven-year period, the very developmental nature of the study precludes specifying in sufficient detail the requirements and procedures for the entire study. The "Specific Procedures and Phasing" section of this proposal deals only with the first 13 months of the total seven years, in the following time periods:

Phase I: Preliminary Activities (four months).

Phase II: Kindergarten Year (nine months).

While the study will be conducted in one school, preparations will be made for the dissemination of the tutorial-community concept. Thoughtful educators have pointed out the need for totally-innovated model schools; such models must be developed with concrete provisions for other schools to implement the innovation successfully.

LOCUS

The proposed study will be conducted in a Los Angeles City Schools elementary school having a high proportion of Mexican-American students (subject to final approval by the School District). There are three major reasons for choosing such a school as the locus of the study: (1) the Mexican-American is a significant minority in the United States, but the education of his children has not received much attention from educational researchers; (2) the education of the Mexican-American child is a difficult task, and if the concept of the tutorial community can be implemented in such a setting it should be easier to generalize to other student populations; and (3) SDC's previous research with the schools from which the locus-school will be chosen have created a climate of acceptance from this study that will be important in developing a prototype tutorial community.

MAIN CHARACTERISTICS OF THE STUDY

Five main features characterize the philosophy and approach underlying the development of a tutorial community in an elementary school: central role of students as tutors and helpers; explicit procedures for facilitating change and affective growth; gradual development of a tutorial community; application of empirical evaluation-revision strategy; and team approach and community involvement.

These five features are direct outgrowths of a study recently completed in which a system was developed to obtain effective classroom instruction (Melaragno and Newmark, 1967). During the earlier study, teachers, administrators, and parents worked with the investigators to develop an instructional system that resulted in students mastering educational objectives. The evaluation-revision strategy was used throughout the study, and the development of elements in the system was gradual. However, two problems hindered the complete implementation of the instructional system: school personnel tended to view the system as an adjunct to their "regular" operations, and sometimes failed to carry out critical system tasks because of this view; and the completed system was sufficiently novel--calling for students, teachers, and administrators to perform unusual roles--that natural resistance to change was evident.

The most noticeable aspect of the resistance to change came in the area of communication between school personnel and students, and school personnel with each other. The five main features of the proposed study include three that were found to be beneficial to the prior study and two that are intended to overcome problems encountered in that study.

None of these features are completely new in themselves; all have been independently tried out and found to work. The uniqueness of this project is in the expanded emphasis given to each of these aspects, their integration into a single program, and their application to an operational, totally innovated school.

Central Role of Students as Tutors and Helpers

In the tutorial community the process of students tutoring themselves and helping each other would not be extracurricular, incidental, or remedial in nature, but a way of life--an integral, essential part of the everyday school operation. Not only would students be involved in tutoring, but they would be encouraged and helped to participate meaningfully in establishing objectives, in planning and selecting learning methods and procedures, and in performing support activities such as correcting papers, keeping records of progress, training other tutors.

TUTORING

Several types of tutoring will take place within the tutorial community: intragrade student tutoring, intergrade student tutoring, student self-tutoring, teacher tutoring, and tutoring by parents and other volunteers. Previous explorations have shown the importance of four aspects of tutoring that will be emphasized in the tutorial community: (1) careful diagnosis of each learner's individual needs; (2) provision for a rich variety of instructional materials appropriate for meeting learning needs; (3) training of tutors in their roles; and (4) evaluation of tutorial effectiveness, in terms of cognitive and affective growth on the parts of both learners and their tutors.

Intragrade Student Tutoring

Intragrade tutoring has students at the same grade level assisting each other with the mastery of objectives. The general notion of classmates working together has a long history; teachers frequently have had students drill one another, and researchers have studied the learning that takes place in "student pairs." Recent SDC research has indicated ways of greatly improving this approach.

Effective intragrade tutoring can follow two directions, where the difference turns on the manner in which the tutor administers instruction. In either case, students are pretested on the objectives to be mastered, and a student who has already acquired an objective is paired with a classmate who has not. The pair is then given instructional materials such as printed worksheets, objects to be manipulated, or tape recorded lessons.

In the structured form of intragrade tutoring, verbal directions are given to the learner, and the tutor's major responsibilities are to inform the learner about the correctness of his responses and to show the learner how to make correct responses. The verbal directions can be tape recorded or read to the pair (by the teacher, or a teacher's aide, or an older student). A number of pairs can work together in a small group.

In the informal type of intragrade tutoring, the two students are given the objectives to be mastered and a variety of related instructional materials. The students use the instructional materials as they see fit. (In a variation of this form, a student pair is directed to help each other achieve objectives on which they have not been pretested. No indication of roles is given but invariably the more knowledgeable student assumes the tutoring role.) Students work with each other on both short-term tasks and long-term projects, informing the teacher when they feel objectives have been achieved and keeping records of their own progress. On selected objectives, group goals are established and progress toward the goals are displayed for all to see.

