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ABSTRACT

This report reviews recent innovations in the application of group processes in educational settings. The innovations deal with the use of group dynamics in the teacher learning process and in the improvement of interpersonal relations with students, teachers, and administrators. The report surveys relevant U.S. literature since 1965, concentrating on recent trends, representative applications of group process, and related approaches. Major innovations include a) sensitivity training or T-groups, b) role playing and simulation, c) cooperation through group methods, d) curriculum projects integrating new approaches, e) group process as an approach to teacher sensitivity, f) team teaching, and g) training teachers for new roles. This selective presentation of information presents new needs and challenges useful to teacher trainers, educational researchers and administrators. Basic sources on group methods, and an extensive bibliography are included. (MJM)

STANFORD CENTER
FOR RESEARCH AND DEVELOPMENT
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GROUP DYNAMICS AND THE TEACHER-STUDENT RELATIONSHIP: A REVIEW OF RECENT INNOVATIONS

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Introductory Statement

The Center is concerned with the shortcomings of teaching in American schools: the ineffectiveness of many American teachers in promoting achievement of higher cognitive objectives, in engaging their students in the tasks of school learning, and, especially, in serving the needs of students from low-income areas. Of equal concern is the inadequacy of American schools as environments fostering the teachers' own motivations, skills, and professionalism.

The Center employs the resources of the behavioral sciences--theoretical and methodological--in seeking and applying knowledge basic to achievement of its objectives. Analysis of the Center's problem area has resulted in three programs: Heuristic Teaching, Teaching Students from Low-Income Areas, and the Environment for Teaching. Drawing primarily upon psychology and sociology, and also upon economics, political science, and anthropology, the Center has formulated integrated programs of research, development, demonstration, and dissemination in these three areas. In the Heuristic Teaching area, the strategy is to develop a model teacher training system integrating components that dependably enhance teaching skill. In the program on Teaching Students from Low-Income areas, the strategy is to develop materials and procedures for engaging and motivating such students and their teachers. In the program on Environment for Teaching, the strategy is to develop patterns of school organization and teacher evaluation that will help teachers function more professionally, at higher levels of morale and commitment.

The work reported here was performed as an Affiliated Project of the Center under UNESCO sponsorship, as indicated on the first page.

Table of Contents

Table of Contents--Continued

List of Tables

GROUP DYNAMICS AND THE TEACHER-STUDENT RELATIONSHIP: A REVIEW OF RECENT INNOVATIONS

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Development in Teaching

Innovation has become a byword in American education, particularly during the last decade. Advances in technology, the catalytic effect of Sputnik, changing ideas about the process of education, and the pressures for improvement at all levels of schooling have stimulated unprecedented attention to new practices in nearly all aspects of education. Changing social forces have also had an impact on the schools and education in its broadest sense. As the use of educational technology has increased, there has arisen a corresponding call for humanizing the educational experience through greater attention to the individual learner and interpersonal processes. A search of the literature gives one the impression of an almost exponentially increasing concern with a wide variety of educational innovations encompassing the entire realm of educational functions.

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Various innovations--especially technological developments, new ideas about the purposes of education, and new formulations of the principles of human development--have focused the educational process increasingly upon the individual student. Individualized instruction has been a major objective of such innovations as programmed instruction, computer-assisted instruction (CAI), individually-prescribed instruction (IPI), independent study, self instruction, learning centers, resource centers, open-plan schools, continuous progress plans, and nongraded schools. These changes bring the teacher into greater contact with students on a one-to-one basis rather than as an aggregate class.

Changing Conceptions of the Teacher's Role

The various innovations in education have resulted in correspondingly changed conceptions of the teacher's role. Johnson and Otero (1968) provided a basic description of the emerging role:

> The teacher... -- released from conducting the mechanical instructional routines -- will devote his energies to managing the learning environment of the student. The master teacher will be versed in the psychology of learning and proficient in personal guidance. He will be trained in the new theories of human dynamics and the use of the full range of communications media (p. 139).

Schmandt (1970) put it this way:

> The new teacher will have to be more of a master of people than of data. He will have to provide guidance and inspiration. He will teach what questions to ask and how to ask

> them. He will bring the students together for discussion groups, laboratory exercises, workshops, and study groups (p. 83).

The teacher becomes more of a guide and helper rather than lecturer and dispenser of information. Rather than passively receiving facts and knowledge, students become active participants in the educational effort.

These brief descriptions of the teacher's changing role imply increased emphasis on the application of the dynamics of human relationships and the knowledge of human growth. They similarly point to de-emphasis of the more traditional function of the teacher as controller of knowledge. This emerging focus provides the general framework for the purpose and scope of this report.

Purpose and Scope of This Report

The purpose of this report is to provide a review of recent innovations in the United States since 1965, based on group dynamics and group processes--innovations which have changed the student-teacher relationship, the teaching-learning process, and the functioning of educational institutions as systems. The innovations reviewed vary greatly in the degree to which they have been tried in formal experiments, in the kind and extent of the evaluation to which they have been subjected, and in the style and completeness with which they have been reported. Some are reports from the more research-oriented educational journals, and some are merely descriptions reported in the more practice-oriented journals. Some are progress reports or final reports on projects, and others are mere summaries from books or other publications. General discussion about innovations and new ideas is far more abundant than reports on specific experiments, projects, or applications. Many of the

projects suffer from a lack of systematic evaluation, but their descriptions are nevertheless useful in illustrating innovations in operation.

The scope and focus of the different innovations reviewed here vary also. Some are small-scale applications of specific group techniques in a single classroom. Others involve a broader and more systematic application of group processes or affect target populations of greater scope than a single classroom, such as entire schools or districts. Some focus on changes affecting primarily the learner, while others are more directly involved with the functioning of the teacher.

This report will not deal in detail with specific subject-based curriculum innovations, individualization of instruction, technological developments, or facilities and structural innovations. Such matters will be considered only insofar as they are integral parts of or illustrate innovations in student-teacher relationships.

Specifically, this report will deal with innovations in the use of group dynamics in the teaching-learning process and in the improvement of interpersonal relations among students, teachers, and administrators. It will concentrate on recent trends and representative applications of group process and related approaches as reported in the literature since 1965. These innovations will include the use of T-groups or sensitivity graining, group discussions, cooperative group work, role playing and simulation games, case studies, and variations of these techniques.

These innovations have changed the organization of the teaching-learning enterprise and the functioning of educational institutions. In this report, therefore, some attention will be given to these effects,

particularly to team teaching, one of the most popular educational innovations. The new teacher roles evolving from innovations also require new approaches to teacher training. Some examples of new approaches such as microteaching will be reviewed, along with representative examples of new programs for preparing teachers to function effectively in the new roles.

This review of applications, in educational settings, of new trends or innovations based on group processes is meant to be representative, not exhaustive. Each innovation will be briefly described, and the evaluative evidence on it will be summarized. General conclusions will be drawn concerning the impact of the innovations on the student-teacher relationship and the functioning of educational institutions.

Brief Overview of Group Dynamics in Education

First, however, a brief overview of the field of group dynamics is necessary to place the current developments within an historical and conceptual framework. Although social scientists had earlier engaged in some research on groups and group behavior, the 1950's brought the first concentrated study of group dynamics. The work during this period was aimed primarily at gaining an understanding of the dynamics of groups--the nature and characteristics of groups; the behavior of individuals within groups; leadership qualities and patterns; and group functioning, as in problem-solving situations. For reviews of such studies the reader is referred to Cartwright and Zander (1968), Hare 1962), McGrath and Altman (1966), and Shaw (1971).

The particular contexts of education and the classroom did not receive much attention during this period of basic research. But some

studies (e.g., Trow, et al., 1950; Bradford, et al., 1948; Thelen, 1950; and Jensen, 1955) did investigate aspects of groups within the classroom, such as cohesiveness, power, status, and friendship. Systematic attempts to relate the knowledge gained from research in group dynamics specifically to the classroom appeared around the end of the 1950's and the early 1960's. For example, Raven (1959) and Jensen and Parsons (1959) briefly reviewed such research. The National Society for the Study of Education (NSSE) devoted Part II, The Dynamics of Instructional Groups (Jensen, 1960) of its Yearbook to research and theory on group dynamics, with a systematic focus on the classroom situation.

From that time on, much more attention has been given to the application of knowledge about group dynamics to education. Widespread interest in educational change and innovation has also developed in this recent period. The increasing concern with making education more responsive to the social-psychological needs and interests of learners, as well as their academic needs, attracted efforts to apply group dynamics.

Withall and Lewis (1963) reviewed research on group processes relevant to the classroom in their chapter on "Social Interaction in the Classroom" in the Handbook of Research on Teaching. Bany and Johnson (1964), in their Classroom Group Behavior, also reviewed findings from group dynamics research for their practical applications by teachers to the actual classroom. More recent treatments wholly or partially devoted to influences of group dynamics on the teaching-learning process can be found in the fourth edition of the Encyclopedia of Educational Research (Ebel, Ed., 1969) for example, in the articles

on "Group Processes" by Schmuck, "Teacher Roles" by Biddle, and "Teaching Methods" by Gage.

One particular development in the application of group dynamics had a large impact in education, as elsewhere. This is the "training group," or T-group. The National Training Laboratories (NTL), an affiliate of the National Education Association (NEA) established in 1947 at Bethel, Maine, had done pioneering work with this approach to experiential learning about the processes of group development and operation. In a T-group, the participants diagnose and experiment with their own behavior and with their interpersonal relationships within the group. This format--also variously referred to as sensitivity training, encounter group, or human relations training--became probably the most potent vehicle in the group dynamics movement. Despite slight variations in these group training methods, many people refer to them interchangeably; thus, no particular distinctions will be made for the purpose of the present review. Generally, the terminology used by an author will be used in the review of his report.

Although developed under the auspices of the NEA, the NTL's T-group technique was not applied in educational settings until the 1960's. Nearly all of its early work occurred in business settings with management personnel or in other organizational settings. Detailed discussions of applications and research on this approach to learning in groups have been provided by Bradford, Gibb, and Benne (1964), Burton (1969), and Golembiewski and Blumberg (1970).

Focusing on the human concerns of students, educators and organizations have recently developed offshoots of the general T-group or sensitivity training approach. These developments are designed to

integrate both affective and cognitive elements within the curriculum. Such approaches are exemplified by Philadelphia's Affective Education Program (Borton, 1970), the Ford-Esalen Project based at the Esalen Institute and the University of California at Santa Barbara (Brown, 1971), the Human Development Program based in San Diego (Bessell, 1968, Palomares, 1970), and the Reality Therapy of Glasser (1969). The last two of these will be described among the classroom applications discussed in the first section of this report. These and other programs based on group process approaches, as outlined by Borton (1970), have in common a concern with the student's values, feelings, behavior, and interpersonal relationships, as well as cognitive content. They seek to encourage a dialogue with one's own imagination or fantasy life. They emphasize nonverbal as well as verbal experience. And they use various means, such as games and role-playing, to involve the learner actively in the process.

Classroom Methods Influenced by T-groups or Sensitivity Training

The group process approach embodied in sensitivity training, T-groups, or encounter groups has been adopted in various ways at all levels of education. It is one of the more common innovations based on group approaches in teaching. Some applications merely adapt, within an existing class, the general idea of developing open and free interpersonal communication. Others use more specific group techniques, selected from those used in the complete T-group or sensitivity-training process. These applications are intended to facilitate learning in a subject area, with a complementary focus on affective learning. These adaptations take various forms: structuring an entire course within a climate of open, nonjudgmental discussion; devoting one or more segments

of a course or class specifically to group processes; applying specific group techniques as they seem appropriate; or a combination of these approaches. Sometimes whole courses, usually electives on the high school or college level, may focus on the group process, with no emphasis on particular subject matter content beyond the group itself and the needs of its members.

The applications have varied in scope and formality. In some cases, a single teacher has used some group techniques in a classroom. In other cases, we find school-wide, district-level, or city-wide programs. There are also some specially designed techniques that have been adopted by various schools across the country as a specific part of their overall school program. Some have been simple personal or local try-outs of techniques, some have represented formal decisions to change to a new program or approach, while still others have been carefully planned and controlled experiments intended to evaluate outcomes. The first two, which typically used more subjective methods of evaluation, are more numerous than the last in the literature on educational innovations.

Applications in Regular Classrooms

To begin, we consider two examples of applications of group processes by single teachers in their high school English classes. Each adopted the general approach of structuring a course around open discussion of opinions and feelings, but also selected specific techniques to reinforce the total approach to the group.

The account by Simon and Sarkotich (1967) indicates that the second author (the teacher) decided to try out, in a summer school class, some interpersonal skills and techniques learned from the first

author, a school superintendent who had attended T-group sessions of the National Training Laboratories for Group Development. The teacher shifted much of the responsibility for the class to the students, who discussed and set ground rules. At the beginning of each class session, the teacher briefly presented some important factual content about literary works which she had previously assigned; this presentation consisted of the interpretations and opinions of experts. The students were then free to express their own opinions and feelings during the rest of the period. The teacher attempted to create an open-classroom climate, one which fostered nonjudgmental acceptance of all opinions. The students presumably developed ability to seek and make clarifications through feedback from each other.

Because this class was a personal experiment on the part of the teacher, there was no formal evaluation, although the teacher did ask students for their opinions of the course at the end. In general, the students felt that they had learned much and had enjoyed the class more than the traditional kind of class to which they were accustomed.

Harrison (1971) applied techniques acquired through his own participation in sensitivity training. He started his courses in the fall with the laboratory training approach of seeking information from the students about why they were taking the course, whether they planned to stay, and what their learning needs and goals were. He then assumed the role of resource person, and sometimes of participant, but very rarely undertook the role of lecturer. He often used the "fishbowl technique," in which an inner circle of participants in an activity (usually the discussion and analysis of a piece of literature) was encircled by a second ring of observers and a third ring of resource

people. (Sometimes there are only two rings, participants and observers, in this technique.) The participants could call on the resource circle or the teacher for comments or suggestions, while the observers noted the interpersonal interactions which helped or hindered the discussion. This teacher also made much use of role-playing in his classes. He individualized his evaluation of the students by entering into six-week performance contracts in which students indicated their intended accomplishments for that period. In this way, each student competed only against himself and was evaluated in terms of his own goals. In this teacher's judgment at the end of the year, his students had changed substantially; they possessed greater self-awareness, asked more questions, and had progressed further in literature, as compared with his previous classes.

We turn now to two reports on experimental studies in which high school courses substantially focused on group processes in addition to subject matter were compared with courses taught in the traditional way and emphasizing cognitive content only. In a suburban high school, Stanford (1970) taught both experimental and control classes, each composed of 10-12 tenth-, eleventh-, and twelfth-graders. Experimental and control classes were paired. Two pairs of classes studied nonfiction and science fiction. Two other pairs studied grammar and composition for the semester. The experimental groups spent half of their classroom time in affective learning exercises, such as relating first impressions of one another, learning to maintain eye contact, and other aspects of communication. They were nonetheless expected to cover the same content as their control classes. Activities such as games and role-playing were related to the subject matter of the course as much

as possible.

Evaluation was based on classroom observations of interaction, a student reaction questionnaire, and a test on the course content. The report, although written before completion of all analyses, indicated that the experimental groups showed significantly greater ability to accept as important the contributions of all class members, to take responsibility for contributing to discussions, and to respond to the contributions of others. The experimental group students also felt that they had significantly closer relationships with their peers and teacher. At the end of the semester, these students, as compared with those in the control group, felt they had learned more about themselves and about interacting with others, had enjoyed this class more than any other classes, and would like to have all classes taught in the same way as this class. Also, the experimental groups did at least as well in the cognitive area as the control groups. Indeed, those studying grammar showed significantly more improvement, but the kind of measure used for this assessment was not mentioned. The author suggested, on the basis of his study, that spending time on affective or sensitivity education can improve class members' attitudes and cooperative working relationships without hindering their cognitive learning.

An experiment with sensitivity training in a twelfth-grade social studies class was reported by Roberts (1967). From among 45 volunteers, a group of 24 students was randomly selected to participate in a T-group comprising the first three weeks of the course. The teacher of this class also taught the other 21 volunteers in the usual way, without the T-group, as one control group. A second control class of 20 students was taught by a different teacher without any T-group experience. All

classes were devoted to courses in Problems in American Democracy.

Evaluation was conducted with (a) a scale for measuring attitudes toward people from different communities, given as pretest, immediate posttest, and a second posttest six months after the T-group experience; (b) a scale for assessing perceived behavioral changes as a result of T-group participation, given as posttests at the same two times, but not as a pretest; (c) a task, administered six months after the training, which called upon the class to determine what one song, three pictures, and ten-minute tape recording they would put in a time capsule to best represent their group; and (d) a composition, assigned to all twelfth-grade students seven months after the T-group experience, in which they discussed what had meant the most to them during their senior year.

Mean scores on the two attitude scales (a and b, above) were not significantly different for the experimental and control classes, but the average scores on the two tasks (c and d, above) did differ significantly. As judged from tape recordings of task performances, the experimental class worked more democratically than the control classes on the group task. In the composition, 12 out of 19 responses from the experimental group indicated directly or indirectly that the T-group experience was a highlight of their year. In the first control class, seven students with whom the teacher had voluntarily met to give them an experience similar to the T-group, also responded that this was one of their significant experiences. (The teacher's efforts may have invalidated the experiment by "contaminating" that control class.) The control students, who had not experienced the T-group, tended to respond in the same way as students in general. That is,

their significant experiences were primarily concerned with college acceptance, senior privileges, extracurricular activities, or choice of a certain academic pursuit.

Statements of students, teachers, and parents and tape recordings of the three classes gave additional evidence of the impact of the T-group experience upon the experimental class. Tape recordings of class sessions showed a change in the process and language used in the experimental class: it shifted toward more student involvement and less teacher domination. Reports by the teacher and other members of the staff indicated that the teacher, who was the team leader for twelfth-grade social studies teachers, became more "open."

We now consider four wider applications of T-group methods with varying degrees of structure. One is school-wide, one is city-wide, and the other two represent a curriculum-project approach that can be adopted anywhere.

O'Donnell and Maxwell (1971) reported on an application of "reality therapy" (Glasser, 1969) in an elementary school. Reality therapy focuses the school's primary concern on the feelings of the individual child about himself and school because of the philosophy that, if the school does not treat children "right," it cannot teach them anything. Through guidance from and interaction with a responsible and sensitive teacher, who recognizes and accepts each child as a person, the child learns to reflect on his behavior and its consequences and to make responsible choices.