To make intragrade tutoring most effective, the teacher trains students to serve as tutors. All students receive training at different times, since all students may serve as tutors. This is a significant departure from the usual use of student pairs, in which the "best" students always assist the "slower" students. Pairings are made on the basis of acquisition of particular objectives and all students have opportunities to be tutors regardless of overall standing in the class.

Intergrade Student Tutoring

In intergrade tutoring, students who are more experienced (e.g., are in a higher grade) serve as tutors for learners in lower grades. While interest in and use of this technique is evident throughout the United States, the rich potentials in it have not yet been realized. Recent System Development Corporation investigations have yielded three basic modes of intergrade tutoring.

First, the older tutor and younger learner choose their own sequence of activities and methods of operating. While the pair are given appropriate materials with which to work they are free to determine when and how to use them. The tutor can make maximum use of his inventiveness with materials, and his creativity in devising new materials and procedures.

Second, the tutor follows a preplanned instructional sequence, reading directions to the learner and helping the learner over any difficulties. When he feels it is necessary, the tutor repeats some instruction; whenever possible, the tutor skips unnecessary instruction.

Third, the tutor works with a learner using a preplanned and tape recorded sequence of instruction. The tutor tells the learner that his responses are correct or incorrect. If the learner experiences difficulty with a task, the tutor stops the tape recording and assists the learner until he is capable of continuing.

In addition to the three basic modes of intergrade tutoring, it has been found that tutors are successful with small groups of two or three learners.

When structured materials are used, the tutor at times has learners respond together and at times has them take turns responding. With informal procedures, the tutor and learner make their own decisions on which materials to use and how to use them. The major value of the small group setting is with students who learn best in a group, where they can observe, mimic, and learn from their peers, and for certain tasks requiring student interaction.

These different modes of intergrade tutoring require varying degrees of tutoring ability on the parts of older students. Tutors must be trained prior to entering into a tutorial relationship, and the adult trainer can identify those students who possess the skills requisite for the more informal modes of tutoring. As the tutorial community develops, students will gain more and more experience with tutoring from year to year; training requirements are likely to decrease, and greater numbers of students should be successful with more informal modes of instruction.

There are other findings in SDC's investigations of intergrade tutoring that have particular relevance to the development of the tutorial community. For example, all types of older students can be effective tutors; rather than being limited to the "better" older students, intergrade tutoring can be conducted by less able students, who frequently show greater rapport with their younger learners. And, some of the tutor training can be performed by tutors themselves after they have been trained and have had tutoring experience.

Student Self-Tutoring

Self-tutoring is a special variety of independent study, in which students work individually at activities relevant to the achievement of specific objectives, using carefully planned materials.

Many of the techniques and materials developed for students to tutor one another also can be used for self-tutoring. Some students will be able to use such materials to acquire skills without constant interaction with a tutor. And, re-use of familiar materials will be beneficial for review of previously learned objectives. Increasing numbers of self-instructional materials are becoming available, such as workbooks with answers and explanations, and programmed texts, that can be used for self-tutoring.

As students have increasing experience in the tutorial community with goal-directed activities (including participation in the selection of objectives, in the choice of instructional procedures, and in tutoring), they should grow in ability to engage in different forms of independent study. When concerned with a particular objective, they should be able to choose appropriate means for achieving the objective, such as carrying out an experiment, or analyzing printed resource materials, or interviewing an adult resource person. Opportunities for engaging in many forms of independent study will be provided, and student participation in these activities will increase progressively.

Teacher Tutoring

In this procedure, the teacher tutors from one to four students at a time, with tne teacher choosing materials and procedures. A teacher instructing

small groups of students is now a common occurrence; in fact, it is a fundamental "method" in primary education. However, teacher tutoring that evolved during prior SDC research has characteristics that differentiate from typical small-group instruction.

Of basic importance is the grouping of students on the basis of immediate need rather than on general ability. Students to be tutored by the teacher are identified either through a pretest or through a mastery test administered following some other form of instruction. The composition of such groups changes regularly, as different objectives are considered.

Since students are grouped for common need, the type of instruction given is highly specific. The teacher-as-tutor creates instructional situations to overcome the particular problems of students in a group, and the special capabilities of the teacher are tapped for student needs that are beyond the abilities of other kinds of tutors.

Parents and Volunteers as Tutors

This is a resource that potentially has considerable value. In previous SDC research it was found beneficial to use parents as tutors of students who had not responded to other instruction, where a parent was enthusiastic and capable of working with his child at home.

High school students, college students, housewives, and other volunteers from the community have had success in tutoring. Many of the procedures and materials developed for the tutorial community can be used effectively by such persons, either in the school setting or in the home.

Although the availability of this resource can never be guaranteed to a particular degree or on a continuing basis, it will be utilized wherever possible. Parents and other members of the community will be provided specific opportunities for and encouraged to assist the school, including serving as tutors. When they are to serve as tutors, appropriate training will be conducted.

OTHER STUDENT ACTIVITIES

Planning and selecting objectives is an activity in which students can and should participate. This does not mean that students make final decisions on what it is they are to learn. It does mean that, within certain limits, students can help formulate, analyze, and evaluate objectives. At a minimum, it should be explained to students, in a language that is clear and understandable to them, what it is they are trying to accomplish (in other words, in behavioral terms what the end results of their efforts will be), why the objective is important, and ways by which it might be achieved. Next, student reactions to objectives and assignments should be actively solicited and encouraged. Students' opinions and feelings should be used by teachers to modify procedures. Within the total objectives for a semester or a year, students can be given choices in deciding on daily, weekly, or monthly objectives.

Good teachers, of course, do many of the things mentioned above; usually, however, they are not carried on consistently, even by them. If student participation in this area is not to be neglected, there must be explicit provisions built into the instructional procedures, which are systematically developed and carried out.

The same comments about objectives apply equally to student participation in formulating, evaluating, and selecting assignments and instructional procedures. These activities can take place between grades as well as within grades. Upper-grade students can be asked to react to the objectives of grades they have already completed and to the materials and procedures used to achieve them.

Also, students can be trained to grade papers, keep records of their own progress, develop procedures for recording and displaying class achievement on certain goals, and train other students to do these things and to serve as tutors. These activities can be learning experiences. They also can contribute to the overall effectiveness of the school community and to the students' feeling of involvement.

The extent and manner in which students at each grade level can participate meaningfully in planning and selecting objectives and instructional procedures will differ at each age level. With younger pupils, participation naturally will be less sophisticated and perhaps less active. However, by exposing pupils to the process early, and by giving them continuous practice in making large numbers of small decisions, they will be better equipped to make larger decisions and to assume more and more responsibility for their own learning.

Built-in Mechanisms for Facilitating Change and Affective Growth

The history of innovation in education has been one of resistance to change. Yet, at this time in our history it is of utmost importance to have

educational institutions which are open to change, flexible, and adaptive, if we are to meet the complex problems and challenges posed by a rapidly changing world. Where modification of traditional classroom practices requires significant changes in the roles and functions of school personnel, the resistance to change is likely to be greater. This is of particular significance in developing the tutorial community, since school personnel will be functioning in ways that are quite different from what they have been used to.

Closely related to the development of a flexible, open educational community is the idea that learning involves both feelings and intellect. Much lip service is given to the importance of emotional growth and to the idea that a student's feelings about himself and others and about his educational experiences have an important effect on his cognitive achievement. It seems to be generally assumed that teachers will somehow come to know students' feelings and attitudes and take them into account in conducting instructional activities. In practice, however, the emphasis in the school is on development of cognitive skills. With 30 or more students in a class the teacher finds little time to learn about or deal with the emotional needs of each student. The teacher has had little practice in working on aspects of personality development, and generally feels better equipped and more comfortable in dealing with academic content.

Although much is said about the need for improving communication between students and teacher, amongst teachers, and between teacher and administrator, the school remains a hierarchial structure with teachers

viewed by the students as an authority figure and with administrators viewed in the same way by teachers. This structure, and climate of defensiveness which it fosters, inhibits the development of genuine, positive relationships of individuals with common goals, working together cooperatively and comfortably.

The student-teacher relationship will not improve, innovations will continue to be resisted, and the affective domain will continue to be neglected unless time and procedures for dealing directly with these areas are built into the curriculum. Students must be provided explicit opportunities to express and understand their feelings about themselves and their relationships with others and the world; teachers must have explicit opportunities to work through their feelings about changes occurring in the school and to develop confidence and security in guiding students in the affective domain.

In developing the tutorial community, attention will be paid at the outset, and continuously throughout the project, to the creation and maintenance of a climate that facilitates freedom of expression, change, and experimentation. The means for accomplishing this will be provided directly through what Carl Rogers calls "encounter groups" or "the intensive group experience."

This experience attempts to bring about change in the organizational climates and structures in which the members work, leading toward a climate of openness, risk-taking, directness, and mutual trust. The "workshop" usually consists of ten to fifteen persons and a facilitator or leader. It is relatively unstructured, providing a climate of maximum

freedom for personal expression, exploration of feelings, and interpersonal communication.

As Rogers describes the process, interactions among the group members take place in an atmosphere which encourages each to relate directly and openly to other members of the group. Individuals come to know themselves and each other more fully than is possible in the usual social or working relationships; the climate of openness, risk-taking, and honesty generates trust, which enables the person to recognize and change self-defeating attitudes. The purpose of these group experiences is not to solve individual emotional problems. The emphasis is on identifying and clarifying one's own feelings, attitudes and concerns, on comparing and contrasting them with those of others, on evaluating the quality of one's interpersonal relationships and subsequently on relating more adequately and effectively to others.

Some of the expected outcomes from these group experiences, in terms of the principal participants in the school community, are described by Rogers as follows:

"The Student

will feel more free to express both positive and negative feelings toward other students, toward the teacher, toward content material;

will tend to work through these feelings toward a realistic relationship, instead of burying them until they are explosive;

will have more energy to devote to learning, because he will have less fear of continual evaluation and punishment;

will discover he has a responsibility for his own learning, as he becomes more of a participant in the group learning process;

will feel free to take off on exciting avenues of learning, with more assurance that his teacher will understand;

will find that both his awe of authority and his rebellion against authority diminish, as he discovers teachers and administrators to be fallible human beings, relating in imperfect ways to students;

will find that the learning process enables him to grapple directly and personally with the problem of the meaning of his life.