An integral part of the approach was the use of class meetings several times a week, with the teacher in the role of leader. These meetings were open-ended, or oriented toward solving problems, or

utilized for assessing children's understanding of curriculum concepts; in any case, the goal was to reach a commitment to some solution. At the time of the report, the program had been in operation for three years. In that time it had continuously developed as teachers and students experimented with it. In evaluating the program, the authors stated that, although the students had not advanced academically to a significantly greater degree under the program than before, they had made normal progress as measured by standardized tests. The teachers reported with much enthusiasm that students had improved in adjustment and problem-solving ability.

Although this school maintained heterogeneous self-contained classrooms for their important social and human relations benefits, it provided an alternative to the traditional school by focusing on both the individual and group aspects of education. Teachers were also encouraged to adopt some aspects of a team approach, particularly in sharing ideas and in assisting one another when this was beneficial.

A city-wide human relations program in Cleveland, Ohio, was described by Enterline (1970). "Project Insight" was an open-ended program in which teachers could use any teaching technique that contributed to the program's purpose: to develop students' awareness of themselves and a climate for facilitating students' talking about themselves and their relationships with other persons. The basic questions with which the program was concerned included: Who am I? Who or what makes me what I am? What is my worth? Am I important to society? How do I communicate with others? It should be noted that these general questions are raised in all the so-called humanistic approaches to education, including the T-group or sensitivity training, reality therapy,

and the recent focus of curriculum developers on the inquiry or heuristic approaches to learning.

The program had been in operation for three years at the time of the report in over 60 elementary and secondary schools (public, parochial, and private; urban and suburban) throughout the city. It emphasized participative rather than merely observational activities and included films, games, informal give-and-take, asking questions, and encouraging student responses in a nonjudgmental climate. Teachers new to the project were trained in a six-week summer institute through films, discussions, and sensitivity training. They learned to ask questions, to use inductive teaching methods, and to handle student responses. A curriculum guide provided suggestions and lists of supplementary materials, but each teacher determined his own approach to his class.

No information was given concerning evaluation of the program, as the report was primarily descriptive. Anecdotal evidence indicated that the program was generally considered successful and well accepted. Favorable comments from teachers were reported.

Bessell (1968) discussed a special guided group experience for nursery school and kindergarten children. This Human Development Program (HDP), based at the Institute for Personal Effectiveness in Children in San Diego, provides a planned 36-week daily group activity. Thus, the kindergarten program is divided into a cyclical series of six-week units in each of three areas: awareness of self and others, mastery and self-confidence, and social interaction. The cycle is repeated on a more sophisticated level in the second round of six-week units. The program uses "magic circles" for 20 minutes per day. The

magic circle is modified group encounter, utilizing techniques such as focusing on doing things to make others feel "good," emphasizing ways the children are alike rather than different, and discussing events or feelings which are significant to the children but not threatening to their egos, and providing opportunities and positive reinforcement for successful experience in each discussion. These techniques are intended to facilitate greater awareness and a higher level of functioning. They are structured to provide successful experiences for each child and to avoid anything that might threaten the children, such as the intensive self-examination in sensitivity training.

Teachers are trained briefly through demonstration, lectures, and discussion to use basic small-group skills and then follow a course manual containing semi-structured daily plans for implementing the program throughout the year in their classes. Bessell (1968) held that the group size should be ten, to give each child adequate opportunity to participate and benefit. Obviously, many teachers would have to adapt the program to a considerably larger class or learn to work with separate smaller groups within their classes.

Over the first three years of the program, it was tested with 200 children in public schools, nursery schools, and Head Start programs in several California cities. It was reported that subsequently the program was used in 50 classes in California and Australia. In addition, it was incorporated into elementary education courses at San Diego State College and the University of Southern California. Evaluation consisted of subjective reports by teachers, who felt that discipline problems had substantially decreased and that the children increased their personal involvement, self-confidence, verbal

expressiveness, motivation, personal awareness, comprehension, and social interactions as a result of the program. The Bessell-Palomares Child Behavior Rating Scales were developed to evaluate results in further research on the program. The writers planned to extend the use of the technique through the sixth grade.

Palomares (1970) reported on the application of the HDP in a school with a bilingual program in Albuquerque, New Mexico. The program was initiated for 350 children, most of whom were Spanish-speaking, in kindergarten through third grade. Evaluation at the end of the year compared this school with a comparable control school which had no bilingual program or HDP. Kindergarteners in the HDP school gained on the average over 10 IQ points, and the first graders, nearly 12 IQ points. Similar data were not reported for the control school, so the significance of the HDP school's gain over the other school is not clear. IQ scores for children this young often fluctuate. Also it might be difficult to distinguish the effect of the HDP variable from that of the bilingual program itself, inasmuch as it was reported that oral competency and Spanish performance were 50 percent higher in the kindergarten and first grades in the experimental school. Data were not given for these areas or IQ in the second and third grades. The HDP school at all grade levels had significantly higher scores than the control school in performance (not defined), awareness, self-esteem, mastery, social interaction, peer and teacher relations, and enjoyment of school. But the methods by which these were measured were not reported. There was also a much lower absentee rate in the HDP school. Therefore, there appeared to have been definite improvements in the areas which HDP emphasizes. The success of HDP was also indirectly

evidenced by the fact that the control school adopted the program the second year.

Classes in Human Relations

In this section we consider five reports on classes specifically designed to focus on the group process and interpersonal interaction as the course content. Two were at the high school level, one was an adult education class, and the remaining two were college courses. Presumably, elementary and junior high school students are generally considered to be too young and immature for this kind of intensive focus on the self and relations with others. No reports of such courses at these age levels were found. Wells (1970) reported briefly on a human relations program in six elective classes in a high school. The same teacher taught all six classes, each with 25-40 tenth, eleventh, and twelfth graders. The course was a combination of encounter groups and "General Semantics" training (studying relationships between language and behavior and between words and consequences).

Evaluation of the program, using student self-report instruments, showed an increase in learning to listen, a better handling of reactions of anger and signal responses, and increased empathy for others (peers, teachers, parents). Students also felt they had become more honest with themselves and others, learned to communicate better, increased their sense of humor, decreased their prejudices, become more trusting of themselves, and considered themselves less artificial, more independent, and better functioning individuals.

A coordinated program of human relations courses in the four high schools in Syracuse, New York, was discussed by Price (1969). A formal course for credit was instituted with the objective of improving

interpersonal, and particularly interracial, relations among students, because students had expressed concern about these relations. Four graduate students from Syracuse University, whose Social Studies Curriculum Center collaborated in the project, taught the courses. Certain suggested guidelines were established for a course outline, including the use of role playing, panel discussions, debates, and a possible interschool conference, but the students were to be involved directly in planning the actual content in each class.

In the actual conduct of the courses, the students and teachers experimented with content, method, structure, and media. The general approach was to permit the students to determine what they wanted to talk about, often on a day-to-day basis. The actual content and methods used varied from class to class but included interpersonal and race relations, varied social issues, sensitivity training, and other group methods. A conference was held during the first term for student participants from all schools.

The project was evaluated mainly through teacher and student reactions, which were generally favorable. Teachers felt students had improved their communication skills, especially in interacial discussions about racial issues, and thought the course should be continued. The students felt they learned more about themselves and about communicating with others. They generally liked most the topics which dealt with who they were and how they related to the world, which seem to be recurring basic questions in various group programs. They liked their relationships with the instructors of the course and viewed them more as individuals than as teachers. The report did not indicate the actual number of classes or students participating in the program.

Otto (1967) described a group technique specifically aimed at establishing open communication and encouraging group participants to know each other on a deeper and more personal level in a short period of time. The author had used the approach, called Depth Unfoldment Experience (DUE), in adult education classes focused on developing human potentialities as well as educational and vocational training. The basis of the technique is that each group member shares with the group emotionally significant experiences and incidents of his life. Specific instructions from the group leader allow each number five minutes to share experiences, beginning from early childhood, that had an important influence on his personality, not as merely chronological happenings but as significant emotional events. In an additional minute, the person is to tell the group what he considers to be the happiest moment in his life. If a person does not use his full allotted time, the other group members are instructed to ask personal questions. A three-minute timer is used so that the leader is not distracted from the process by watching the time.

In evaluating the method, tape recordings of six classes held during a two-year period, 1964-66, were analyzed for the number and content of Depth Unfoldment Experiences and the number of summary statements (descriptions of an event without emotional involvement). The 86 subjects shared approximately the same average number of each of the two types of statements, and there were no significant differences between males and females. The most common content categories of Depth Experiences were given; family and school experiences were the most frequent for both sexes. For their happiest moments, women most often cited childbirth; men mentioned achievement and success experiences.

Participants had positive reactions to the experience. It was also stated that a study of the use of the DUE method showed that it greatly facilitated communication, discussion, involvement, and participation in class activities and assignments and also encouraged close continuing friendships. But the means of evaluation and data to support these statements were not presented.

An example of a typical application of T-group or encounter group techniques as the primary course content was an elective psychology course entitled "Personal and Social Adjustment" at the University of California at Davis (Morris, et al., 1969). This type of class is becoming fairly common in colleges and universities; probably even more often, the same general approach is used extracurricularly, either within existing student groups or in groups formed expressly for experiencing group processes. In addition to a limited number of lectures, each student in the course participated for two hours per week, or a total of 18 hours, in an interpersonal laboratory (encounter group) during the quarter. Responses to questionnaires showed that the students felt the course was much more meaningful and relevant than other courses they had taken.

During the second quarter, one section of the course followed the encounter group format without lectures. A control group received lectures only, for experimental comparison. As in other studies, the encounter group section reported the course to be more relevant and personally meaningful than did the control group, while performing equally well on course content, thus indicating a successful integration of cognitive and affective aspects of the course.

The communication program at Antioch College (Solomon, et al., 1970) illustrates a more thoroughly reported, well-planned, and generally adequately evaluated course in group processes for college students. This elective "communication workshop" course included components on technical speech skills, group process skills (including role-playing), structured group exercises, group evaluation (including use of videotape playbacks), and interpersonal communication skills, approached through the medium of the T-group. Thus the disciplines of speech and psychology, as well as the college's previous experience over several years with extracurricular and curricular use of small groups and T-groups for faculty and students, were integrated in this course.

In their overview of seven quarters of the course, which began in 1965, the authors used rating scales and questionnaires to measure personality, needs, and changes in self-perception. The results of these student self-report measures showed increased self-acceptance and self-awareness. Expressed needs changed toward more need for affiliation on the part of males and more need for autonomy on the part of females (these changes may indicate some freedom from cultural stereotypes of male and female roles). There was improvement in group skills and in sensitivity to and communication with others. Interactive behavior in the groups was also assessed by means of videotapes and audiotapes; the analysis yielded evidence of increased openness, self-expression, ease of participation, and interactive communication as a result of participating in the workshop course.

Human Relations as an Approach to Specific Problems

Although the final two applications reported here are labeled

discussion courses and may in some respects resemble group therapy, they are included in this section because both occurred in a high school setting (one is an elective course, and the other was operated in a similar manner but was not labeled as a course) and used the group process approach in a way similar to the preceding group of studies. The two differ from other applications in this section in that each was designed to deal with a specific problem situation.

An example of designing a discussion course for a specific type of student was given by Freeman and Craig (1967). A number of bright students in an upper middle class high school became underachievers after entering high school (i.e., were failing one or more courses), had difficulty adjusting to and competing in this setting, and thus needed special assistance to graduate and enter college. A pilot program was instituted for a two-year period, 1964-66, in which volunteer eleventh graders from this defined population met in a special elective course with two co-leaders. One was a guidance specialist from the school, and the other was a mental health worker from the community. One group (limited to 12) met each semester for approximately 13 sessions, with boys and girls meeting separately. Twenty students participated over the first year, and 21 the second.

The method was called focused group discussion, with the leaders directly challenging the students initially by confronting them with their situation and leading them to think about why they were in the situation and what they planned to do about it. The course content consisted of the concerns and questions the students raised, with communication being the main objective; thus, they participated directly

in setting the agenda of the course and even took responsibility for the planning of some sessions. The students quickly responded to the opportunity of openly discussing their problems, and the leaders provided direct help (such as study aids and guidance information) when asked.

The students were asked to give their opinions in evaluating the course. They felt the discussions were satisfying, felt involved and committed to the group, were happy to find adults (the co-leaders) who were genuinely interested in them, and thought the course should be extended over two semesters instead of one. As a result of the course, they seemed better able to cope with their academic problems. Seventeen of the 20 first-year participants actually went on to college, two graduated from high school but were still indefinite about career plans, and one had moved before graduation and was not included in the follow-up. All 21 from the second-year program received passing grades and were promoted to seniors. Thus, the program succeeded in terms of academic outcomes. It is regrettable, however, that no comparison was made with a control group.

Other evidence of success included extension of the program to the third year and planned expansion after that. In addition, interest developed among teachers, administrators, and school committees in the possibilities of using this method of discussion in other courses, in developing student leadership talents, and in involving students more in the educational process. Thus, the special discussion course served both as an innovation itself and as a means of instigating further innovations in this school.

Another special application of a non-directive discussion approach was a high school drug education program (Dearden and Jekel, 1971), which stressed open communication among student participants. A pilot program with 12 students, most of whom did not know each other but who represented a cross-section of the student body, was held during the spring of 1969. Half of them happened to be drug users.

To evaluate the pilot program, the students were given a test on changes in behavior and attitudes about drugs and were asked for their opinions about the approach used. It was found that half of the drug users had actually quit using drugs, and the others had reduced their use. As a whole, the students felt the program was good, although a few felt uncomfortable with the nondirective technique. The emotional distance between drug users and non-users that usually existed in this school was evident at the beginning of the program, but it was quickly overcome. A closeness and a genuine feeling of caring developed among the group members and seemed to provide important emotional support, especially for the drug users.

After the success of the pilot experiment, the program was repeated in the fall for 12 weeks with a second group, chosen by members of the first group and thus insuring representation of both users and non-users of drugs. This program was as successful as the first. A training program was also begun for teachers, similar to the student program but providing more intensive sensitivity training along with a study of communications, adolescent behavior, group dynamics, and drugs, in order to prepare them to lead subsequent drug education groups for students. In the spring of 1970, the program was expanded, with 11

teachers participating. There were some initial problems, such as the difficulty of some teachers in establishing open communication with students, and a few students dropped out of the groups. But all groups except one were considered generally successful in the end. Although no systematic evaluation was reported, the results led to steps to expand the program even further. Long-term results were not yet assessible, but the authors noted their impressions of positive changes in behavior and attitude and an accompanying openness of communication which seemed to have promise for effecting a better school climate.

Summary

Subjective reports of all these applications in which teachers have used the kinds of group processes described indicate that both students and teachers react favorably to them. Students generally feel that, as a result of participating in such group approaches, they develop improved awareness of themselves and others, learn to communicate better and more openly, and develop closer interpersonal relationships with students and teachers, and that this type of class is one of the most meaningful and satisfying experiences they have in school.

Teachers seem to feel that use of these group processes improve classroom interactions and discussion, make students more accepting of one another, help build self-confidence, and help teachers to better understand their students and to develop closer relationships with them.

Each review in this section is summarized in Table 1, which lists participants, group processes involved, type of report (experimental or descriptive), and evaluation criteria and outcomes.

TABLE 1

Summary of Applications of Group Methods
Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Simon & Sarkotich (1967)	One high school English class	Open, nonjudgmental class discussion and feedback	Descriptive	Student reports	Enjoyed the class and felt they learned much.
Harrison (1971)	One high school English literature class	Laboratory training approach: Fishbowl technique Role-playing	Descriptive	Teacher's report	Increased students' awareness. Students asked more questions, made better progress in course than his previous classes.
Stanford (1970)	Four high school English classes (two classes in literature, two in grammar and composition)	Group communication exercise Games Role-playing	Descriptive report of experimental study: Two experimental classes (one of each type of class) and two control classes	Classroom observations of interactions	Analyses not completed at time of report. Initial results indicated: Experimental Ss had significantly more sensitivity and interaction in discussions.
				Student reaction questionnaire	Experimental Ss felt closer relationships with peers and teacher.
				Test on course content	Experimental Ss did at least as well as control Ss in cognitive area, and had significantly greater improvement in the grammar class.

TABLE 1--Continued

Summary of Applications of Group Methods Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Roberts (1967)	Three twelfth-grade social studies classes (two teachers)	T-group for first three weeks of course	Experimental: One experimental class One control class taught by same teacher One control class taught by another teacher	Attitude measure (pre- and post-test) Measure of perceived behavioral change	No significant differences between experimental and control groups
				Classroom interaction during group task	Experimental group judged more democratic than control groups.
				Student compositions	Experimental students mentioned the T-group as one of the most meaningful experiences of their year.
O'Donnell & Maxwell (1971)	Entire elementary school	Reality therapy: Class meeting	Descriptive	Achievement	Normal academic progress.
				Teacher's reports	Improved student adjustment and problem solving. Teachers were enthusiastic.
Enterline (1970)	City-wide program (over 60 elementary and secondary schools)	Open-ended program focusing on human relations (methods up to each teacher): Games Nonjudgmental discussions Various T-group or sensitivity techniques	Descriptive	Anecdotal reports	Program considered generally successful and well accepted. Favorable comments from teachers.

TABLE 1--Continued

Summary of Applications of Group Methods Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Bessell (1968)	Many schools (nursery school and kindergarten level)	HDP (Human Development Program) Magic circle Modified encounter techniques	Descriptive	Teachers' reports	Decreased discipline problems. Children increased personal involvement, self-confidence, verbal communication, motivation, awareness, interactions.
Palomares (1970)	Kindergarten through third-grade classes in two schools	HDP (in conjunction with bilingual program)	Descriptive report of experimental study: One experimental school with HDP and bilingual program One control school with neither program	IQ gains	Kindergarteners and first-graders gained in IQ in experimental school (complete data not reported, though, so results are questionable).
				Oral competency and performance in Spanish	Again, increase reported for experimental kindergarteners and first-graders, but no other data given.
				Personal-social improvements	Improvements reported for experimental school, but no data given.
Wells (1970)	Six elective high school classes in human relations (all taught by same teacher)	Encounter groups	Descriptive	Student self-reports	Felt they had increased: ability to listen and handle anger, empathy, honesty with selves and others, trust, and communication skills. Decreased prejudice.

TABLE 1--Continued

Summary of Applications of Group Methods Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Price (1969)	City-wide human relations program (four high schools)	Sensitivity training Open discussion Role-playing Other group methods	Descriptive	Teachers' reports	Improved students' communication skills, especially in interracial discussions.
				Students' reports	Felt they learned more about selves and communicating with others. Liked relationships with instructors in course.
Otto (1967)	Adult education classes in personal development	Depth Unfoldment Experience (DUE)	Descriptive report of study made (no control group used)	Tape recordings of six classes over two-year period	Ss gave equal number of depth experiences (emotional) and descriptive (non-emotional) statements of events.
				Students' reports	Positive reactions to the experience.
				Author's report	Facilitated communication, discussion, involvement in class.
Morris, et al. (1969)	College elective psychology course in personal and social adjustment (two quarters of the course were included in report)	Encounter group	Experimental study in second quarter of course: One experimental section had encounter group One control section had lectures only	Students' reports	Experimental group reported course to be more relevant and meaningful than control group.
				Performance on measure of course content	Both groups performed equally well.

TABLE 1--Continued

Summary of Applications of Group Methods Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Solomon, et al. (1970)	College elective course--Communication Workshop (report covered seven quarters of the course)	T-group Structured group exercises Role-playing	Experimental (no control group used)	Student self-report measures	Increased self-acceptance, self-awareness, group interaction skills, sensitivity, communication skills.
				Video- and audio-tapes	Improved interactive behavior: increased openness, self-expression, ease of participation, interpersonal communication.
Freeman & Craig (1967)	Special junior-year elective class for high school underachievers (two-year pilot program, 41 students)	Focused group discussion	Descriptive	Students' reports	Felt involved and committed, better able to cope with academic problems.
				Achievement	Nearly all of first-year participants entered college. All of second-year participants passed their junior year and officially became seniors (twelfth graders).
				General response of school faculty	Program continued beyond pilot program. Favorable reactions in general.

TABLE 1--Continued

Summary of Applications of Group Methods Influenced by T-Groups or Sensitivity Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Reports	Evaluation	
				Criteria	Outcome
Dearden & Jekel (1971)	Special high school drug education program (report covered program over two years)	Open, non-directive discussion	Descriptive report of pilot program with 24 students in two different semesters	Students' reports	Positive reactions to program, improved relationships between drug users and non-users.
				Behavior changes	Drug users stopped or decreased use of drugs.
				General response in school	Program greatly expanded at end of second year.

Role-Playing and Simulation

Role-playing and simulation are related group techniques which require active participation of students in contrived settings and interpersonal situations in which they act out the presented situation or problem (usually with conflicts of interest involved) and its solution or conclusion. These methods focus as much on the process of decision making in reaching a solution as on the solution itself. While the method of role-playing (sometimes referred to as socio-drama) has been used for several decades, and is thus not considered an innovation, there has recently been a great deal of renewed interest in it as an instructional technique. The widespread interest in and expanding use of simulation is very recent, since the technique has been developed and used only within the past few years and particularly since the mid-1960's; thus, it is more clearly an innovation.

Role-playing and simulation are alike in many respects, but they do have some distinguishing features. Role-playing (or socio-drama) involves setting up a hypothetical but representative situation focusing on interpersonal relationships or social situations. Students are assigned to play each role represented, and these students spontaneously talk out and act out the circumstance as they see it from their role perspectives. Important aspects of role-playing are the observations by non-participants and discussion following each role-playing episode. A situation can be replayed by different sets of students to try out new alternatives or other interpretations; this replaying provides a good basis on which the class can evaluate the different interactions and their consequences. Role-playing can also be applied in unique ways

to focus on a subject under study, as will be shown in some examples.

Role-playing is, in a sense, a limited form of simulation. Simulation (often called simulation game) is a technique used to create a learning environment which represents ("simulates") a lifelike situation, in which students assume role identities and attached responsibilities, usually within a designated system with a set of operational rules. (This set of rules creates the game aspect.) The students must interact within the given framework to work through the situation to a conclusion; the concept of strategy is an important component of the technique. Although fine technical distinctions can be made between a simulation and a game, they are often used synonymously; thus, no distinction will be delineated here.

The field of simulation for educational use has expanded rapidly. Currently, a large number of research and development organizations are designing and testing games in universities as well as non-profit and private agencies, and many simulation games are available commercially from various companies (Twelker, 1970).

The unique characteristics of the two techniques will be clarified by examples of their classroom applications. These techniques are especially suited for use in the social sciences, in which area they are most widely applied.

Role-Playing

Five classroom applications of role-playing are described in this section to illustrate the various ways in which it has been used by teachers. The first four are teachers' own descriptive accounts, and the final one represents the limited reports of experimental studies of role-playing.

Role-playing is often used in the classroom as a means of dealing with problems among the students. A successful example of its use for such a purpose in a sixth-grade class in a disadvantaged area in central Los Angeles was reported by Crystal (1969). The class was explosive with inter-student hostility. Fights broke out frequently between the students, who did not seem able to understand or see the other person's side objectively. There was little cohesiveness among class members and almost no interest in school.

The teacher introduced the idea of role-playing by having students pantomime simple situations. Many of the students responded quickly and enjoyed the activity. The teacher then used the technique whenever possible, including acting out scenes from whatever material they were reading in class. After several weeks, the students began to act out their own plays, which they made up spontaneously or wrote singly or in groups. Eventually, the students began to put more of their own personalities into their role-playing, especially in situations common to them. The students began to show reasoning in discussing and evaluating problems acted out in role-playing, but showed little transfer to their emotionally charged daily interactions.

The teacher's evaluation of the use of role-playing in this class was that, although it certainly did not accomplish all that she had hoped, the technique did create enthusiasm and interest for the first time among the students and demonstrated that they could look at their actions in a more rational manner in a context in which they were not emotionally involved. The teacher found that she gained from the process, as well, since observing the children in their role-playing gave

her some insights into the students' self-concepts.

The use of socio-drama in a high school English class was described by Braddock (1967). The school's guidance department had introduced the technique to the teachers and made available a commercially marketed set of 32 open-ended personal, job, family, and other situations. The English teacher used some of these in her class, but later the students chose situations from their own lives and acted them out.

In her subjective evaluation, the teacher reported that students, through this technique, were able to see and accept the other side in conflict situations by understanding the roles involved. Use of drama also gave the teacher some insights into her students' inner conflicts. She felt it helped students develop rapport with one another and had academic benefits, as well, by helping them to develop skills such as independent thinking and encouraging cooperation and self-confidence to aid students in their pursuit of learning. This teacher had used the approach successfully, in her opinion, in teaching fundamentals and subtleties of literature and had noted its influence on students' writing and oral reading, expression of action, and dialogue.

Role-playing can provide a useful technique for studying novels, as illustrated by the account of Magers (1968). She used role-playing in teaching a classic English novel, Great Expectations, to her high school students. Her approach was to assign a student to each character role in the novel to develop a feeling for the social and emotional climate of the period. By some type-casting of students in the roles that would be most fitting for them, she felt assured that they would adapt to the character roles. The roles were "performed" in class

interviews. Class members interviewed the characters involved in assigned chapters of the novel. When questions were asked, students responded from the perspectives of the characters they portrayed.

In evaluating the use of role-playing in this instance, the teacher felt the oral experience was valuable to the students in two ways. The students seemed successful in immersing themselves in the roles they assumed and also in learning the importance of careful reading and well formulated, pertinent questions to ask in their interviewing. The students generated a great deal of enthusiasm with this approach. To illustrate the success and enthusiasm with which students identified themselves with their character roles, the teacher noted that some of the students retained their character names throughout the year and used them as frames of reference for composition ideas, drama themes, and even some classroom behavior problems.

A unique and creative application of the technique of role-playing was made by Plati (1970) in a high school chemistry class. To clarify certain concepts of the atom, he had his students assume the roles of atomic particles and properly arrange themselves in rows of chairs set up to represent various electron configurations. The procedure enabled students to develop an understanding of the concepts of shells, subshells, and orbitals and their arrangements within the atom. They were actively involved in the process of determining where the atomic particles were located, and why, as they had to find their way physically to the right places. The author noted that the students by themselves developed the concept of orbitals and the rules for filling them. It seems plausible that students will learn the structure of the atom

more effectively in this experimental manner.

The instructor's informal evaluation of this method was, of course, positive, because it was effective in getting students to learn the concepts. He also indicated that the active involvement of students necessitated by this method seemed to carry over into their future activities in the class; it also helped shy and slow learners build more self-confidence. On an end-of-the year evaluation, this topic was one of those most liked by the students in this course.

An experimental study of the effects of eight role-playing sessions over eight weeks in two experimental sixth-grade classrooms was conducted by Shaftel and John (John, 1970). The control group was a class which had creative writing sessions. The hypotheses were that, given a complex story, children who had participated in role-playing would be more able to identify the main problem, to identify cause and effect relationships, to suggest solutions to the story's problem, and to show sensitivity to the feelings of persons in the story, when compared with children in the control group. Different hypothetical open-ended problem situations presented in Shaftel and Shaftel (1967) were used as both the role-playing and the story stimuli.

The data consisted of pretest and posttest performances on sentence completion items and taped interviews of the children, both based on an open-ended problem story. The responses were classified by judges, and the data were analyzed according to the proportion of experimental and control subjects who showed improvement from pretest to posttest. The results showed that the experimental subjects proposed significantly more solutions and saw more cause-effect relation-

ships (this difference approached significance). There were no significant differences between the groups in identifying the main problem or in sensitivity to feelings.

John (1970) analyzed data from the same study to determine if role-playing produced more futuristic thinking (seeing long-range as opposed to short-range effects) and more abstract responses. All of the written and taped responses were analyzed by a group of three judges according to time frame and abstractness. The percentages of pretest and posttest shifts in the experimental and control groups were determined on both dimensions. The experimental group had a significantly higher percentage of responses shifting from short-range to long-range effects and a significantly lower percentage of shifts in the reverse direction. There were no significant differences between the groups in shifts along the abstract-concrete dimension. These two sets of analyses of the effects of role-playing provided evidence that active participation in role-playing may help students identify more solutions to, more causal relationships in, and more long-term effects of problem situations.

Simulation

Six studies conducted to describe and evaluate the use of eight representative commercially available simulation games are here reviewed. More experimental studies of simulation are reported in the literature than is true for most of the other areas included in this review.

Cherryholmes (1965) described the use of a simulation game on international relations. It was used as the core activity of a six-week unit in international relations in a high school American Government

course. In this game, students assume the roles of officials of various hypothetical nations and are responsible for manipulating the economic and military resources and activities of their nations with the option of using any major strategy available to real nations. At the time of the author's report, this game had been used with about 500 students over two years in this high school.

In evaluating one of their early simulation runs in the first year, students responded to statements concerning the extent of their interest in the game and its meaningfulness in understanding real international relations. Of the 84 students, 87 percent enjoyed the game, indicating a high degree of interest, and 66 percent or more said the game was meaningful on each of the three questions assessing this. At the end of the second year, students reported that they felt they had high motivation, increased understanding of the complexity of international politics, and increased favorableness toward more centralized and efficient policy-making procedures after participation in the game. They were also less willing to make generalizations about international relations after this experience, indicating a realization of the complexities in any one situation. In general, their attitudes shifted from moralistic-idealistic to more realistic ones. These were determined by pretest and posttest differences on a measure of attitude toward international relations. Thus this study provided evidence of changes in attitudes as a result of participation in a simulation; but the extent or persistence of such changes and the effects of the game on cognitive learning were not measured.

Baker (1968) conducted an experiment with eighth graders in American

history classes in a junior high school to compare a simulation method (two classes, N = 64) with the conventional method using a standard text (two classes, N = 67) as to effects on students' learning and retention of factual material and on attitudes about American history in the pre-Civil War period. The experiment was conducted for 15 days during the winter of 1965-66. The simulation in this study was based upon the problems and characteristics of the social, political, and economic system in the United States from 1840 to 1860. The north, south, west, and border states were set up as separate nations (but nations participating in a cooperative alliance) in the simulation. The operation of the game was similar to that of the international relations game just described. A problem covering one or more topics of a unit was presented, with students studying and planning strategies in their separate "nations" and then meeting together in a "World Council," with the teacher serving as its president, to take action. Class discussions were also held to gain additional insight into the process and problem; and lectures, student reports, or related discussions were used as supplemental approaches.

It was determined that there were no significant initial differences among the four classes in IQ or social studies achievement. Evaluation of the experiment was based on analysis of pretest and post-test performance on an especially constructed test of knowledge of pre-Civil War history and on an attitude questionnaire dealing with the complexities of foreign policy and centralized policy decisions--an adaptation of the instrument developed by Cherryholmes (1965). The test of knowledge was administered again after six weeks to assess

retention.

Results showed the simulation classes to be significantly superior over the conventional classes on the knowledge posttest. The results on retention were not so clear. Although the simulation students as a whole had a significantly higher mean retention score than control students, their loss of knowledge was also greater; i.e., their scores declined to a greater extent than the scores of control classes, particularly for one of the experimental classes. The explanation for this was not readily apparent. The results concerning attitudes resembled those of Cherryholmes: the simulation students changed their attitudes significantly toward more favorableness to centralized policy-making and more appreciation of the complexities of pre-Civil War problems and policy decisions. However, this study, like the previous one, did not assess the stability of such attitude changes.

Schild (1968) reported results of research with four separate groups on the use of a simulation game, called "The Parent-Child Game," for learning effective strategies in resolving issues by interpersonal interaction and exchange. The game deals with issues on which parents and adolescents frequently disagree, such as dating behavior, doing homework, helping in the home, and appearance. The rules of the game designate specific alternative "behaviors" on each issue for the child, each bearing a certain score for both the child and parent. The scoring system is arranged so that each side gains a higher number of total points by the process of reaching mutual agreement through rational exchange in which each side gives up something relatively unimportant to him in exchange for something relatively more important.

The four groups evaluated for replicability of results were a senior class of 24 students at an all-black high school; 16 students from the same school selected by teachers for the game; and two groups of 28 and 18 undergraduates at Johns Hopkins University, where this and several other simulation games have been developed. Rational exchange or agreement was statistically designated by a high value of a statistic (gamma) which showed the degree of positive correlation between the two players' orderings of the importance of the issues to both sides. For the four groups, it was clearly shown that over three rounds of playing the game, all groups had substantially increasing rational agreement, as evidenced by gammas for the three rounds (about .00, .26, and .65,respectively) for three of the four groups. The fourth group, which had recent experience with another strategy game, had higher gammas (greater rational exchange) on all rounds, but the increases with each round were comparable to those of the other groups. One group, the selected high school students, also showed additional increases in gamma upon playing three more rounds six weeks later, with their beginning round's score being nearly identical with that of their final round from the previous playing; this result suggests that there was good carryover of strategy learning, at least over a six-week period

These results indicated that rational exchange strategy was learned over repeated playings of the game. There was also some suggestive evidence that the strategy learning generalized from one game to another. But no evidence was available on transfer to real life situations of the players.

Three well-known games for learning in simulated environments, also developed and tested at Johns Hopkins University, were reported by Boocock and Coleman (1966). The first of these, the Life Career Game, is played by teams of two to four players who must make decisions at 10 to 12 different points in the life of a hypothetical person for whom they have a case history. Thus, the game is somewhat similar to the case study method. The purpose is to make decisions for the person which will maximize his present satisfactions and future potential for a "good" life. The players must themselves carry out activities in making the decisions, such as filling out college or job applications, and thus they learn such skills. Scores are computed statistically on the basis of certain census and survey figures and various probabilities, computed from basic data on the person, in the areas of education, occupation, family life, and leisure. The team with the most points wins.

The second game developed by Boocock and Coleman is a legislative game played by groups of six to ten players in the role of legislators. Each player has a set of cards showing his constituents' feelings on various issues. Players bargain informally for support on issues important to them and then have formal legislative sessions. Their success (re-election) is based on getting bills passed or defeated according to their constituents' desires.

The third game is a community disaster game in which each of six to nine players is given a role (complete with location in the community, special obligations and interests, and identification of his relatives and friends there) in a simulated community in which a

disaster has just occurred. The purpose of the game is to find out the location and extent of damages and then organize the community and its resources (e.g., police, fire department, public works) to try to minimize the spread of the disaster and evacuate people. The winner is the player elected by all the players, from among the three with the lowest "anxiety" scores, as the one who did the most for the community.

These games have been field-tested with various groups--mostly high school students and youth groups outside of school, and with some junior high school and younger students. Evaluation was based on analysis of pretest and posttest questionnaire data from participants. The authors reported results on groups of 4-H members (ages 13 to 21) at two separate conferences, but they indicated that results obtained with other groups were similar. The career and legislative games were played at one conference, with participants in one game serving as the control group for the other game. The disaster game was played at another conference with no control group. In all cases, the questionnaire results indicated that game participation increased the motivation of players, increased their feeling of understanding the processes and complexities in the corresponding real-life situation, gained confidence in their own abilities to deal effectively with the situation, and increased their understanding of the interdependence of various aspects of the particular environment involved. But participation in the games was not compared with other methods of obtaining these results.

Heinkel (1970) evaluated changes in learning and attitude from participation in a simulation game called NAPOLI (National Politics),

in which students are members of either a conservative or a liberal party in a fictitious lower representative house of government and must consider 11 bills. Using 67 students in two intact junior college political science classes, he selected one class randomly as the experimental group, while the other served as a non-simulation control; both were taught by the same teacher. In the experimental class, the teacher randomly assigned students to the two political parties and eight geographic areas in the simulation. The game was played one hour each day for four days. The control group received traditional instruction over the same material.

To evaluate cognitive outcomes, both groups were given two pretests and two posttests (one posttest was immediately after the experiment, and the other was the final examination at the end of the semester). Analysis of covariance revealed no significant differences between the groups in the cognitive learning measured by the tests. A semantic differential was also administered following the experiment to measure favorable and unfavorable attitudes toward government; the simulation class made significantly more favorable responses on three of the ten categories and on the total instrument. The differences were in this direction on all other categories but were not significant. The simulation group also made more extreme responses than the control group on all categories and the total, the differences being significant on six categories and the total. The teacher and students felt this particular game was too simple for this age group and would probably be better suited to high school or junior high students.

These results resembled those obtained from most studies of

simulation and other group methods: there were no differences between simulation and control groups in cognitive learning, but more desirable attitude changes resulted from participation in the simulation.