The Teacher

will be more able to listen to students, especially to the feelings of students;

will be able better to accept the innovative, challenging, "troublesome," creative ideas which emerge in students, rather than reacting to these threats by insisting on conformity;

will tend to pay as much attention to his relationship with his students as to the content material of the course;

will be more likely to work out interpersonal frictions and problems with students, rather than dealing with such issues in a disciplinary or punitive manner;

will develop a more equalitarian atmosphere in the classroom, conducive to spontaneity, to creative thinking, to independent and self-directed work;

will be more able to accept feedback from colleagues, both positive and negative, and to use it as constructive insight into himself and his behavior;

will communicate more clearly with superiors, peers, and subordinates, because his communications will be more oriented toward an openly declared purpose, and less toward covert self-protection.

The Administrator

will be less protective of his own constructs and beliefs, and hence can listen more accurately to other administrators and to faculty members;

will find it easier and less threatening to accept innovative ideas;

will be more person-oriented and democratic in staff or faculty meetings, and will draw more widely and deeply on the resource potential of his faculty and staff;

will be more able to accept feedback from his staff, both positive and negative, and to use it as constructive insight into himself and his behavior;

will communicate more clearly with superiors, peers, and subordinates, because his communications will be more oriented toward an openly declared purpose, and less toward covert self-protection."

In the tutorial community, these group experiences would be conducted along the lines described in "A Plan for Self-Directed Change in an Educational System" (Rogers), with appropriate modifications to fit the

needs of this particular project. The following are some tentative* ideas as to how this might occur during the initial stages of the project.

Two types of group experiences will take place: one will be an intensive workshop of one day or longer; the second will be a "continuing" weekly or bi-weekly experience of 45 minutes to 1-1/2 hours. The goal in the proposed 13-month segment of the project is to have as many adults as possible, who are related to the school program, take part in at least one intensive group workshop. Thus in Phase I, prior to the start of instruction in the kindergarten year, the plan is to have several workshops involving administrators and supervisors (from the target school, from the local school district, from L.A. City School Office, and possibly members of the Board of Education), teachers from the target school, parents and community members and the research and development staff.

There would be both horizontal groups, in which persons of the same "class" meet (e.g., students, teachers, administrators, parents) and vertical groups, in which persons from all classes are included. Participation would be on a volunteer basis, and it is anticipated that the experiences of the first participants will encourage others to volunteer. Several intensive workshops will be offered again during Phase II for those who were unable to participate during Phase I.

Beginning in Phase II, the ongoing weekly or biweekly group experiences will begin, and will include both horizontal and vertical groups.

*Plans will be modified as a result of preliminary activities conducted during the initial stages of Phase I.

During the first semester of the kindergarten year, several different formats will be tried. Student groups made up entirely from the kindergarten classes and others made up of two students from each grade level will be formed. There will also be teachers groups with participants from each grade level.

Gradual Development of the Tutorial Community

The development and implementation of a tutorial community is complex. Provision must be made for a realistic amount of developmental time. Given the complexity and magnitude of the undertaking, the mistakes of past educational projects must be avoided. Too many are short-lived and end after one, two, or three years, at the time when the main work should just be beginning. These efforts attempt to accomplish too much, too fast. The investigators feel, or are pressured to feel--by the nature of their contractual agreements--that they must produce overnight breakthroughs. They frequently compare prematurely innovative practices with traditional practices, when the innovation usually is insufficiently developed and, in reality, two unknown quantities are being compared. The development of a tutorial community in the entire elementary school must be accomplished gradually over a considerable period of time. We are therefore proposing a seven-year project, taking one grade at a time, and using the experience of one year to revise the procedures in the previous grade and redesign the plans for the grade ahead. Under such a plan, school personnel will assume new responsibilities and roles gradually. They will

have considerable opportunity to familiarize themselves with new procedures before becoming deeply involved in their use.

Application of Empirical Evaluation-Revision Strategy

The entire approach in developing the tutorial community will be an empirical one, involving successive evaluations and revisions of procedures until they are known to accomplish specified objectives. In this strategy, objectives are specified carefully; tentative procedures for achieving objectives are proposed; the tentative procedures are tried out and empirical evidence gathered on their effectiveness; the procedures are revised as a result of this evaluation; the process of trial-and-revision continues until objectives have been achieved.

This evaluation-revision strategy was first used by the authors in the empirical "shaping" of programmed materials (Silberman, et al., 1964). The strategy recently has been applied, extended, and adapted to a total classroom configuration in which interactions among students, teachers, materials, and procedures were considered in an integrated fashion (Melaragno and Newmark, 1967). It would be applied and further extended to the development of all aspects of the tutorial community. (See Appendix A for a flow chart and description of the procedures.)