An example of employing simulation in the classroom with the affective objective of influencing particular attitudes (in this case, racial attitudes) was reported by DeKock (1969). A game called "Sunshine" was used in American Studies classes in an all-white suburban high school. Students were "reborn" as blacks or whites by drawing at random either white, tan, brown, or black ID tags with accompanying personal identities in terms of education, vocation, yearly income, address, and neighborhood (which varied in degree of segregation and in values of the homes). During three weeks of studying American Negro history and literature, students assumed the identities by wearing their tags and physically grouping themselves in "neighborhoods" within the classroom. They earned image points (IMPS), which reflected their self-images, as they studied and interacted. For example, the teacher introduced the pressure of a racial crisis, during which IMPS, especially for blacks, were arbitrarily lost. Students developed personal involvement and began to feel the effects of prejudice, since the IMPS also served as the students' grade points for the unit. The students dealt with the pressures and issues through their various factions by submitting proposals to the city council.

Evaluation of the game was based on analysis of pretest and posttest measures of racial attitudes, a posttest measure of knowledge of Negro history and an essay on the simulation experience. But results were reported by DeKock (1969) only on attitude change. These showed

that, for 398 students participating in the simulation between 1965 and 1968, there was a substantial upward shift in racial tolerance in terms of percentages of the students participating, although no estimate of statistical significance was given. No control group was used in evaluating cognitive outcomes, and there was no long-term assessment of lasting attitude changes or knowledge retention. But these shortcomings are common to many such studies, as has been seen.

Summary

The evidence on the classroom uses of role-playing and simulation (see Table 2) indicates that these methods are highly motivating to students, probably because they actively involve students in the learning process. There does not yet appear to be clear evidence of any superiority of these methods over other classroom methods for promoting learning or cognitive content. But there is definite evidence, particularly for simulation, of an effect of increasing comprehension and understanding of the complexities and realities underlying various systems. The use of simulation seems to aid in the learning of strategies and clearly causes attitude changes among participants. All in all, these methods seem to have desirable effects on important aspects of the learning situation and hold much promise for educational use.

Cooperation through Group Methods

In recent years there has been growing interest in improving cooperative aspects of learning, as against the competitive spirit engendered by emphasis on high grades as a factor in gaining admission to college. Perhaps competitiveness has also been aroused by the knowledge explosion and the resulting increased emphasis on imparting as

TABLE 2

Summary of Reported Applications of Role-Playing and Simulation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Crystal (1969)	One sixth-grade class	Role-playing	Descriptive	Teacher's report	Students were interested and enthusiastic. Increased rational examination of interpersonal situations in which students not emotionally involved but little transfer of such evaluation to "real" situations. Teacher insight into pupils.
Braddock (1967)	One high school English class	Socio-drama	Descriptive	Teacher's report	Increased student understanding of roles in conflict situations. Improved student self-confidence, inter-student relationships. Teacher insight into students. Improved students' writing and expression in English assignments.
Magers (1968)	One high school English class	Role-playing (by interview method) of characters in novel	Descriptive	Teacher's report	Student were enthusiastic. Improved student inverviewing skills.

TABLE 2--Continued

Summary of Reported Applications of Role-Playing and Simulation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Plati (1970)	One high school chemistry class	Role-playing of atom configurations	Descriptive	Student end-of-year evaluations of course	Best-liked topic in course.
				Teacher's report	Increased student involvement and self-confidence. Students effectively learned concepts of atom.
Shaftel & John (John, 1970)	Three sixth-grade classes	Role-playing	Experimental: Two experimental classes had eight weekly role-playing sessions One control class had creative writing sessions	Performance on sentence completion items	Experimental Ss gave significantly more solutions, saw more cause-effect relationships than control Ss.
				Taped interviews with children (open-ended-problem story)	No significant differences between experimental and control Ss in identifying main problem, sensitivity to feelings.
John (1970)	Three sixth-grade classes	Role-playing	Experimental: Two experimental classes had eight weekly role-playing sessions One control class had creative writing sessions	Performance on sentence completion items (open-ended problem story)	Experimental Ss had significantly more shifting of responses from short-range to long-range effects, and significantly fewer shifts from long- to short-range.
				Taped interviews with children (open-ended problem story)	No significant differences between experimental and control Ss in shifts from concrete to abstract responses (or vice versa).

TABLE 2--Continued

Summary of Reported Applications of Role-Playing and Simulation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Cherryholmes (1965)	500 students in high school American government courses over two-year period (in one high school)	Simulation game on international relations	Descriptive	Student responses to game collected the first year (N = 84)	Enjoyed game--high interest. Felt game was meaningful.
				Student responses at end of second year	High motivation. Increased understanding of complexities of situation. Increased favorableness toward centralized and efficient policy-making. Increased realistic attitudes.
Baker (1968)	Four eighth-grade American history classes	Simulation game on pre-Civil War social, political, and economic situation	Experimental: Two experimental classes (N = 64) had simulation game Two control classes (N = 67) had traditional teaching instruction	Factual knowledge test (immediate posttest)	Experimental Ss had significantly higher scores than control Ss.
				(Posttest six weeks later)	No clear superiority in retention by experimental Ss.
				Attitude questionnaire	Experimental Ss changed attitudes significantly toward favorableness to centralized policy-making. Experimental Ss increased appreciation of complexities of situation.
Schild (1968)	Two groups of high school students (N = 24 and 16), and two groups of college students (N = 28 and 18)	Simulation game: The Parent-Child Game	Experimental: No control group used	Degree of rational agreement (representing positive strategy learning)	Rational agreement increased substantially over successive rounds of playing game in all groups.

TABLE 2--Continued

Summary of Reported Applications of Role-Playing and Simulation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Boocock & Coleman (1966)	4-H conference participants (ages 13 to 21)	Simulation games: Life Career Game	Experimental: Experimental Ss had career simulation game Control Ss had legislative simulation game	Student responses on questionnaires (criteria and outcomes apply to all three games)	Increased motivation. Increased understanding of processes and real life situation complexities. Increased self-confidence in dealing with situation.
	4-H conference participants (ages 13 to 21)	Legislative game	Experimental: Experimental Ss had legislative simulation game Control Ss had career simulation game		
	Participants in another 4-H conference	Community disaster game	No control group used		
Heinkel (1970)	Two junior college political science classes (total N = 67) (one teacher)	Simulation game: National Politics	Experimental: Experimental class had simulation game Control class had traditional instruction	Pretest and posttests over cognitive content Semantic differential measure of attitudes toward government	No significant difference between experimental and control subjects. Experimental subjects had significantly more favorable attitudes than control subjects toward government.

TABLE 2--Continued

Summary of Reported Applications of Role-Playing and Simulation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Dekock (1969)	398 students in high school American studies classes in one high school from 1965-1968	Simulative game "Sunshine" (concerned with racial attitudes)	Experimental: No control groups used	Pretest and posttest measure of racial attitides	Increased racial tolerance evidenced.
				Posttest of Negro history	Not reported.
				Essay on simulation experience	Not reported.

much knowledge to students as possible in order to maintain the nation's competitive position, especially in the scientific fields since Sputnik heralded the beginning of the space age. In any event, more recent concerns with humanistic aspects of education and the increasing emphasis on group processes, have made the idea of cooperation more visible in both educational practice and educational philosophy.

Examples

One experimental study and several descriptive reports will illustrate the levels and kinds of cooperative approaches to learning that have been tried.

A comparison of cooperative and competitive class discussions was undertaken by Haines and McKeachie (1967) to assess effects on student tension, achievement, and satisfaction. Four sections of 20-21 students each in an introductory college psychology course were subjected to two weeks of the competitive discussion condition and two weeks of a cooperative discussion condition in a balanced design; i.e., two sections had the two conditions in one order, and the other two groups had them in the reverse order. In this way, each class served as its own control. In the competitive condition, the students were told that part of their final grade depended upon their own recitation performance; in the cooperative condition, they were given the same instruction, but were also told that good recitation performance by any student would also automatically be to the credit of every other class member.

Evaluation was based on tension level (self-report and observation measures), group performance (number of questions covered per minute in a class session), and satisfaction (student self-report) under the two con-

ditions. Results of the analyses showed that the students evidenced significantly less tension, had significantly better class performance, and were significantly more satisfied with the discussion techniques used when they were in the cooperative condition.

This neatly designed study yielded clearcut results that have important implications for education. The traditional competitive emphasis may do most students more harm than good; a more facilitative cooperative atmosphere for learning may well benefit students in general both in their attitudes toward learning and in their actual performance.

Kranser (1969), a high school art teacher, described a creative use of cooperative processes in his classes. His approach was to combine basic art values in aesthetic appreciation with a sense of group responsibility and cooperation. In the art project described as an example, each student designed his own module, a cigar box, to become part of a total class assemblage of all the modules. Basic decisions first had to be made to determine a unifying element, which in this case was the use of black and white colors. The author reported that in the progression of the project, class discussions were held on the relationships within and between modules. Students interacted with one another in suggestions, comparisons, criticisms, and assistance with construction. Discussions between teacher and students helped to focus on and develop group responsibility. In the last stage of the project, the group explored together the possibilities for the final arrangement and, through class discussions, reached a general group decision. Since this was a teacher's personal description, no evaluation was reported, other than the author's own enthusiasm and successful experience with his approach.

A study of the use of small groups to foster social relationships within a classroom was reported by Meehan and Schusler (1967). The study involved eight-sixth grade teachers and their pupils. Teachers formed five or six small groups within each classroom on the basis of sociometric choices of the pupils, placing each pupil with one peer of his choice A cyclical plan of small-group work was followed in which group membership and leadership were adjusted once a month. Classroom seating was arranged by groups which operated throughout the school day. Emphasis was placed on skillful interaction within groups. It was found that many learning and behavior problems, with which the teachers usually had to deal, were handled by the group members themselves. This result freed the teachers to serve more effectively as resource persons. The teachers observed group interactions during each cycle to determine whether they were dominated by the leader or another member or balanced among all members; groups were most often found to be balanced.

To evaluate the project, teachers and pupils were asked open-ended questions to solicit their opinions and feelings. Teachers indicated that the most valuable effects were an increase in pupils' taking responsibility for each other and for class rules; more time for teachers to observe and help individual pupils; and increased communication from pupils. They reported the most difficulty with noise. Pupils reported a strongly favorable reaction to small-group work. They felt it helped them with their schoolwork; improved their interpersonal skills, interactions, and self-confidence; and had good social-emotional effects. Group leaders, in addition, reported feelings of personal satisfaction and status in the role. The authors concluded that the generally positive results encouraged continued use and study of the method.

Team Learning

A promising new classroom practice appears to be uniquely suited to interlace with a number of other new educational techniques, perspectives, and organizational patterns. It is also consistent with observations of children's behavior in studies in the behavioral sciences. This is team learning (and its variant, cross-age helping), in which children work together in pairs, helping each other with their learning tasks. In one sense, it is a counterpart to team teaching (which will be discussed in a later section), but it also has its roots in the idea of cooperation, as opposed to competition, in the learning environment. It is closely related to the new practices of small-group instruction, individualized instruction, nongradedness, flexible scheduling, and flexible grouping. It seems also to have some basis in research on socialization processes and interpersonal relationships among children. Three brief examples of this practice will illustrate its use and value.

A report in Nation's Schools (Team learning...., 1968) described the system used in a junior high school in Buffalo, New York. Students worked in a buddy system (in pairs of their own choosing) doing homework, tests, and other assignments together. One completed assignment or product represented the efforts of both team members.

The teachers who have worked with this method have reported that it has been particularly beneficial to the poorer students, in raising their self-confidence through the support gained from working with another child toward the same goals. Shy students who would never ask questions in class will ask their partner. Many students reportedly worked harder in this system in order not to appear lazy to their partners.

Another experience with team learning in a junior-senior high school was reported by Maurer (1968). Here the teachers assigned pairs by homogeneously matching students. It was found to work successfully in various subject areas; one mathematics teacher reported, for example, that after she began using team learning in her poorest class, it became her best class. The general evaluation from the teachers was that this method had markedly improved students' motivation, involvement, and self-discipline and had developed interest in school among those who previously had not cared. And, although these two examples are from the secondary school level, the technique might well operate similarly at the elementary level.

An example of a cross-age tutoring variation of the cooperative learning approach was developed at the Institute for Social Research at the University of Michigan (Lippitt and Lippitt, 1968, 1970). In an approach which they call the Cross-Age Helping Program, older students (upper elementary or junior or senior high school students) serve as models and provide academic assistance to the younger ones; they also learn to develop responsibility and gain useful helping skills; and, in addition, they achieve a certain measure of status which enhances their own self-concepts. The program includes special training for the tutors through a weekly seminar discussion and skill-practice session on how to relate to and help younger children, in addition to weekly briefings on subject matter by the teachers of their tutees. The reported evaluation of the results of the program based on its experimental application indicated benefits for both the younger and older students. In addition to receiving help in academic skills, and gain-

ing added incentive and self-confidence, the younger students benefited from the companionship of the older ones. The experience itself has proved valuable to the older children in the ways outlined above; in addition, they have received academic benefits through review and increased motivation.

Summary

These results of various applications of cooperative approaches (as summarized in Table 3) have shown that students benefit both academically and socially, demonstrate responsibility, and show increased motivation when they engage in learning tasks in cooperation with other students. The small-group and pair arrangements in team learning could be adopted in any classroom, but they would be especially effective in individualized instruction. Students can provide much of the needed assistance and thus free the teacher to serve more as a resource and to provide help for the students who need it most.

Perhaps the ultimate use of cooperative groups in classrooms has been demonstrated by the Soviet Union (Bronfenbrenner, 1962, 1970). Groups within the class, such as rows, have collective responsibility for behavior and performance of their group members through controlling and helping peers. This Soviet method is not based entirely on cooperation, however, but goes beyond it to a strong spirit of competition--among groups and classrooms.

Curriculum Projects Integrating the New Approaches

The Woods Hole Conference in 1959, sponsored by the National Academy of Science, brought together for the first time scholars from

TABLE 3

Summary of Reported Applications of Cooperative Group Methods

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Haines & McKeachie (1967)	Students in four sections (N = 20-21 in each) of an introductory college psychology course	Cooperative group discussion	Experimental: Two sections had two weeks of cooperative discussion condition, then two weeks of competitive discussion condition Two other sections had conditions in reverse order	Tension level (self-report and observation)	Significantly less tension under cooperative condition than under competitive condition.
				Group performance in discussion (number of questions covered per minute)	Cooperative condition showed significantly better performance.
				Satisfaction (self-report)	Significantly greater satisfaction with discussion techniques under cooperative condition.
Kranser (1969)	One high school art class	Whole class cooperative art project: group discussion, planning, and coordination	Descriptive	Teacher's report	Teacher reported enthusiasm for and successful experience with this approach.
Meehan & Schusler (1967)	Eight sixth-grade classes and teachers	Small-group work used entirely (five or six small groups per class)	Descriptive	Teachers' reports	Increased pupil responsibility. Increased pupil communication to teachers. More opportunity for teachers to help individual pupils.
				Pupils' opinions	Positive reactions: helped in schoolwork; improved interpersonal relationships and self-confidence.

Table 3--Continued

Summary of Reported Applications of Cooperative Group Methods

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
"Team learning tries out buddy system" (1968)	Students in one junior high school (various classes)	Team learning	Descriptive	Teachers' reports	Built students' self-confidence. Students worked harder under this system.
Maurer (1968)	Students in a junior-senior high school (various classes)	Team learning	Descriptive	Teachers' reports	Improved students' motivation, involvement, self-discipline, interest in school.
Lippitt & Lippitt (1968, 1970)	Varied aged students (lower elementary to junior and senior high)	Cross-age tutoring	Descriptive	Authors' report	Improved skills, self-confidence, and incentive for younger children (tutees). Increased academic skills, responsibility, status, and self-confidence for older children (tutors).

the various branches of science (plus a few historians), and psychologists, professional educators, and educational practitioners to examine collectively the teaching of science (Bruner, 1960). Within each of the sciences, university scholars had been increasingly engaged in major efforts to design elementary and secondary school curriculum projects. They were concerned with improving the dissemination of scientific knowledge, with a focus on method and structure as well as subject matter, and had become increasingly interested in the nature of the learning process in efforts to make teaching and learning as effective as possible. This blending of minds and perspectives from the various relevant disciplines is still characteristic of the continuing and widespread concern for designing curricula which are effective, useful, and meaningful to the learners engaged in them. This concern, manifested not only in the sciences but in all of the disciplines, has been reinforced by the increasing emphasis on humanistic approaches in education.

Out of these general concerns and efforts and the concomitant interest in student-centered curricula and teaching methods has developed a proliferation of curriculum projects. The methods these projects embrace, such as discovery leaning, inquiry method, and the inductive learning approach, have been classified as heuristic teaching--"teaching aimed at promoting a broad range of active, process-oriented, self-directed, inquiring, and reflective modes of learning" (Gage, 1969, p. 1456).

Examples

The design and application of curriculum projects which are based on heuristic methods can best be elucidated by examples. This approach

has been pursued with particular vigor in the social studies. The following examples (four in the social studies, and one in science) show how these methods have been combined with the use of group processes in classroom applications. These will present a view of more integrative teaching approaches which incorporate the previously described group techniques. Small- and large-group discussions and case studies have not been separately included in the sections outlining specific group methods; it is felt that the examples in this section will sufficiently illustrate the use of these techniques, along with other methods such as role-playing, games, cooperative group work, and a general emphasis on open interpersonal communication and interaction.

An excellent example of an elementary school social science project that integrated various group learning approaches with the scientific inquiry method was reported by Lippitt, Lippitt, and Fox (1965). They had designed six laboratory units, each based on the students' application of the following designated steps for using scientific problem-solving to study behavior: exploring the problem from the students' own perspectives; observation of behavior specimens and recording data; compiling and organizing data; identifying and discussing causal factors and dynamics; evaluating; testing hypotheses; summarizing discoveries and generalizations; examining relevant work done by behavioral scientists; applying learning to other situations; and evaluating the learning experience by means of data-gathering techniques. The six units developed by the time of this report covered the following topics for lower and upper elementary grades: learning from adults; relations with "olders" and youngers," feedback in interpersonal relationships; anger; group rules and standards; and working together in

small groups. Group processes used in the units included: role-playing to help identify a problem, focus upon the interpersonal dynamics, test alternative solutions, and apply them to other situations; small groups to work together on observing and recording data; and much group discussion at all stages.

In addition to describing a total unit as it was used in a class, the authors reported tentative results for a pilot project in which the six units were taught in experimental classrooms in two elementary schools. Data on changes in attitudes, human relations knowledge, and behavior for the experimental and control classrooms had been collected, but were not yet completely analyzed. Initial results suggested that the students were ready for this type of study of human relations and that the study motivated the children to work not only on this unit but on other activities in the classroom as well. Continuing work was planned for developing and testing additional units for various age levels.

"Man: A Course of Study" is one of the best known prototypes of a specially designed social studies curriculum project utilizing new emphases in instruction (Dow, 1971; Ferber, 1970; see also Jones, 1968, and Bruner, 1966). As of Dow's (1971) report, the project had been introduced in 1500 classrooms in 30 states. Jerome Bruner developed the idea for the project in 1964, and it has been marketed by Education Development Center. Three questions are central to the curriculum: What is human about human beings? How did they get that way? and How can they become more human? After examining animal behavior and survival, stressing comparisons and contrasts, students focus upon man as a unique biological species, with some common social behavior and some varying behavior patterns resulting from different cultures. The

Netsilik Eskimo, arctic hunters, provide a cultural context for study and discussion.

The course and its materials are designed to encourage diverse activities among the students. Included in the course are films, games, role-plays, small group activities, and 30 booklets in place of the usual single textbook. Individualization of instruction is possible with the format used, but small group study is also important; major goals include learning through interaction and classroom community.

Dow reported, without giving measures or data, the results of evaluation of the project during its development phase. Teachers and students were highly enthusiastic about it, and students gained on both content and conceptual measures. Teachers changed their behavior to a more informal style with less teacher-initiated activity and more student-initiated questions and discussion. Results concerning impact on students' social behavior and attitudes are still inconclusive, but this curriculum project with its materials and heuristic teaching-learning methods holds promise for improving social understanding and communication.

A good example of the development and implementation of the inquiry method in another area of the social studies is The Law and American Society, sponsored jointly by the Chicago Bar Association and the Chicago Board of Education (Elson and Elson, 1971; see also Sanders and Tanck, 1970). Since 1966, five summer institutes have been held, along with evaluation workshops and seminars during the year, to train and assist inner-city teachers to use the inquiry method and to aid them in introducing legal concepts in history and social studies classes.

According to the report, 365 teachers had been involved in the program. Special curriculum materials and teachers' guides have been developed for the fourth through twelfth grades: a history series focuses upon constitutional law; and a series on justice in the urban setting examines the landlord and tenant, consumer law, poverty and welfare, juvenile delinquency, and crime. All of these topics are of particular interest and concern to inner-city children and youth. New series in the process of being tested focus on police and social protest in the city.

The inquiry method employed in teaching these units emphasizes an open classroom climate in which student-generated ideas and hypotheses can be discussed and tested. Problem solving, reasoning, and independent study are important aspects of the program. For each series, books with case studies comprise the text materials and provide the medium for approaching the problems and topics.

Evaluation thus far has shown that the program has positive effects. In 1968-69 six experimental groups of 100 randomly selected students in Grades 5, 7, 8, 9, and 11 who had used the constitutional law series were compared on achievement with matched control groups from nearby schools not using the series. Five of the six experimental groups had significantly higher achievement than their controls, and the one exception was a class in which the materials were received late and seldom used. Attitudes toward the law, legal system, police, and legislature were also measured and, with the exception of the same single class, the experimental groups showed greater positive changes than the control groups. Teacher and student attitudes toward the program as a whole have also been reported as favorable.

Fraser and Switzer (1970) reported reactions to Inquiries in Sociology, a recently designed and tested inquiry-oriented discussion course for high school students. The one-semester course is based on the four interrelated themes of socialization, institutions, stratification, and social change. It requires an inductive approach with high student participation in methods such as case studies, biographies, experiments, and collection and analysis of data.

The course was initially tried out by nine teachers in the spring of 1968, then revised and adopted the following year for use with 222 teachers and over 9000 students. The authors collected questionnaire responses from participating students and teachers. The general level of student interest in the course was ascertained by comparing interest in it with interest in other courses they were taking concurrently. Of the 1653 students responding, 75 percent felt the new sociology course was at least as interesting as other courses, with 42 percent indicating it was more interesting than others. Students generally were the most interested in the socialization and social change units of the course, which were probably of more immediate and personal concern to them than the other two sections. They liked the use of case studies, biographies, and class experiments more than the methods of surveys and data analysis.

The authors included their own more subjective assessment of the course, based on their experience in directing the national trial. The approach required a change in the usual teacher-student relationship; both were expected to be equally involved in asking and answering questions. There was a wide range in teacher confidence and competence in using the inductive inquiry method in place of their conventional didactic

teaching. Some students, as well, were somewhat uncomfortable with the approach, as they did not have the security of knowing what was expected of them. Because of uniformly high student interest and generally positive teacher reaction, however, the course was considered successful.

A small-study approach for high school biology based on the Inquiry Role Approach (IRA) was described by Bingman and Koutnik (1970). The general objectives of this approach were that the student would become less dependent on the teacher and more independent in inquiry activity and that the teacher would move from information-giving toward participating with students in evaluating the students' inquiry activity.

Students worked in teams of four, each with a specific role responsibility: technical adviser (located evidence in text or other materials), team coordinator (moderated progress of the group's discussion), data recorder (kept records of the group's evidence and conclusions), and process evaluator (helped the group channel and control emotions and kept track of the group's success at teamwork). The members of a group discussed a series of statements presented in a student Inquiry Guide and tried to reach consensus on accepting or rejecting each statement on the basis of evidence and supporting assumptions. After the teams had worked for most of a class period, the whole class convened; a spokesman presented each team's position on the statements, class members reacted openly with different interpretations or evidence, and the teacher acted only as discussion leader and facilitator.

One main value of this approach is its integration of course content with the process of learning (inquiry) and with group processes. The project has undergone a pilot and refining phase. Testing of the stra-

tegies and materials to provide evaluative evidence of the success of the approach was forthcoming, noted the authors, but the use of the method has been promising for the teachers who have been involved. No data on specific reactions were given, but the discussion indicated a favorable response.

Summary and Implications for the Teacher's Role

The preceding examples, which are summarized in Table 4, probably provide as good an illustration as any of the changing teacher-student and inter-student relationships and the accompanying changing roles of the teacher, resulting from new educational techniques and trends. These changes include an increasing concern for (a) individual students, their interpersonal relationships, and the dynamics of human development and group processes; (b) the structure of knowledge and the process of learning; and (c) the technological developments and organizational patterns which help free teachers to use more of their uniquely human capabilities in assisting students to maximize their learning potentials.

The teacher becomes more of a facilitator, guide, and resource. He helps students to use their past experience and knowledge and to develop learning skills. Students use these skills so that, through self-direction and interaction with their environment, they learn effectively from new experiences. Through a continual process of both individual and cooperative inquiry, students become able to analyze problems, define alternatives, and reach solutions. In other words, the teacher provides assistance in various ways to the students so that they may learn for themselves. Interestingly enough, this con-

TABLE 4

Summary of Applications of Group Processes to Curriculum Projects

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Lippitt, Lippitt, & Fox (1965)	Elementary students in experimental classrooms in two schools	Role-playing, small-group work, group discussion (elementary school social science project based on scientific inquiry methods)	Descriptive report of experimental pilot project, with initial results only Control classrooms used for comparison	Authors' report of initial evaluation results (Data being analyzed included attitude change, human relations knowledge, and behavior)	Children motivated to work, ready for this kind of inquiry and study of human relations.
Dow (1971)	1500 elementary classrooms (in 30 states)	Games Role-playing Small-group activities ("Man: A Course of Study"--social studies project)	Descriptive	Teachers' and students' reports	Teachers and students were highly enthusiastic. Students gained on content and conceptual measures. Teachers became more informal in interaction with students, and students initiated more discussion.
Elson & Elson (1971) Sanders & Tanck (1970)	365 inner-city teachers and their classes, grade school through high school	Group discussion, case studies, inquiry method emphasizing open-classroom climate (The Law and American Society social studies project) Workshop and seminars to train teachers	Descriptive report of experimental study of six experimental groups and six matched control groups (grades 5, 7, 8, 9, 11)	Achievement Measures of attitudes toward law, police, legislature Authors' report of attitudes toward program	Experimental groups had significantly higher achievement than control groups. Experimental groups had greater positive changes in attitudes. Favorable attitudes on part of teachers and students.

TABLE 4--Continued

Summary of Applications of Group Processes to Curriculum Projects

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Fraser & Switzer (1970)	High school students and teachers (9000 students and 222 teachers, as of this report)	Group discussion, case studies, inquiry methods (other inquiries in sociology)	Descriptive	Questionnaire responses from 1653 students Authors' opinions from directing program	Students felt course was as interesting or more interesting than other courses. Generally positive teacher reaction and high student interest.
Bingman & Koutnik (1970)	High school biology classes	Small-group work in teams of four students, class discussion	Descriptive	Authors' report in their discussion	Indicated favorable response to program.

ception of education and the role of the teacher resembles strikingly that which John Dewey espoused in the early decades of this century.

A problem arises, however, from the fact that many teachers have been trained in the traditional manner and have taught in the conventional school setting. Hence they are accustomed to, as well as secure in, their long accepted role of presenter of knowledge and controller of their classrooms. Teachers accustomed to such a system cannot be expected to be able to assume a new and seemingly ambiguous role simply because it is "the new way."

The new trends in education have implications for present and future teachers, as well as teacher educators. Teachers must be trained or assisted to assume their new roles comfortably and effectively. They need to be oriented toward working more with smaller groups and individuals; they must be trained in the skills needed to function within this orientation; they need to develop new kinds of relationships with their colleagues and their students; and they need to be willing and able to work within new organizational frameworks which might better achieve educational objectives. It is to efforts to train teachers in these ways that we turn now.

Group Process as an Approach to Teacher Sensitivity and Educational Innovation

As has been noted, there is an increasing emphasis on the humanizing influences and functions of teachers, especially on their interactions and interpersonal relationships with students and colleagues and on their facilitation of group processes among students. Accordingly, it is clearly important that teachers cultivate a sensitivity to the needs and feelings of those with whom they work. It is also important that they develop enough self-confidence and sense of security to allow themselves to try new ideas and teaching methods to meet the needs of their students.

Development of Personal and Interpersonal Sensitivity

With the rise in popularity of sensitivity training and other group process approaches, it was to be expected that these methods would also be used with teachers, teachers-in-training, and other educational personnel to improve their personal and interpersonal awareness and sensitivity. The following four examples illustrate some of the kinds of programs used to achieve this goal.

A group discussion approach was used with voluntary groups of new inner-city teachers in New York to facilitate their consideration of the frustrations and problems they were experiencing (Hendrickson, 1968). The discussion leader was an experienced teacher and professor of education who was a consultant for the school board. Taped sessions of each group, with four to eight teachers, were held in her home over a ten-week period for one to three hours one afternoon per week. The number of groups and the total number of teachers involved were not reported.

No formal evaluation was made; the author stated, however, that the teachers attained a better personal understanding of themselves and their

problems through their interaction and exchange of problems, ideas, and solutions. They also gained a greater and more realistic insight into the frustrations of teaching and understanding of the children and the system. The inference from this study is that such group discussions benefit beginning teachers in a difficult teaching situation by providing support, by bringing forth suggestions for coping constructively with the realities they meet, and by facilitating the tryout of new ideas.

Lee (1970) conducted an experiment with elementary school teachers to investigate the effectiveness of sensitivity training. He compared such training, given to 10 teachers, with classroom instruction and discussion on human relations principles given to another 10 teachers. A second control group of 21 teachers received no treatment. All teachers were volunteers and were randomly assigned to the sensitivity training group and classroom group. Each group received 20 hours of training and covered the same reading materials.

The criteria for evaluation included amount of absenteeism of the teachers and their students (behavioral data) and several psychometric measures: the Minnesota Teacher Attitude Inventory (MTAI), which assessed teachers' attitudes toward students; a Q-sort technique, which measured their real and ideal self-perceptions; and an opinion survey, which required administrators and parents to rate teachers' human relation skills.

The sensitivity training group showed a significantly greater increase in MTAI score and self-esteem score than the no-treatment control group. The differences compared with the class training group approached significance, but the absolute differences in self-esteem change were small. Students of the sensitivity-trained teachers teachers were

significantly less often absent from school during the semester of the experiment, compared with students of teachers in both other groups. There were no significant differences among the three groups in teacher absenteeism or in parent or administrator ratings of teachers' human relations skills.

This study showed some positive results of sensitivity training on teachers' attitudes toward teaching and students and on teachers' self-perceptions. These teacher characteristics are probably important for successful human relations in classes. Whether there was actually a causal relationship between the sensitivity training and fewer student absences would have been better established, perhaps, if a behavioral measure of teacher-student interactions or some other means of assessing the actual application of human relations skills in the classroom had been included in the design.

Kimple (1968, 1969, 1970) described an extensive program of sensitivity training for teachers in the South Brunswick, New Jersey, School District. Designed to help teachers develop sensitivity to themselves and students, six-week summer sessions have been held since 1967, with some follow-up sessions during the year. With some variation from year to year, the basic program included a week of laboratory training (T-group format) in group dynamics. This was followed by four weeks of mornings devoted to team teaching in a special summer school and afternoons devoted to evaluation of and planning for teaching, as well as continuing work in group dynamics to develop further group skills. The final week was devoted to a more complete evaluation of the program and its implications for the coming year.

No data or formal evaluation were reported, but according to the description and subjective assessment, the program was effective. Individual reactions by participants, observations by the leaders of the program, and the program's continued existence indicated that results were positive. But the reports did not indicate whether reactions were obtained systematically from all participants. It was stated that no one was harmed by the experience and that no participant felt it was a waste of time.

In a later article on teachers and T-groups, Harrison (1971), reported on what followed from the initial participation in an NTL T-group laboratory by all principals in the South Brunswick School District. The emphasis on human dynamics and human relations expanded until most of the district's teachers and some high school students had participated in one of the summer workshops. This program, then, provides a good example of the diffusion of an educational innovation throughout an educational system.

An example of the incorporation of sensitivity training into teacher training programs was described by Marshall (1970). In the initial program in the fall of 1968 at Boston University, 20 groups of 10-12 juniors in elementary education met once each week for two-hour sessions. The group trainers were graduate students. The goals of the groups were to facilitate personal and interpersonal awareness and interaction, to improve understanding and development of skills in group processes, and to improve personal and teaching behavior.

The program was revised during the second semester on the basis of the experience of the first trial, so that fewer but longer sessions were scheduled. The program was continued during the following year,

with revisions again being made during the second semester. A cognitive and affective training program was begun for the graduate student trainers, co-trainers were assigned to each group, and weekly consultation sessions were held by the author with co-trainers to assess the progress and problems of the groups.

No formal evaluation of the program was conducted, but reports of participants were collected. These reports were sufficiently favorable to warrant continuation of the program. The consensus of participants was that there should be a greater amount of sensitivity training. An unexpected outcome was the development of interpersonal friendships which continued after the groups ended. Participants also reported improved understanding, openness, and communication in interpersonal relationships.

Stimulation of Change and Innovation

It has been suggested that group situations, such as those related to T-groups or sensitivity training, which focus on individuals' feelings and needs, on interpersonal communication, and on learning from the processes occurring within the group generally result in positive changes in participants. Usually, changes are found in increased awareness of self and others, improved communication skills, and greater openness toward others.

This type of group approach has thus provided a potentially effective means for stimulating persons, and organizational personnel in particular, to become agents for change and innovation within their areas of influence. First applied in business, the approach has been adopted in education as well. The following five examples illustrate

the kinds of programs that have been used for this purpose. The first two were aimed at individual teachers and their teaching practices, while the last three involved a school's entire staff or a large representative group of staff members.

While there may not be any major differences between these programs and those in the preceding section, they are grouped together here because of their similarities in primary purpose and intended outcomes. The previous examples were programs focused on changes in the personal sensitivity of the participants; while changes may have occurred in their classroom behavior, these were not the prime target. The following examples are programs in which the training or workshop participation was an intermediate step toward changes or innovations.

One attempt at introducing educational change through the use of human relations training was conducted by Miles (1965) with 34 elementary school principals who attended a two-week summer human relations training laboratory. A matched control group was composed of peers nominated by the experimental group; an additional control group was composed of 148 principals randomly selected from a national directory.

The evaluation of this experiment was relatively thorough compared with most other studies of this type. It included analyses of a number of criterion measures made prior to, during, and after the experimental treatment. The following instruments were administered to the experimental and control subjects and an average of five job associates of each subject before the laboratory and three and eight months after it: (1) a measure of task-oriented behavior and consideration; (2) a peer nomination form (Group Participation Scale); and (3) an open-ended measure of perceived change.

During the training experience three other kinds of measures on the participants were taken: (4) observer data, ratings, and sociometric measures after a performance test on a discussion task to test action skills; (5) trainer ratings of sensitivity; and (6) a measure of self-perceived learnings to test diagnostic ability. Data on a number of organization variables were also collected. The hypothesis was that an individual's personality, his participation in the laboratory, and his organizational situation and position would all affect in varying degrees his short-term and long-term changes in the criteria through a complex interrelationship. In all, 41 predictor variables were measured and subsequently reduced to 19 for each person for the analysis of their relationships with on-the-job change. Data analysis included correlation (zero-order, partial, and multiple), analysis of variance, and cluster analysis.

The general results showed that the experimental subjects, as a group, had significantly more self-reported and colleague-reported changes over eight months than both control groups. Within the experimental group, in general, short-term laboratory outcomes were mainly predicted by participation variables. Personality variables had some relationship to behavior during training but not to laboratory outcomes. Organizational variables affected on-the-job changes but not desire for change at the beginning of the laboratory training. Although not directly measured, participants' goals of self-change seemed to be more likely to be associated with actual change than were goals concerned with changes in others. Case reports of subjects with successful and unsuccessful changes on the job were provided to illustrate the

relationships of the numerous variables with the criterion of success. This thorough study indicated that, while laboratory training itself brings changes in participants as a group when compared with non-participants, other variables, both internal and external to the participants, should also be taken into account, especially in assessing any long-term results of training.

Two projects using the National Training Laboratory approach as a means of getting teachers to make innovations and improve group processes in their classrooms were reported by Schmuck (1968). The first project was a four-week teacher development laboratory conducted in the summer for 20 upper-grade elementary school teachers (Group A) from various school systems in Detroit. The program included sensitivity training, related human relations laboratory experiences, role-playing, problem solving techniques, analysis of diagnostic classroom data, didactic sessions, and group discussions. Follow-up discussions were held during the year. A seminar group (Group B) of 20 teachers met weekly during the fall and covered the same material as Group A but did not participate in the laboratory experience of sensitivity and human relations training or role-playing. A control group (Group C) of another 10 teachers received no treatment.

Measures of the two treatment groups included pretests and post-tests of student perceptions of classroom groups, their perceptions of their own status and influence, and attitude measures; teacher-kept diaries on planned attempts at improving classroom group processes; and observations of teacher behavior. Measurements were made in the spring only for the control group; the averages of fall scores for Groups A and

B combined were used as pretest measures for Group C. The design would have been better controlled, of course, if actual pretests had been made of Group C.