Team Approach and Community Involvement

All persons connected with the school are considered part of the research and development effort. Beginning with the design of the initial version of the tutorial community and continuing through the actual trial and revision stages, explicit provisions are made for the active interaction and cooperation of students, teachers, administrators, parents, and other community members in planning and implementing procedures.

One of the criteria for selection of the target school will be faculty and community interest in the tutorial concept and willingness to participate in the project. The project will not be imposed on a school where strong objections exist. Orientation meetings will be held for school and community persons at which the tutorial community concept will be explained in detail and discussed. Prior contacts indicate that the climate is very favorable at several schools, and we do not expect any difficulty in locating one that will volunteer to participate.

The project emphasizes the important role of teachers and community persons in generating ideas and in developing the tutorial community. Operational procedures are designed to provide mechanisms to ensure that this takes place. During the design stage, these individuals will work with the research and development staff on work groups that formulate behavioral objectives, select and develop materials, and plan and evaluate procedures. During the implementation stages, these work groups will continue and teachers will participate additionally in weekly planning meetings. Recommendations made periodically by expert consultants, and twice annually

by an evaluation team, will be widely disseminated and discussed as a basis for making changes to the school program. Interactions to improve interpersonal communication of all persons connected with the school program will take place through ongoing group experience workshops.

The full-time research and development staff will maintain offices and a conference room near the school. This should facilitate providing parents with information about the project and about ways in which they can participate. Also, it may be more convenient and productive to have group meetings and training of parents as tutors take place on these premises rather than at the school. In short, active participation by school and community persons in developing the tutorial community will not only be encouraged, but will be systematically developed.

It should be emphasized that the participation of the full-time research and development staff is temporary. Its only function is to assist in the development of the tutorial community. The final operating tutorial community is to function completely within the resources of the school district and community. Thus, one of the main goals of the research and development staff will be to work itself out of the system. Provisions will be made to this effect. (In the study recently completed,* all activities performed by the research and development staff were gradually turned over to the school. In the final tryout of the total system, all operations were conducted by school personnel.) At the end of each phase of the project, the grade level in which we are working will be relatively self-sufficient. At the completion of the project, the entire school will be self-operating.

*Melaragno, R., and Newmark, G. "A Pilot Study to Apply the Evaluation-Revision Strategy to Reading Instruction in First-Grade Classrooms, Interim Report." (Mimeographed paper) System Development Corporation, Santa Monica, California, September 1967.

CURRICULUM

In keeping with the concept of gradual development, the project will focus at the start on only part of the curriculum. In the kindergarten year, the point of departure will be language development--communications skills related to oral and written English, reading and reading readiness. However, as operational procedures for the tutorial community are developed and established, they will be applied to larger and larger portions of the curriculum without delay; the plan is to include eventually all aspects of the curriculum.

The tutorial community project is not limited to any particuar type of content or objectives, nor is it a curriculum project for teaching some new and different type of subject matter. Rather, it represents a new approach for planning and carrying out instruction that can be applied to any content. This is not to say that curriculum and curriculum change are not considered important. The project has built-in procedures that make it easier to (1) introduce curriculum change, and (2) give any approach a chance to prove itself.

1. Specifying objectives in behavioral terms makes it easier for school personnel to relate curriculum to goals and to communicate about goals and curriculum.

2. The evaluation-revision strategy, with its emphasis on continuous measurement of performance, forces attention on the need for curriculum modification and provides an empirical basis for doing so.

3. The systematic use of consultants familiar with the latest curriculum developments, who provide recommendations and assistance, acts as a stimulus to change.

4. The continuous dialogue provided by the encounter group experiences reduces defensiveness and creates a climate of openness that facilitates change and experimentation.

SUMMARY OF ACTIVITIES AND HYPOTHETICAL DAY IN THE TUTORIAL COMMUNITY

SUMMARY OF STUDENT ACTIVITIES

Activities Related to Tutoring

1. Receive training to serve as tutors. Learn how to work with peers and with younger children.
2. Tutor peers in the same grade. Use knowledge already acquired to assist peers in mastering objectives.
3. Tutor younger children. Use own knowledge and experience to help younger children master objectives.
4. Train other children to serve as tutors. Use own training and experience to help other children learn how to tutor.

Learning Activities

1. Conventional forms of instruction: large-group, small-group, independent study.
2. Self-tutoring. Work alone in activities related to mastering objectives.
3. Tutored by peers. Receive assistance from peers in mastering objectives.
4. Tutored by older children. Receive assistance from older children in mastering objectives.
5. Tutored by teacher. Receive assistance from teacher in mastering objectives.

6. Tutored by volunteers. Receive assistance from older volunteers in mastering objectives.

7. Participate in encounter groups with students at same grade level.

8. Participate in encounter groups with students from all other grade levels.

9. Participate in encounter groups with teachers, administrators and parents.

Activities to Support the School

1. Receive training in support activities: test administration, test scoring, record keeping, materials preparation.

2. Administer tests to other children; score tests; keep records of own progress and of others' progress; help with the preparation of instructional materials.