Results showed that teachers and students in both Groups A and B had greater improvement in group processes than Group C over the year, and that Group A had more positive changes than Group B. Thus, training in group processes had positive influences on teachers' use of group procedures in their classrooms, and active involvement in the laboratory group activities had greater impact on teachers than cognitively-oriented training alone.

In another project reported in the same paper by Schmuck, a six-day training laboratory on communication and problem-solving skills was held prior to school opening for an entire junior high school staff. The purpose was to improve organizational processes as a means of influencing teachers' classroom innovations more indirectly than in the previous project. Several follow-up sessions were held during the year. Pretest and posttest self-report questionnaires were administered in addition to some interviews and observations during the year. The results reported dealt with teachers' classroom applications of laboratory learnings. A majority of the teachers did actually try new group processes with their classes during the year; thus, the laboratory experience appeared to have a positive influence on them.

Briggs (1969) reported an application of a case study and group discussion approach, in a New England private boys' secondary school, to enable students and faculty members to explore together some of the school's problems. The planning itself illustrated the operation of

group dynamics and group involvement and is worth describing for that reason. In the spring of 1967, conferences were held with senior students to discuss using the case study approach for this purpose; the students were enthusiastic and suggested a number of case topics. Then the idea was presented to the junior class where it was fully discussed and approved, and where the actual planning for the fall ensued. The faculty and the new seniors met for the entire day preceding the actual opening of school in September, in four different groups, each with about 10 students and six faculty members. Three case studies, based on actual situations involving human relations and other common problems, were discussed by the groups.

The evaluation of this program, as of most reported group programs of this general nature, was largely subjective and based on the reactions of participants. They felt it was a general success in opening communication and generating ideas to deal with the problem situations. A similar program was held the following fall also, again with positive reactions. A more tangible result at least partially attributable to this session was that a series of weekly informal student-faculty forums was initiated. At these meetings two or three different teachers and usually 15-20 students engaged in open discussion. The author reported that some ideas generated at these meetings were actually used, and the forum was found to be a much more effective and efficient means of communication between students and faculty than the usual, rather complex, official student council and faculty channels. Thus, the program brought a more constructive and desirable communication pattern into the school.

A junior college district used human relations laboratories for staff members of its junior college to improve communication and job performance and to confront educational issues more intelligently (Koile and Gallessich, 1971). Administrators, faculty, counselors, and secretaries, numbering 82 persons, volunteered to participate during the spring in a retreat setting. A core group of top administrators and representative faculty and staff members participated in the first laboratory and then all 82 took part in the subsequent three, with 26-30 persons in each. Within each laboratory, members were divided into two smaller T-groups with a leader for each. Meetings of each full laboratory group had a format like that of a large T-group and included small discussion groups, role-playing about interpersonal relations, and other group activities. These laboratory groups and the smaller T-groups largely focused on relationships with authority persons and with staff in different academic departments. The emphasis was on breaking down barriers resulting from stereotypes and developing a more open climate in which participants could get to know one another on a person-to-person basis.

Evaluation of the laboratory experience included individual and small-group interviews with 48 of the participants one month after the last laboratory and a two-day conference with the core-group members. In general, the reactions were that participants had come to feel freer to express themselves, to feel more trust in others, and to be more sensitive to themselves and others. Some were able to extend these feelings and attitudes to their relationships with students and their immediate staff groups. On the other hand, some reported difficulty in

readjusting immediately to their job situations and felt they needed more time to reflect on the laboratory experience; many wished the consultants were available for a period after the labs to assist in integrating and applying the experience.

The core group was especially enthusiastic about the labs; they developed close relationships with one another, came to consider themselves a working unit, and were anxious to apply what they learned to improve the college. One year later, 24 of the participants, in an informal conference, assessed significant outcomes related to the laboratory experience. Deeper trust among people and increased involvement in college programs and policies were frequently reported. Specific activities, improved functioning of the administration and departmental staffs, and increased personal and professional growth of individuals were also cited. In general, it appeared that the faculty and staff had increased in self-direction, initiative, and willingness to experiment--all important elements for a climate of innovation.

Summary

These reports and studies (summarized in Table 5) have shown, in general, that the use of group-process-oriented programs with teachers result in the usual positive personal changes in those participating; these programs can also help teachers to become more effective in their own classroom behavior and to facilitate interaction among their students. Thus, it has often affected educational variables beyond the teacher's own personal characteristics. The group relations approach appears to be a particularly promising way for a total school to develop a social climate which stimulates and supports attempts to bring about changes.

TABLE 5

Summary of Applications of Group Processes to Promote Teacher Sensitivity and Educational Innovation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Hendrickson (1968)	New inner-city teachers in groups of 4-8	Group discussion	Descriptive	Author's report	Teachers gained better understanding of themselves and problems, and greater insight into children and teaching.
Lee (1970)	41 elementary school teachers	Sensitivity training	Experimental: 10 teachers in experimental group with sensitivity training 10 teachers in control group with classroom instruction over same material 21 teachers in control group with no treatment	Teacher attitude inventory (measuring attitude toward students)	Experimental group increased its mean score more than no-treatment control group (significantly so) and more than classroom group (approached significance).
				Teachers' self-esteem measure (real and ideal selves)	Experimental group increased its self-esteem score more than control groups (same relationships as above held).
				Teacher absenteeism	No significant differences among the three groups.
				Student absenteeism	Students of experimental teachers absent significantly less often than students of other two groups of teachers during the semester of experiment.
				Parent and administrator ratings of teachers' human relations skills	No significant differences among the three groups.

TABLE 5--Continued

Summary of Applications of Group Processes to Promote Teacher Sensitivity and Educational Innovation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Kimple (1968, 1969, 1970)	Many teachers and some high school students in one school district	Sensitivity training program (summer workshops)	Descriptive	Author's (Kimple) report	Felt the teachers reacted positively to program, and program continued over several years.
Harrison (1971)	Many teachers and some high school students in one school district	Sensitivity training program (summer workshops)	Descriptive	Author's (Harrison) report	Program expanded until most of the district's teachers had participated in a summer workshop.
Marshall (1970)	Students in elementary education program (report covered two years of the program)	Sensitivity training	Descriptive	Participants' reports	Felt the amount of sensitivity training should be increased. Reports were sufficiently favorable to continue program. Development of lasting interpersonal relationships among participants resulted.
Miles (1965)	34 elementary school principals	Two-week summer human relations training laboratory (T-group)	Experimental: 34 principals in experimental laboratory group One matched control group An additional control group of 148 principals	Short-term changes in participants' behavior during laboratory session	Personality variables were related to behavior during laboratory. Participation variables (in laboratory) were related to laboratory outcomes. Organizational variables in participants' jobs were not related to laboratory outcomes.
				Long-term changes (over eight months) of participants in their jobs	Experimental Ss had significantly more self-reported and colleague-reported changes than control groups. Within experimental groups, organizational variables were related to on-the-job changes.

TABLE 5--Continued

Summary of Applications of Group Processes to Promote Teacher Sensitivity and Educational Innovation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Schmuck (1968)	50 upper elementary teachers from different school districts in one city	Sensitivity training Human relations laboratory experiences Role-playing Problem solving Group discussion	Experimental: 20 teachers in experimental laboratory training group 20 teachers in seminar group 10 teachers in control group with no treatment	Pretests and posttests (posttests only for no-treatment control group) on student perceptions of classroom group processes Classroom observations Teachers' diaries on attempts to improve classroom group processes	These measures showed that teachers and students in laboratory group showed more improvement in group processes than the seminar group, and both had greater improvement than the no-treatment control group.
	Entire junior high school staff	Training laboratory Communication skills Problem-solving skills	Experimental (no control group used)	Pretest and posttest self-report questionnaires Interviews and observations during the year	The results of these measures showed that the majority of teachers did try new group processes in their classes during the year.
Briggs (1969)	Students and faculty of a private boys' secondary school	Group discussion Case studies	Descriptive	Opinions of participants Effects of the program in the school	Felt it was a general success in opening communication. Program was continued the following year. Informal weekly student-faculty forums were initiated as a result of the program.

TABLE 5--Continued

Summary of Applications of Group Processes to Promote Teacher Sensitivity and Educational Innovation

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Koile & Gallessich (1971)	82 faculty and staff members of a junior college	Human relations laboratories: T-groups Discussion groups Role-playing	Descriptive	Follow-up individual and small-group interviews	Participants generally felt that they had come to express themselves more freely, had more trust in others, and were more sensitive to themselves and others as a result of the laboratories.
				Conference with key participants	They were enthusiastic about the labs and came to consider themselves a working unit.
				Conference one year later with a group of 24 participants	Generally, reactions were the same as those above. Also, increased involvement of groups and individuals in college's programs and activities were reported. Specific activities were cited as resulting from the laboratories.

Team Teaching as an Example of New Organizational Patterns

New organizational patterns have emerged to allow teachers to use varied grouping and scheduling plans in adapting to the needs of students and the demands of subject matter areas. Team teaching perhaps best exemplifies such patterns. Since its first known appearance in this country in 1957, the concept and practice of team teaching have become widespread. By 1964, for example, a survey showed that 30 percent of the school districts in seven Western states had adopted some form of team teaching (Borg and Bright, 1967). Practices varied, but this survey revealed some general patterns: most elementary school teams operated in a single grade level over all subjects, most high school teams taught in one or two subjects, and the majority of schools used some form of ability grouping in their programs.

Team teaching arrangements vary in size of the staff involved, degree of structural hierarchy and division of responsibilities, flexibility of operation, and number of students and grade levels served. Common ingredients are cooperative planning and evaluation among teachers, and sharing of teaching responsibilities, either cooperatively or by division of the teaching load. The arrangements also vary in scope. They may consist of an informal cooperation of two teachers, jointly sharing responsibility for two classes of a single elementary grade or one high school course. Or they may consist of more structured plans in which three to five or more teachers coordinate a division of responsibility for a larger number of students across several elementary grade levels or high school subjects. The examples reported in this section illustrate the general range of team teaching programs.

Examples

The first eight studies reviewed in this section represents attempts to compare team teaching and conventional classroom teaching as to their effects on student attitudes, adjustment, or achievement. Some, in addition, attempt to assess teachers' or parents' attitudes. All but the first of these are experimental studies, which are more numerous for team teaching than for many other innovations; however, reports of research evidence are still greatly outnumbered in the literature by discussions, descriptions, and assessments made on other than empirical grounds.

Jarvis and Fleming (1965) studied the reactions of sixth-grade pupils to team teaching which emphasized large-group (75 students) and small-group (4-15 students) instruction. The team under study consisted of a team leader, two regular teachers, four part-time teachers, and a full-time clerical worker. The team leader and regular teachers each taught large groups in one subject area and small groups in other subjects; the part-time teachers supervised and instructed small groups. Children were assigned to groups of varying sizes according to ability in mathematics (groups of 10-45) and reading (groups of 20-35). The 150 pupils were placed in two homerooms of 75 each. The instructional schedule was complex; each student worked with different teachers in groups ranging in size from 4 to 75 students in various subject areas on any one day.

An evaluation of the program was conducted after five months by means of 20-minute interviews with ten randomly selected students, half of whom were interviewed by the team leader and half by the principal. Their responses to 10 prepared questions were recorded. Some had felt confused under the system at first because it was so different, while

others welcomed the variety from the start. All were uniformly positive toward team teaching at the time of the interview; they liked it once they became accustomed to the system. They especially liked changing rooms and having small groups and different teachers. Of their relatively few negative comments, most concerned the large groups. When specifically asked for their feelings about the large groups of 75, they generally reported that they liked being in the large homeroom because they got to know more students, but they disliked instruction in such large groups because of difficulties in communication. All of the children, when asked if they preferred team teaching or regular self-contained classrooms, chose team teaching. According to the authors, the results of this study supported other studies which have found students to have high positive feelings about team teaching. A larger sample would, of course, have made the results more convincing.

Lambert, Goodwin, and Wiersma (1965a) conducted an experiment to compare the adjustment of pupils in team teaching with that of pupils in self-contained classrooms. Although previous studies cited by the authors had generally shown pupils to have favorable opinions toward team teaching, some research evidence had indicanted poorer adjustment on the part of team-taught pupils. Pupils of one elementary school were randomly assigned to two multi-grade teams (grades 1-3 and 4-6) or to modified self-contained classes. (Art, music, and physical education specialists were provided for these classes.) Each of the two teams of five included a team leader, one regular teacher, two graduate teacher-interns, and a half-time secretary. Flexible scheduling and grouping.

based on subject-matter requirements and children's needs and interests were features of the team units, which were located together in one section of the school building. The self-contained classes served as one control group; a second control group was another elementary school with self-contained classes.

The California Test of Personality, which yields scores for personal, social, and total adjustment, was used as the instrument for evaluation. Data were collected over two years of the experiment; a pretest and posttest were administered the first year to 349 pupils, and a posttest, only, the second year to 381 pupils. (The experimenters wanted to avoid the pretest cueing students and teachers that they were in an experiment.) For the first year, analysis of covariance with pretest as covariate revealed a significant organization effect on personal adjustment only; the team students had a lower mean adjustment score than both control groups. The significant difference was between the team students and the self-contained groups in the second school, due to only a slight gain by the team students and a significantly large gain by students in the other school. This difference did not persist in the second year, when there were no significant differences in any adjustment scores attributable to organization. On the whole, in this sample, there appeared to be no real differences in pupil adjustment when students taught by teams were compared with students in self-contained classrooms.

Another study was made by the same authors (Lambert, et al., 1956b) using the same students and teachers, with pupil discipline, as rated by trained observers, as the dependent measure. The only significant

difference in disciplinary problems was found between the interns and the experienced teachers within the team organization. The interns not unexpectedly had significantly more such problems. There were no significant differences in rated discipline problems between teachers in the team and self-contained organizations. The authors suggested that the total school's attitude may have had more influence than the organizational structure on discipline.

The study by Rhodes (1971), which compared team teaching in an elementary school with traditional self-contained classroom instruction in a closely matched control school, illustrates recent attempts at systematic evaluation of team teaching. The team school had a two-teacher team for the kindergarten and three-teacher teams for all other grades. Each team had a leader, and each teacher had primary responsibility for instructing a group of 30 pupils in all activities except reading and arithmetic, in which cases a number of flexible groupings were used. The classrooms were built to accommodate team instruction. The two methods were compared as to pupils' achievement and attitudes toward school and learning for randomly selected student samples, teachers' attitudes toward their job, and parents' attitudes toward school.

At the end of the year, 138 control students had a significantly greater mean gain over 147 team-taught students in reading (their means on a pretest not differing significantly). Control pupils also had greater achievement gains in spelling and arithmetic, but these differences were not significant. The team-taught pupils evinced significantly more positive change in attitude, but the difference seemed small and not of practical significance. The team teachers had a significantly more positive attitude at the end of the year, as compared with control teachers. The

attitudes of parents from the two schools did not differ significantly. This study gave evidence of the superiority of conventional schools in fostering achievement, as measured by standardized tests, and indicated that team teaching improved teachers' attitudes. But it should be recognized that the team teachers in this study had all volunteered to teach in this situation and, furthermore, that their attitudes were not significantly different from those of the regular teachers in that school.

A larger-scale experiment was conducted by Klausmeier and Wiersma (1965) to determine the effects of team teaching on achievement. Subjects were 74 low- and 224 average-ability seventh-grade students in five junior high schools. Students in one school with a teaching team of three teachers for English and social studies were compared with students in the four other schools which served as control groups. The actual organization of the team teaching was not described.

Pretest and posttest achievement tests in English and social studies were analyzed for approximately equal numbers of students randomly selected from the populations for each experimental and control group. Four analyses of covariance were reportedly computed to test for differences between schools for low- and average-ability students, separately for each of the two subjects. But all of the results reported were separate comparisons of scores for average- and low-ability students in the experimental school with those of each of their control group of comparable ability. (It is questionable whether these differences should be tested without prior demonstration of a statistically significant between-groups variance.) It seems appropriate to disregard the reported significant differences between individual pairs of experimental and control groups

(which would probably have disappeared if all average control students were considered together as one control group rather than separate ones). Thus, there remains only one statistically significant difference. This was the difference for low-ability students on the English test: the experimental students did significantly better than the low-ability control students. (All low-ability control students were combined as one group due to their smaller numbers.) On the basis of this study, no superiority of either team or conventional teaching can be claimed in terms of effects on achievement.

Schmitt, Montean, and Joslin (1971) conducted a study in six schools in Rochester, New York to determine whether team teaching or conventional teaching produced greater student achievement in high school biology. Experimental and control groups were formed in each school, and each participating team teacher taught one conventional class as a control. Team-taught classes had two or three teachers collectively responsible for three times as many students as the conventional class; each experimental class met as a large group at least 40 times and in three smaller groups (of regular class size) at least 40 times during the year. These teams thus did not appear to use true small-group instruction.

Evaluation of performance on standardized and locally developed biology tests showed no advantage for either teaching method. Team teachers expressed some positive opinions about the value of team planning and utilizing individual competencies, but they also expressed some feeling of loss of individual competencies in areas for which other teachers took responsibility. In short, no evidence emerged from this study as to advantages of team teaching for achievement; and the results concerning teachers' attitudes were mixed.

In an experiment on interdisciplinary team teaching and flexible scheduling in a high school, Georgiades & Bjelke (1966) used a three-period block design for English, algebra, and social studies classes enrolling 106 ninth-grade students, while 234 students were taught in self-contained classes which served as the control group. The block design included large-group instruction for all 106 students by each subject-area teacher three times per week and small-group and individual study for each of six small groups of 15 twice a week. The final samples included 74 experimental and 149 control pupils for whom all data were available.

Evaluation was based on English achievement only, using a standardized achievement test (California Reading Test) of reading vocabulary and comprehension and teacher-made final tests covering course content common to all ninth-grade English classes. Analysis of covariance was used to control for the higher ability of the experimental-group students, because random assignment was administratively impossible. Significantly higher adjusted mean scores were obtained for the experimental group on the reading comprehension and teacher-made tests, but no difference was found on the vocabulary test.

The results thus tended to favor the team-taught group. But the study should, of course, be repeated, with random assignment of students and more than just one specific teacher or subject variable (only one English teacher was involved in the experimental group).

An experiment to assess achievement under team teaching in a high school American history course was reported by Fraenkel (1967). Students were randomly assigned to experimental and control groups; 88 eleventh graders taught by a team of three teachers comprised the experimental

group, and the control group included 108 students taught in conventional classes of 25-30 by the same teachers. The team used flexible scheduling and grouping (classes of 88 and 20 and independent study) according to the judgment of the three teachers. Statistical analyses for evaluation of the team teaching were based on 63 experimental students and 74 control students for whom data were available.

A specially prepared semester final examination was given to both experimental and control groups. One section tested knowledge of specific factual material, and the other tested higher cognitive processes such as understanding of concepts and causal relationships and ability to make logical inferences. Analysis of variance showed no significant difference between the experimental and control group means on the factual part, but the experimental group did significantly better than the control group on the second part assessing reflective thinking. More experimentation is needed, however, in order to provide any conclusive evidence for these effects.

The following two studies reviewed in this section concern the organizational effects of team teaching on teacher outcomes, in terms of their functioning and attitudes. Lapossa (1971) compared decision-making behavior and quality of decisions for 95 elementary school teachers from teaching teams (75 were assigned to work in 20 teams, and 20 worked as individuals) and 95 teachers from traditional self-contained classrooms (75 were assigned to work in 20 ad hoc groups, and 20 worked as individuals).

Bales Interaction Process Analysis was used to rate decision-making behavior of the assigned teams and ad hoc groups. In general,

the behavior did not differ for the two types of groups, except that ad hoc groups evidenced more tension than the teams. Smaller teams and ad hoc groups showed less disagreement and more solidarity than larger groups of both kinds, and teams with appointed leaders had more disagreement and less solidarity than teams without official leaders.

The quality of the decisions was determined by the order in which subjects ranked alternative courses of action as they applied to two given student behavior problems. These rankings were compared with those completed by 15 experts. The quality of the decisions did not differ significantly between groups and individuals in the study, and all subjects tended to consider only short-range consequences when evaluating the effects of their behavior.

Meyer and Cohen (1971), concerned with the social role of the teacher, studied the effects of open-space schools (in which teachers taught in teams) as compared with traditional schools (self-contained classrooms) on elementary teachers' status, job satisfaction, attitudes toward children, and sense of autonomy and influence within their schools.

Responses to questionnaires were compared for 110 elementary teachers from nine open-space schools and 120 teachers from eight traditional schools. The open-space school teachers reported more job satisfaction, more feeling of autonomy, and more influence in decision making in their schools than did traditional school teachers. Teachers' orientations toward children did not differ significantly between the two organizational settings, but in either open-space or traditional schools, teachers with "maternal" or "child-development" orientations toward children had higher job satisfaction than teachers low on these orientations.

The remainder of this section provides additional descriptions of team teaching arrangements in elementary and secondary schools. An example of one kind of elementary school team teaching, referred to as "cooperative" teaching, was described by Meisken (1968). A dual classroom for each grade level in the school, kindergarten through sixth, had a folding central partition which could be closed to provide two separate classrooms. Two teachers in each grade worked together cooperatively to teach approximately 50 pupils and used various groupings of students according to the subject matter and the children's ability and interests, often allowing students to choose their own groups. Teachers in Grades 2-5 developed crossgrouping for reading; they found that this allowed some of the teachers to work with students of various ages on improving specific skills, while the other teachers met with their regular reading groups within one grade level.

In reporting his subjective evaluation of this approach, the author commented that the upper-grade teachers were particularly enthusiastic about working together in one large undivided room, and the primary teachers saw it as particularly useful for certain subjects. As a whole, it seemed to have effected a stronger curriculum by utilizing the special strengths of each teacher. Pupils liked the arrangement because they felt able to interact with more children and thus have more friends; they also liked having two teachers instead of only one.

Swainson, Maier, & Guetzloe (1971) described their Cyclic Team Teaching in a ninth-grade physical science program. A total class of 60-70 students in one period had two instructors and two functional groupings. The large total group was guided simultaneously by two in-

structors for such activities as films, guest lectures, and some testing. Three small groups, each of about 20 students, rotated three times a week among laboratory, demonstration, and programmed self-study. The small groups were used for a large part of instruction time. The two instructors moved among the groups in the two standard classrooms (one used for the laboratory and the other for a large-group working area) connected by a central storage and planning area. While one instructor guided the laboratory group, the other gave initial directions to the self-study group and then directed the demonstration group. The program was being expanded from two instructors serving 350 students to three serving approximately 550.

The authors evaluated the program on the basis of their experience. They felt that this type of team teaching reduced some of the problems of high student-teacher ratios, permitted more effective use of physical space, alleviated the problem of scarcity and duplication of materials, permitted improved course planning and audiovisual coordination, increased student-teacher contacts, and provided more flexibility for individualization of instruction and adaptation to both slow and fast learners.

An account by Nyquist (1968) illustrated the use of various kinds of instructional groups in a subject-matter-based team-teaching plan at the high school level. An eleventh-grade intensive English course had a team of four teachers and a block scheduling plan, with about 100 students assigned to the course for a particular period. Large groups were used on a limited basis for lectures, with one teacher for all 100 students. The intermediate-sized groups, used for the more traditional

classroom procedures, such as teacher-led discussions, testing, and various routine functions, were of regular class size--above 25 students and one teacher. The small groups or seminars, composed of approximately 16 students and one teacher, were used for more closely directed work and for student discussions. Three of these seminar groups met at one time with three teachers, while the fourth teacher met with the other 50 students in a lecture (which actually comprised a fourth grouping in size, while not in function); the groups alternated on different days. The only evaluation was a statement that the plan had been effective and a hint that teachers and students found more enjoyable than the traditional arrangement.

Summary

These examples have portrayed some of the team teaching programs that are commonly seen in elementary and secondary schools in the United States and the kinds of research typically conducted to evaluate the effectiveness of this approach. It is evident that many variations in plans exist and that each school or individual team probably has unique characteristics which makes it difficult to generalize results to all "team teaching."

The available data, as these reports (summarized in Table 6) have illustrated, indicate that student achievement is no better or worse in team teaching situations than in conventional classrooms. Team teachers seem to have more positive attitudes toward teaching, but the picture concerning pupils' attitudes is more mixed. Subjective reports indicate that students like having more than one teacher and more peers with whom they can interact under team teaching arrangements, but the "hard" data measuring student attitudes show little difference in general attitudes among

TABLE 6

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Jarvis & Fleming (1965)	Eight-member sixth-grade teaching team and 150 students in an elementary school	Varied size instructional groups of from four to 75 students in different subject areas	Descriptive	Student attitudes toward team teaching (Interviews with small random sample of students)	Liked team teaching situation once they were used to it. All preferred team teaching to self-contained classrooms.
Lambert, et al. (1965a)	One elementary school with two five-member multigrade teams (grades 1-3 and 4-6) and self-contained classrooms One school with only self-contained classrooms Report covered two-year period (349 students in first year, 381 in second)	Flexible grouping and scheduling	Experimental: Experimental students in the two teams Other students in same school (in self-contained classes) served as one control group Students in second school served as another control group	Student adjustment (California Test of Personality)	On the whole, there were no significant differences between the experimental and control groups.
Lambert, et al. (1965b)	One elementary school with five-member multigrade teams	Flexible grouping and scheduling	Experimental: Experimental students in the two teams	Pupil discipline problems (rated by observers)	The only significant difference occurred between the experienced teachers and teacher-interns in the teams

TABLE 6--Continued

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Lambert, et al. (1965b)--Continued	(grades 1-3 and 4-6 and self-contained classrooms One school with only self-contained classrooms Report covered two-year period (349 students in first year, 381 in second)		Other students in same school (in self-contained classes) served as one control group Students in second school served as another control group		(interns had more problems). No significant differences between teachers of experimental or control groups.
Rhodes (1971)	Two elementary schools: One school had 2-3-member teaching teams at each grade level (this school also had six self-contained classrooms) Other school had self-contained classrooms	Flexible grouping in reading and arithmetic	Experimental: 147 randomly selected experimental students from team school 138 randomly selected control students from second school	Achievement	Control group had significantly greater mean gain in reading than experimental group. No significant differences between groups in spelling or arithmetic.
				Pupil attitudes toward school and learning	Experimental group had significantly more positive change (but actual difference may not be large enough to be taken seriously)
				Teachers' attitudes toward job	Team teachers had significantly more positive attitude than control teachers.
				Parents' attitudes toward school	No significant difference between experimental and control groups.

TABLE 6--Continued

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Klausmeier & Wiersma (1965)	Seventh graders of low (N = 74) and average (N = 224) ability in five junior high schools One school had a three-member teaching team for English and social studies Four schools were used as control groups	Not described	Experimental: One low-ability experimental group (from team school) and one low-ability control group One average-ability experimental group from team school Four average-ability control groups (one from each of the control schools)	Achievement (English and social studies)	No superiority of team- or conventionally-taught groups.
Schmitt, et al. (1971)	Six high schools: Each had a 2-3-member teaching team in biology and self-contained biology classes	Flexible grouping according to activity	Experimental: Experimental (team) and control (conventional) groups were formed in each school	Achievement Teachers' attitudes	No significant differences between experimental and control groups. Team teachers' attitudes were mixed--they liked team planning and sharing competencies, but some felt they lost competencies in areas for which other teachers had responsibility.
Georgiades & Bjelke (1966)	Ninth-grade students in one high school with an inter-disciplinary teaching team for English, algebra,	Flexible grouping and scheding for these three subjects in a three-period block	Experimental: 74 experimental (team-taught) students 149 control (conventionally-taught	English achievement (California Reading Test and teacher-made final test)	Experimental students had significantly higher scores in reading comprehension and teacher-made test than control students, but there were no significant differences in vo-

TABLE 6--Continued

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Georgiades --Continued	and social studies (106 students enrolled in this block) and conventional classes in these areas (enrolling 234 students)	of time	students (data were not available on entire sample)	Achievement in other areas not reported	cabulary scores.
Fraenkel (1967)	Eleventh-graders in an American history course in one high school 88 students were taught by a three-member team and 108 students were taught in self-contained classes	Flexible scheduling and grouping	Experimental: 63 experimental (team-taught) students 74 control (conventionally-taught) students (data were not available on entire sample)	Achievement (semester final test)	No significant differences between experimental and control groups on factual recall. Experimental group did significantly better than control group in reflective thinking.
Lapossa (1971)	190 elementary school teachers	Teams Ad hoc groups	Experimental: 95 teachers from teaching teams. (75 worked in teams, 20 as individuals) 95 teachers from self-contained classrooms (75 worked in ad hoc groups, 20 as individuals)	Decision-making behavior (Bales Interaction Process Analysis)	In general, there were no significant differences betweem groups except: Ad hoc groups had more tension than teams. Smaller groups (teams and ad hod groups) had less disagreement, more solidarity than larger groups. Teams with appointed leaders had more disagreement, less solidarity than "leaderless" teams.
				Quality of deci-	No significant differences be-

TABLE 6--Continued

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Lapossa--Continued				cisions (determined from chosen alternative courses of action in problem situations)	tween groups and individuals. All Ss tended to consider only short-range consequences of their own behavior.
Meyer & Cohen (1971)	230 elementary school teachers from teams and conventional classrooms	Various team organizations	Research study comparing: 110 teachers from open-space schools with teaching teams, and 120 teachers from traditional schools with self-contained classrooms	Questionnaire responses	Open-school teachers reported more job satisfaction, more feeling of autonomy, more influence in school's decision-making than traditional-school teachers. Teachers' orientations to children did not differ significantly between groups, but teachers with "maternal" or "child-development" orientations had more job satisfaction in both types of schools than those low on these orientations.
Meisken (1968)	One elementary school with cooperative teaching by the two teachers at each grade level	Flexible grouping Cross-age grouping	Descriptive	Author's report	Teachers were generally enthusiastic about the program. Curriculum was strengthened by utilizing teachers' competencies. Pupils had favorable attitudes toward cooperative teaching.

TABLE 6--Continued

Summary of Reports on Team Teaching

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Swainson, et al. (1971)	A two-member cyclic teaching team and 350 students in ninth-grade physical science	Flexible grouping	Descriptive	Authors' report	Felt this system improved student-teacher contacts, improved course planning and coordination of materials, and provided more flexibility for meeting students' needs.
Nyquist (1968)	Four-member teaching team for an eleventh-grade English course	Flexible scheduling and grouping	Descriptive	Author's report	Felt that the plan was effective and that teachers and students found it more enjoyable than traditional classes.

students, regardless of the type of instruction. The same is true for measures of such criteria as adjustment and discipline. The measures used for assessing achievement and attitudes may reflect more the influence of common school factors than the unique influences of particular instructional methods. Additional research with more refined measures may provide more definitive evidence in these areas.

The introduction of team teaching has a definite impact, of course, on the teacher's role in relationships with colleagues and students. The elementary school teacher no longer has the sole reponsibility for instructing a single class of students for the entire day, and the high school teacher no longer teaches his own self-contained classes in each course. They have instructional contacts with large numbers of students in groups of varying sizes and functions. Team teaching is highly adaptable to the newer emphases on small-group and individualized instruction. In general it allows more efficient utilization of teachers' time and talents and the school's space, materials, and instructional equipment. Teachers have greater opportunity to use their human qualities in relating to students as individuals and in groups.

Because of the increased flexibility it allows in interpersonal relationships among teachers and students and in the teaching-learning process, team teaching is an integral part of newer school plans, such as the open-plan and nongraded schools. Team teaching permits responding more easily to individual differences through the utilization of a greater variety of teacher competencies, teaching approaches, and group sizes and functions.

Training Teachers for New Roles

New practices and educational perspectives require the training of teachers to assume new roles. Many schools of education have revised or are revising, sometimes quite dramatically, their teacher education programs.

It is important for the teacher-to-be (as it is, of course, for the teacher) to learn to relate effectively to other teachers and to students, as individuals and in groups. The human qualities increasingly recognized as important in serving the emerging humanistic concerns of education must be achieved in addition to the necessary subject-matter knowledge and skill. The teacher must develop the important skills of interpersonal sensitivity and effective communication and interaction, as well as the ability to facilitate students' acquisition of them.

An earlier section presented an example of one approach toward this objective, the approach of engaging prospective teachers in experiential learning from the process of group interaction, as in sensitivity training or T-groups. This approach should make teachers better prepared to use group instruction methods. Other new approaches found as parts of various teacher training programs include microteaching, team student-teaching, tutoring, and working with small groups of children. Examples of some of these methods are cited below, either as specific techniques or as parts of some of the new teacher education programs.

Microteaching and Minicourses

Microteaching, the teaching of brief lessons to a small group of students under controlled conditions, was developed at Stanford University's School of Education in 1963. The technique has since spread

rapidly to many other teacher education programs throughout the country (Allen and Cooper, 1970; Allen and Ryan, 1969). It was originally developed as a clinical training procedure to help teacher-education candidates in Stanford's intern program acquire specific teaching skills and techniques prior to assuming their teaching responsibilities as teacher-interns in the schools. The technique has since been adopted in various places for in-service training as well.

Microteaching lessons are often videotaped as a means of providing feedback to assist the teacher and supervisor in the evaluation process. In perfecting a skill, a cycle of teach-critique-reteach-critique is used. Some microteaching programs are carried out on a campus in a laboratory setting, in which case youngsters are brought to the clinic to serve as students. In other cases, the university laboratory school or a regular school provides the setting and the students.

In research on microteaching, summarized by Allen and Cooper (1970), it has generally been found that microteaching results in a larger repertoire of teaching behaviors and can predict subsequent classroom performance. Teacher-trainees accept it as a helpful training procedure. The feedback dimension is crucial in changing behavior, and a visible model demonstrating desired behavior is often effective in fostering trainees' acquisition of teaching skills.

The use of microteaching in training elementary teachers can be illustrated by the program begun in 1965 at San Jose State College, the first institution to adopt the procedure in an elementary education program (Allen and Ryan, 1969). The target skills in their microteaching program were those of interaction and pupil involvement. Each of the

20 interns in the experimental program taught four to six micro-lessons in the clinic each week during the summer session; a session for critique, using videotape feedback, was held with the supervisor after each lesson. The microteaching program was compared with the regular summer program of classroom observation and student teaching. The evaluative instruments used (not described) showed that neither the trainees in the microteaching program nor those in the traditional summer program demonstrated superior teaching in the field and that both groups were equally "effective" as teacher-interns.

In other places, microteaching has been adapted to subject-area methods courses and to the regular school setting, in contrast with the specific teaching skills approach and the clinic, or laboratory, setting. Microteaching was used as a component of the social studies methods course in the Elementary Program for Inner City Teachers (EPICT) at Temple University (McCollum and LaDue, 1970). The course was taught in an inner-city elementary school one morning a week, with part of the time devoted to methodological instruction and part to preparing and teaching lessons in two- or three-member teams in classrooms. Audio-visual equipment recorded the teaching so that the microteaching performance could be analyzed by the student, the instructor, and others.

The microteaching lessons dealt with such tasks as drawing inferences and creating problematical situations. The lessons were designed to develop higher levels of intellectual functioning and sensitize the student to various verbal and nonverbal components of the teaching-learning act.

Students' reactions were positive and enthusiastic. The students especially felt that the procedure helped bridge the gap between the theory in teacher education courses and the reality a teacher actually faces in the classroom.

Microteaching was used in a social science methods course given by Gilliom (1969) at Ohio State University. The microteaching, occupying three weeks of the methods course, took place in two classrooms of a local high school, where groups of six student volunteers from the study hall served as pupils in the microclasses. The trainees designed their own 12-15 minute lesson plans, based on inquiry skills. The videotaped part of the microteaching was evaluated by the participating high school students, the other methods class students, and the trainee himself. The methods instructor, the trainee and two of his fellow trainees also discussed the performance in a combined session.

The trainees were overwhelmingly positive in evaluating their microteaching experience. As a result of the experience, they had more positive views toward teaching in general and toward their anticipated student teaching.

The minicourse is a new instructional model for in-service and preservice teacher training which was adapted from the microteaching approach. A variety of minicourses focusing on specific teaching behaviors have been tested and developed by the Far West Laboratory for Educational Research and Development in Berkeley, California, in cooperation with the Stanford Center for Research and Development in Teaching (Borg, et al., 1970).

Each minicourse is designed to build specific teaching skills such as effective questioning, developing language skills, tutoring skills,

or organizing the classroom for independent learning and small-group instruction. The teacher (or teacher-in-training) is given a self-contained instructional package including films and written materials. The first part of the instructional sequence is viewing films which describe and illustrate some specific skills and which show a model teacher using these skills. The teacher then reads about the skills in a handbook and plans a short microteaching lesson, which he gives the next day to a small group of students. The microteaching lesson is recorded on videotape and is played back immediately after the lesson by the teacher for feedback and self-evaluation. Following his evaluation, the teacher repeats the instructional sequence to replan, reteach (to another small group of students), and reevaluate the lesson.