3. Participate in discussions of own objectives and learning procedures.

4. Participate in discussions of objectives and learning procedures for other children.

5. Participate in discussions of all the activities, procedures, and interactions in the school.

A DAY IN A FIRST-GRADE CLASS

This is a description of a hypothetical day for a first-grade class in the tutorial community. Such a "day" might occur well along in the development of the tutorial community, after students, staff, and parents have had experience with the tutorial-community concept. Thus, some assumptions underlie this description: students and volunteers have been trained to serve as tutors; record-keeping procedures have evolved; students' needs have been determined by certain assessment procedures; persons in the tutorial community have participated in various encounter groups.

At the beginning of the day, there is a class meeting--or a set of meetings of different groups within the class--to discuss yesterday's experiences and to plan today's events. Students indicate what they have been doing, and what they feel they should do now. The teacher comments on what transpired yesterday, and makes suggestions for possible events for today; mainly, the teacher interacts with the group(s) to provide guidance. During the discussion, goals for the day evolve, along with procedures for reaching them.

After the discussions, students begin working on the tasks selected. Some students continue with ongoing activities, while others start new ones. Many different instructional arrangements go on at the same time:

--A student works alone, solving simple linear equations by making unions of sets. He uses a flannel board and a collection of flannel objects for the set manipulations, and notes his answers in a workbook. A second student is also engaged in self-tutoring, arranging in alphabetical order cards on which words are written, and comparing his lists with correct-answer sheets.

--10 students are involved in intragrade tutoring at the listening center. Five of them are learners, five are tutors. The objective is to recognize the main elements in a story; the students listen to tape-recorded stories, then answer questions posed by the "reader" of the story.

--10 students are working with six older tutors, individually or in small groups. These students are developing phonetic analysis skills, using Ideal School Supply Company's "Magic Cards" and "Phonetic Word Builder" kits.

--Four students who have not yet mastered the concepts of "left" and "right" are being tutored by the teacher. The teacher has the students perform a number of manipulative tasks with primary-grade blocks (e.g., "Put the square block on the right of the chair." "Put two round blocks on the left of the ball.").

--A volunteer mother is working with a student who knows very little English, tutoring him on some concept words that are part of the vocabulary of instruction in the first grade: top, bottom, alike, and different.

When students complete an instructional activity, they are assessed for mastery of the objective on which they were working, and their progress is recorded. Some of the first-grade students record their progress on a large chart mounted on a wall; for other students, progress is recorded on special sheets by the older tutors, the teacher, or the volunteer mother.

Simultaneously with these activities, four students have gone to a kindergarten classroom to assist kindergarteners to master the alphabet. These four first-grade tutors work individually with four kindergarteners who are having difficulty distinguishing among the lower-case letters "b," "d," "p," and "q."

Following this block of instructional time, students have their morning recess. After recess, the teacher meets with the entire class, and uses the time until lunch to introduce the students to a topic in science: magnetism. The teacher defines the term, and indicates its place in the broader field of electricity. Next, the teacher illustrates magnetism by putting a large magnet up to a range of objects, some of which are non-metallic and some of which are made of different metals. A series of simple experiments in magnetism is outlined for the students, along with directions for performing them.

The afternoon time is spent in a number of different activities. Some students continue with instruction that was not completed in the morning; some students begin new types of instruction; some students meet with a cross-section of older children in encounter groups to discuss their feelings about school and their participation in it; other students meet in similar encounter groups with students of their own grade level.

EVALUATION

Rationale

A distinction should be made between evaluating students and evaluating instruction. Student evaluation is concerned mainly with ranking students and assigning grades and generally has little to do with improving instruction.

Evaluating instruction requires the preparation of statements of objectives in behavioral terms, the development of criterion instruments and procedures that provide precise, quantitative measures of performance on each important objective, and the preparation of a detailed description of the instructional system to which test results can be related. Evaluating instruction leads to improvement of instruction by providing an empirical basis for modifying instruction.

To date most educational evaluation (as typified by present-day standardized exams and teacher-constructed classroom tests) is of students and not of instruction. These tests sample from the content of a subject-matter area and yield a relative rating of overall student performance. The results indicate that one student is more or less proficient than another, but provide little information about: (1) how much of the total content was achieved by any of the students; (2) which specific learning objectives each student mastered; (3) how realistic the course objectives were for the conditions under which learning took place; and (4) what conditions need changing.

Another form of evaluation that has contributed little to the improvement of instruction is the type of comparative study in which one course or method (usually some innovation) is compared with another (usually classified as traditional). The major weakness is that two unknown quantities are being compared and it is not clear whether the worst example of one approach is being compared with the best of the other. Further, these comparisons are difficult to conduct and to interpret because of differing objectives or conditions. Most such studies result in no significant differences. In the small percentage of studies where significant differences are obtained, it is usually not known whether either method has achieved its objectives.

The most important questions to be answered are, How well does any instructional system achieve its own objective? and, What procedures are effective in getting it to the point where it does? Not until an instructional system achieves its own objectives at some specified level can that system be meaningfully compared with another system (and then only if objectives are the same and learning conditions comparable).

In the development of the tutorial community, the emphasis will be on using evaluation as a tool to develop a system that achieves its own objectives and whose performance can demonstrably be communicated in unequivocal and unambiguous terms to students, school personnel, and laymen alike. This will involve both ongoing, or process evaluation (which takes place continuously during the development of the system and is an integral part of the system development procedures), and product

evaluation (which is the end evaluation of the finished product to determine comprehensively the extent to which the system achieves its own objectives).

Process Evaluation (Ongoing)

Test Procedures. Each year the outcomes of the tutorial community will be assessed to that point. The extent to which the tutorial community has achieved its objectives for students in all grades in which the tutorial concepts have been implemented will be determined. Both cognitive and affective growth will be measured by administering pretests at the beginning of the year and posttests at the end of the year. Objectives will be stated in behavioral terms and the tests will cover each major objective. In the affective domain, in addition to attitude scales, observable behavioral indices will be developed and used. (For example, improved attitude towards the school may be measured by such things as number of students who volunteer for before- or after-school tasks and how often.) The results of each year will be compared with the performance of the students in the same grade for the previous year. It is anticipated that each year there will be continuous improvement at each grade level over the performance of students at the same grade level in previous years.

Visitation Team. In this evaluation, a team of outside experts will be asked to observe the tutorial community in operation towards the end of each school year and to prepare a written report on it. Their evaluation would include reactions to (1) procedures used by the system development team, (2) the operations of the tutorial community, and (3) the atmosphere

prevalent in the school. The team would consist of five persons representing the following different backgrounds: a national expert on curriculum and innovations, an elementary school administrator, an elementary school teacher, a social psychologist, and a high school or college student. All team members would be from outside the Los Angeles City School District. The team would visit the school for a period of five days. During this time they would observe most of the major tutorial community operations in action; examine materials, statements of objectives, criterion instruments, and performance data; and conduct interviews with students, teachers, administrators, community members and the system development staff.

Product Evaluation (End of Project)

At the end of the seventh year the "tutorial community" will be fully implemented and all students will have been a part of it during their entire elementary school careers. At this point, the results at each grade level will be compared with the baseline data collected during the first year that the tutorial procedures were implemented at a grade level. It is anticipated that the performance at the end of the seventh year will be significantly higher at each grade level.

EXPECTED OUTCOMES

AFTER FIRST THIRTEEN MONTHS

In terms of student behavior in kindergarten classes, the following are the main outcomes which are expected:

1. Increased number of students mastering specified cognitive objectives of the elementary school.

2. Increased number of students achieving specified affective objectives of the elementary school.

3. Increased number of students achieving such "special" educational objectives as: capability for self-directed study; acquisition of positive attitudes toward learning, teaching, and the school in general; and concern for the educational growth of other students.

In terms of the project as a whole the major product will be a detailed description of:

1. A set of instructional and management procedures and materials which enables the tutorial community to function smoothly at the kindergarten level; and

2. A set of development procedures for designing, implementing, and modifying the tutorial community; and

3. The working relationships established between the full-time research staff, the school and community necessary to the effective operation as a research and development team.

AFTER SEVEN YEARS

In terms of student behavior in all grades K-6, the following are the main outcomes which are expected:

1. Increased number of students mastering specified cognitive objectives of the elementary school.

2. Increased number of students achieving specified affective objectives of the elementary school.

3. Increased number of students achieving such "special" educational objectives as: capability for self-directed study; acquisition of positive attitudes toward learning, teaching, and the school in general; and concern for the educational growth of other students.

In terms of the project as a whole, the following are the main products which are anticipated:

1. Model or Tutorial Community. The ultimate product, at the end of seven years, is an operational "tutorial community," involving an entire elementary school of seven grades (K-6). This school will serve as a model and demonstration school where people can go to see the tutorial community in operation or to receive training or experience. It will also be a model of a school that continues to develop and grow over time, where the empirical evaluation-revision strategy has become a part of the system and is used continuously for improvement beyond the period of the formal project.

2. System Description. A detailed system description will be provided, including objectives, materials, procedures, equipment, schedules, time

requirements, personnel requirements and interactions, school-community relations, and costs.

3. Development Procedures Description. A detailed description of the procedures used to develop the tutorial community will be provided as a model for other schools desiring to establish the same type of program.

4. Materials. All materials developed to implement the tutorial community will be available: statements of objectives in behavioral terms, criterion instruments, record-keeping forms, teaching materials, tutor-training materials, etc.

SPECIFIC PROCEDURES AND PHASING OF THE PROPOSED STUDY

The main phases and the specific procedures within each phase are described below for the first 13 months of the study.

Phase I: Preliminary Activities

During this phase of the study, in the four months prior to the fall semester, eight preliminary activities will be carried out. The basic end product of the preliminary activities is a detailed design plan for the kindergarten year of the tutorial community. This plan will describe all the anticipated elements and operations of the initial version of the tutorial community that are to be implemented during the kindergarten year. The first version will serve as the starting point for application of the evaluation-revision strategy in developing the tutorial community. The following are the specific activities to be carried out during this period:

Building Background Information and Selecting Consultants. Published literature on all types of tutorial programs will be surveyed, as will the most recent publications on the elementary school curriculum. Visits will be made to some of the more significant projects in the United States where intergrade and intragrade tutoring have been tried, and information will be obtained on the methods and results of the tutoring arrangements. Individuals who have observed such tutoring in Great Britain and the Soviet Union will be contacted for detailed information on these overseas programs. An important part of this activity will be the selection of consultants to the project, persons with experience with tutoring programs, elementary school curricula, and encounter groups, and the structuring of their roles.

Orienting Study Personnel. A number of meetings will be held to orient persons participating in the study and community members to the concept of the tutorial community and the goals and methods of the project and to solicit their reactions and ideas. School personnel, research staff members, and parents will participate in the meetings.

Preparing Objectives. The cognitive objectives for the kindergarten year as stated in the Los Angeles City Schools' Course of Study for Elementary Schools, will be analyzed. Similarly, objectives contained in publications on the elementary curriculum (such as Heath, 1964; Beauchamp, 1964) will be analyzed. From these objectives, a subset will be isolated representing the minimal objectives for the kindergarten year, and representing those skills a student should possess in order to be prepared for the first grade. A parallel subset of affective objectives will also be determined, such as objectives dealing with attitude toward school, motivation to persist with a task, and concern for other students' success. For each objective in both subsets, a behavioral definition will be prepared. The tasks of analyzing objectives, selecting the subsets of minimal objectives, and behaviorally defining each subset, will be carried out by a group composed of members of the research staff, teachers, a principal, a consultant from the local school district, a consultant from the Los Angeles City Schools, and a member of a local community action group.

Gathering Instructional Materials. Each behaviorally-defined objective will be examined and available instructional materials will be considered to locate materials appropriate for the objective. Educational publishers and supply

houses will be contacted when there are no materials available in the Los Angeles City Schools for a given objective, or to provide additional materials for each objective. New instructional materials will be developed as needed. A reference, relating materials or portions of materials to specific objectives, will be prepared to facilitate planning and carrying out tutorial assignments. This activity will be performed by a group similar to that which prepared the objectives.

Developing Evaluation Procedures. Concurrent with the gathering of instructional materials, evaluation procedures will be developed. These will include procedures for diagnosing students' needs, for measuring students' achievement of objectives, and for evaluating the tutorial community as a totality. Available evaluation instruments will be obtained and used if appropriate, and new instruments will be developed.

Determining Tutoring Strategies. Preliminary descriptions of tutorial strategies will be developed. This will include estimates of the level of tutor that should be used for a given objective. The procedures to be followed by the tutor when using the instructional materials, and the amount and kind of training necessary for the tutor. These preliminary estimates will be based upon previous experience in SDC's tutorial studies, the experiences of others using intergrade and intragrade tutoring, and small-scale experimentation to be carried out at SDC and in the school.

Planning Support Activities. A large number of support activities will be necessary to make the concept of the tutorial community viable, such as tutor training, data collection and processing, scheduling of activities, allocation of resources, and management of the total program. The requirements of these support activities will be determined and plans developed for their implementation.

Preparing a Design. A detailed design plan will be prepared, based on the previous activities. It will specify all of the elements and operations of the initial instructional system and community. Specifically, it will spell out all functions to be performed in the tutorial community and the interrelationship between functions. For each function the following will be stated: purpose; methods; frequency; time; personnel requirements, responsibilities, and training; materials and equipment; location and space requirements; evaluation procedures. The plan will be reviewed by consultants and school personnel, and revised. The plan will constitute a statement of the first version of the tutorial community; different portions of the design will be evaluated and revised regularly during the first school year of the study.

Phase II: Kindergarten Year

Two principal activities will be carried out in the first school year: subjecting the design for the kindergarten year of the tutorial community to systematic evaluations and revisions; and preparing a second design for the first-grade year of the tutorial community. While these two activities require separate attention, they are in fact intertwined, for the design of the first-grade year will be highly dependent upon what is learned about the tutorial community in the kindergarten year.

Near the start of the second semester in the kindergarten year, some participants will begin working on the preliminary activities for the first-grade year. These activities will be similar to those carried out in the first four months of the study, involving the development of a design for the first-grade

year. Again, objectives will be defined, materials and evaluation instruments located or developed, and a document prepared that describes the first-grade plan.

Baseline data will be collected for kindergarten classes by administering pretests at the beginning of the year and posttests at the end of the year in both the cognitive and affective areas.

NOTE

The project described in this document began in May, 1968, under a grant from the Ford Foundation. The Los Angeles City Schools have provided some of the financial support.

Known as the Tutorial Community Project, the study is being performed in Pacoima Elementary School, a part of the Los Angeles City Schools System. The Community of Pacoima is a pocket ghetto in the Northeast San Fernando Valley. Pacoima Elementary School has 66 staff members and approximately 1,500 students with these racial backgrounds: 45% negro, 40% Mexican-American, and 15% Anglo.

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