The Far West Laboratory's minicourses are systematically developed through a sequence involving three field tests and revision stages before the product is finally marketed for general use. Minicourse 8 ("Organizing the Kindergarten for Independent Learning and Small-Group Instruction") provides an example of the research results from the main field testing of a minicourse (Borg, et al., 1970). The focus of this minicourse is to develop joint teacher-pupil responsibility for developing a classroom climate for indpendent learning and small-group instruction.

Pre- and postcourse classroom observations showed significant increases (based on 46 kindergarten teachers) in eight of the nine target teacher behaviors: discussing with pupils the concept of working alone, explaining the teacher's role, helping to identify possible problems, eliciting solutions from pupils, explaining delayed teacher-response to

pupils, setting standards for what to do after completing a task, reviewing problems encountered by pupils, and evaluating pupil use of time. The only target behavior that did not significantly increase was presenting assigned activities; it was felt that the teachers initially performed this skill satisfactorily and thus had little room for improvement. There were also significant increases in all corresponding target pupil behaviors associated with the above-mentioned teacher behaviors. It was also found that there were significantly fewer disruptions of small-group instruction after the minicourse. Thus, the research evidence from the field test showed that teachers learned from the minicourse and successfully used skills for fostering independent learning. Other minicourses have shown similar success (Borg, et al., 1970).

Other Innovations in Teacher Training

This section deals with a few of the other new approaches to the education of teachers: training in group processes; team student teaching; and total programs based on the concepts of individualized instruction, group processes, student inquiry, and creativity.

One training approach intended to improve group-discussion skills is called Grouptalk; it was used in an experimental exploratory study with two groups of five student teachers at Wheelock College (Whipple, 1970). In this technique, designed by the author, a small group of people talk together to try to answer a discussion question according to certain rules, under the direction of a leader. The rules for starting center on clarifying the discussion question's meanings; the discussion rules aim at eliciting relevant and active contributions from all members; and the ending rules concern summarizing and evaluating the discussion. The

discussion is tape recorded so that it can be played back to the participants for evaluation. The leader does not enter into the discussion itself and is thus not a group member, but he serves as a facilitator of the process. While similar in some respects to T-groups in its focus on sensitivity and to the Human Development Program, described in a previous section, in its more structured discussion approach, Grouptalk differs from these methods in focusing on the cognitive processes of learning how to define terms, maintain relevance, and summarize. The technique has been used with groups ranging in age from second graders to adults.

The experimental group of student teachers in Whipple's study was trained in the method by first participating in seven Grouptalks with adults, then observing the author lead a group of second graders, and finally leading six sessions themselves with these same children. They discussed and evaluated the taped sessions with the author-supervisor.

Evaluation of the program's success was based primarily on participants' responses on a projective test and on papers they wrote at the end of their student teaching. The 10 experimental subjects and a control group not trained in Grouptalk were compared on the basis of observations of classroom interactions. In general, the student teachers in the experimental group were judged to be more aware of the complexities and importance of group dynamics, as seen in their classroom performance. All of the experimental students increased their leadership skill (as judged by their sensitivity to individual needs and group dynamics, and their ability to facilitate children's discussion) as a result of the training, eight of them substantially so. The Grouptalk

student teachers, on a paragraph completion test, indicated greater commitment to guiding discovery learning as opposed to teaching facts, attached greater importance to the use of small groups, evidenced greater sensitivity to children's needs, and showed increased self-understanding.

The technique thus appears to be worth further trial in teacher training as well as in the classroom. It encourages the teacher to assume the role of facilitator of children's learning how to think, since it in fact requires the teacher to direct the discussion process, not its content; this requirement prevents her from being the traditional information-dispenser.

With the widespread adoption of team teaching by schools, teacher trainees should be prepared to adapt to this type of teaching situation. Two approaches will be described to indicate possible ways of providing student teachers with experience in being part of a team. In an informal approach (Wilder and Jung, 1969), the student teacher (in her second student teaching assignment) and her supervising teacher planned and carried out their own cooperative teaching arrangement in a first-grade classroom. They engaged in cooperative planning and shared the teaching. Each was assigned responsibility to work with two reading groups; each worked with varied and changing groups in language arts; and each worked with a separate group in arithmetic and occasionally instructed the large group. The supervising teacher reported the experience to be beneficial to her, to the student teacher, and to the pupils.

A more formal and structured procedure, the Middle Elementary Teaching Team (METT), was used as a teacher education program at Ohio State University by Languis, et al. (1969). A key part of the two-year program

for juniors and seniors was the team approach. The 24 selected students in the program were divided into six teams of four students each. The teams were designed to have each member contribute special interest and competence in one of four areas--mathematics and science, social studies, language arts, and art-music-physical education. Each team student taught half days for two quarters in an inner-city school and for two quarters in an outer-city school.

The four team members worked with one classroom supervising teacher. The students were involved in the total classroom planning and evaluation. Each student functioned as a leader and resource member of the team in his specialized area and as a support member in other areas. Each student also had some teaching responsibility in every area. With a five-member team (including the teacher), each student had an opportunity to work with small groups and individuals. On occasion each team member also taught the entire group for the more traditional teaching experience.

The broad range of teaching experiences in this program included: (a) two uniquely different school settings; (b) instructional activities in various subject areas with individuals, groups, and an entire class; (c) continuous interaction among team members in planning, evaluating, and taking various role responsibilities. Thus, these students were intended to be well equipped to assume teaching positions and roles in almost any type of situation.

An integrated new approach to teacher education which attempted to apply new educational ideas was the Tutorial and Clinical Program at Northwestern University (Amershek and Barbour, 1968). Emphasizing indi-

vidualization and problem analysis, it was based on student inquiry with a continual emphasis on defining questions, undertaking study, gathering data, suggesting tentative solutions, and testing hypotheses. Course work was conducted in tutorials, in which professors worked with 10-12 students in groups and individually. Clinical or field experiences, provided throughout the student's four years, included working with children in child-oriented non-school settings, observing and doing some limited teaching in a school, and finally the actual student teaching with responsibility for planning, teaching, and evaluation.

A more dramatic example of changing emphases in teacher education is the Teacher-Innovator program for elementary school teachers at Teachers College, Columbia University (Summary of the Teacher-Innovator, 1968). It emphasized the teacher's roles as interactive teacher, institution-builder, innovator, and scholar, and was designed to prepare creative educators with the commitment and tools necessary for developing and testing new forms of education. Thus, the program was committed to continuing innovation.

Within its basic strategy of cooperative inquiry, students operated throughout the program in self-regulating inquiry groups of 12 students. Faculty members served as advisors, not instructors. The "contact laboratory" component was provided to enable the students to study schools, teachers, and children, with an emphasis on experimentation in their "own" educational programs, which they set up and operated to engage neighborhood children in remedial or enrichment activities. Student teams within the inquiry group experimented in the Inquiry School, and later, served as interns in public schools where they continued to experi-

ment. The program was individualized through a differential training model which adapted the candidate's educational environment to his competency level, feedback preference, value orientation, and cognitive orientation. The candidate set his own pace in achieving various competencies, and the faculty adviser modified the other aspects for him.

Summary

These examples (as summarized in Table 7) suggest promising new directions for the preparation of teachers to assume the emerging educational roles. Educated themselves in the spirit of the inquiry process and in a human environment where effective interaction with others is stressed, these new teachers may better be able to use social and teaching skills to promote the productive learning of children.

General Summary

This report has offered a view of representative innovations in the teaching-learning process in the United States since 1965--innovations based on concern with group dynamics and interpersonal interactions and on the application of specific group techniques. A brief review was given of the work prior to that time in the area of group dynamics and its relation to education. A new view of the teacher's role and his changing relationships with both students and colleagues is emerging from these innovations and from the accompanying emphasis on the human aspects of students as learners and on teachers as facilitators of learning. The traditional view of the teacher as the controller and dispenser of knowledge and of the student as passive receiver of that knowledge is less than ever accepted in these recent approaches.

TABLE 7

Summary of Applications of New Approaches to Teacher Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Allen & Ryan (1969)	20 elementary teacher-interns in teacher-training program	Microteaching target skills of interaction and pupil involvement	Brief report of experimental study: 20 microteaching teacher-interns were compared with teacher-trainees in the college's traditional teacher education program of classroom observation and student teaching	"Teaching effectiveness"	The two groups of teacher-trainees were judged to be equally effective teachers.
McCollum & LaDue (1970)	Teacher-trainees in a social studies methods course in a program to train inner-city elementary teachers	Microteaching (Team teaching was another component of the program)	Descriptive	Students' reactions to program	Students felt the microteaching helped them make the transition from theory to reality in teaching.
Gilliom (1969)	Teacher-trainees in a social science methods course for teaching at the high school level	Microteaching	Descriptive	Trainees' reported evaluations	Evaluations were very positive. They felt the experience had given them more positive views toward teaching.

TABLE 7--Continued

Summary of Applications of New Approaches to Teacher Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation: Criteria	Evaluation: Outcome
Borg, et al. (1970)	46 kindergarten teachers	Minicourse on organizing the kindergarten for independent learning and small-group instruction	Experimental: Pre- and post-course comparisons of teacher and pupil behaviors	Classroom observations	There were significant pretest to posttest increases in eight of nine target teacher behaviors. There were significant increases in all nine associated target pupil behaviors. There were significant decreases in disruptions of small-group instruction.
Whipple (1970)	10 elementary level student teachers trained in a special discussion technique	Group talk (a group discussion technique)	Experimental exploratory study: 10 experimental students were trained in Group-talk	Classroom observations	Experimental student teachers were more aware of group dynamics and evidenced improved leadership skill compared with control group.
			A matched control group was not trained in the method	Projective (paragraph completion) test	Experimental group attached more importance to discovery learning, small-group instruction, and sensitivity to children's needs, compared with control group.
Wilder & Jung (1969)	One student teacher and her supervising teacher (first-grade classroom)	Informal cooperative (team) teaching arrangement	Descriptive	Supervising teacher's report	Experience was beneficial to student teacher, supervising teacher, and pupils.

TABLE 7--Continued

Summary of Applications of New Approaches to Teacher Training

Author (Date)	Participants	Group Processes	Experimental Study or Descriptive Report	Evaluation	
				Criteria	Outcome
Languis, et al. (1969)	24 selected student teachers	Team teaching (Each team composed of four student teachers and the supervising teacher)	Descriptive	A five-year follow-up study will be conducted (program began in 1968)	No evaluation reported in article.
Amershek & Barbour (1968)	Teacher-trainees in a new tutorial and clinical training program	Student inquiry groups Tutorials Clinical and field experiences	Descriptive	None reported	None reported
"Summary of the Teacher-Innovator: A Program to Prepare Teachers" (1968)	Teacher-trainees in the Teacher-Innovator Program	Cooperative inquiry Inquiry groups Field experiences	Descriptive	None reported	None reported

Students are social and emotional beings; it is important that the educational process be responsive to these centrally vital learner characteristics. New techniques and approaches are being sought and used in classrooms to enhance affective as well as cognitive learning. It is postulated that, if students gain their education through active involvement and interaction with their total learning environment (including their human associates in addition to cognitive material) through a process of inquiry, the outcome will be more significant to them.

It is evident that educators have experimented considerably with various group processes in different school situations for the purpose of establishing the most effective approaches to teaching and learning within the new educational context. The most obvious application occurs within the classroom, aimed at the students' involvement in a more exciting learning process. But group processes have also been used with teachers, administrators, and teachers-in-training to help them improve interpersonal interaction and communication in their new roles. New organizational patterns of schools such as team teaching have been developed to make better use of teachers' time and talents and to make possible more individualized instruction and small-group activity.

It is also apparent that, as a whole, educational innovations which emphasize group dynamics and interpersonal interaction have been subjected to only limited scientific evaluation. This is probably because the affective and subjective character of such activities creates difficulty in scientifically measuring outcomes and requires behavioral science competencies that are in short supply. Nonetheless, certain general conclusions can be drawn from the available evidence. Active involvement of

the student in the various learning activities described generally produces increased enthusiasm, improved communication, heightened awareness of self and others, and greater interest in and motivation for learning. The outcomes in cognitive gains or achievement are not well determined at this point, at least in terms of the measures traditionally used. Most tests designed to measure cognitive learning are based on the assumption that learning is the acquisition of facts. The new emphases and innovations in teaching-learning methods may very well not be superior to the conventional methods in promoting the acquisition of factual knowledge. But they should be superior in the development of the heuristic processes of learning. Such processes have not been well defined, but it is fair to say that they are not well measured by conventional tests. Therefore, tests designed to assess such outcomes and features of the new methods may give a more valid picture of the kind of learning they foster. In any event, the positive outcomes of these activities in terms of motivation, interest, enthusiasm, sensitivity, and communication, all of which contribute to the student's involvement in his learning, provide ample reason for expanding the exploration of these methods.

Perhaps a picture of the future can be found in the burgeoning appearance of alternatives today. Team teaching, flexible scheduling, nongraded classes, continuous progress plans, multi-age grouping, and open-plan schools--all these point to a flexibility and informality which allow the student to learn in his own way at his own best pace through exploring, experimenting, and interacting with his environment (human and material) through a variety of resources, under the guidance of a teacher sensitive to his particular interests and needs.

More radical departures from the traditional educational pattern have also been advocated both within and outside the system of public education. Kohl (1971) and Rathbone (1971) discussed some of these. "Mini-schools," which are schools within schools, operate as relatively autonomous subdivisions of the larger school in which they are housed and follow a separate pattern of organization compatible with their unique objectives. Such mini-schools have operated within elementary schools, for example, in the Berkeley, California, school system (Kohl, 1971). A number of separate public alternative schools have also been founded, such as three secondary schools (The Odyssey, an open junior high school with 100 pupils; Community High School with 300 students; and Other Ways, with 75 students in Grades 7-12) in the Berkeley system (Kohl, 1971).

Many alternative independent schools have also been founded recently. These include the free schools, community schools, experimental schools, and storefront schools, among others. A number of these were described by Rasberry and Greenway (1970), and a detailed account is given in Dennison's (1969) account of his First Street School.

The basic philosophy underlying the array of developing alternatives is the concern for meeting the needs of children through

> ...a commitment to our children's freedom, for space in which they can learn, unfolding instead of being shaped, finding their own unique paces, their natural skills and juices. So we must make our own schools. (Rasberry and Greenway, 1970, p. 3).

Unquestionably, the teacher's role has been the target of forces for change from various sources, most notably the rapid development of educational technology within the past decade that can perform some of the

teacher's traditional functions in imparting knowledge. Other forces have stemmed from the many social changes, challenges to values, and newly urgent concerns which have emerged within the same short time span. These dramatic changes have strengthened the old progressive concern with the human element in the educational enterprise. This concern has been expressed in recent literature on humanistic or affective education (e.g., Alschuler, 1970; Chaney and Passmore, 1971; Landers, 1971). The emphasis on merging the technological and human elements to aim toward the same educational goal was expressed by Canfield (1971):

> We must provide responsive environments in our schools with which the learner can interact as frequently as he desires. That environment ideally includes cognitive and affective responders--teaching devices and human beings (sensitive human beings who can respond to the emotional and behavioral concerns that students bring with them).
>
> Both people and machines must be able to respond to the student's concerns when he raises them, and not in a preconceived lock-step design.... Learning is based on need, not order. Ordering is what the student does with learning after he has experienced it. Therefore, learning environments must be created to respond to students' needs wherever and in whatever sequence they may arise. (p. 26).

The challenge and the potentially greater impact of this state of affairs on the role of the teacher was stated by LeBaron (1969):

> It would seem that technology offers teachers a terribly exciting opportunity. Let's suppose that 70 or 80 percent of what the teacher now does is mechanized. This means that the remaining 20 percent - the truly human aspects of teaching - can receive 100 percent of the teacher's attention. It is difficult to speculate about what new educational horizons might emerge; we have remained so enmeshed in our traditional thinking that it is virtually impossible to see beyond the reef. (p. 457).

These prospects create for educators an exciting opportunity to meet new challenges and needs. Some promising and imaginative alternatives

have already been created. As technology becomes more advanced and complex, the human functions of the teacher, such as those discussed in this report, will become increasingly more important.

Some Basic Sources on Group Methods

For more detailed discussions of some of the group methods considered in this review, the reader is referred here to some basic sources. Some of these have been mentioned briefly in the review, but others have not.

Treatments of basic research on small groups include Group Dynamics: Research and Theory (3rd ed.), edited by D. Cartwright and A. Zander (New York: Harper and Row, 1968); Small Group Research by J. E. McGrath and I. Altman (New York: Holt, Rinehart and Winston, 1966); The Handbook of Small Group Research by A. P. Hare (New York: The Free Press of Glencoe, 1962); and Group Dynamics: The Psychology of Small Group Behavior by M. E. Shaw (New York: McGraw-Hill, 1971).

The development and applications of T-groups, sensitivity training, or human relations training are discussed in T-Group Theory and Laboratory Method, edited by L. P. Bradford, J. R. Gibb, and K. D. Benne (New York: John Wiley and Sons, 1964); Encounter, edited by A. Burton (San Francisco: Jossey-Bass, 1969); Sensitivity Training and the Laboratory Approach, edited by R. T. Golembiewski and A. Blumberg (Itasca, Ill.: F. E. Peacock, 1970); and T. Groups: A Survey of Research, edited by C. L. Cooper and I. L. Mangham (New York: John Wiley and Sons, 1971).

Applications of group dynamics specifically to the classroom situation are treated in Classroom Group Behavior by M. A. Bany and L. V. Johnson (New York: Macmillan, 1964); Teachers and Learners: The Interactive Process of Education by A. H. Gorman (Boston: Allyn and Bacon, 1969); and in Part II of Fifty-ninth Yearbook of the National Society for

the Study of Education, The Dynamics of Instructional Groups, edited by G. Jensen (Chicago: University of Chicago Press, 1960).

Role-playing techniques in the classroom is the subject in Role-Playing for Social Values: Decision-Making in the Social Studies by F. R. and G. Shaftel (Englewood Cliffs, N. J.: Prentice-Hall, 1967) and Role-Playing Methods in the Classroom by M. Chesler and R. Fox (Chicago: Science Research Associates, 1966). A basic reference on simulation games is Simulation Games in Learning by S. S. Boocock and E. O. Schild (Eds.) (Beverly Hills, Calif: Sage Publications, Inc., 1968).

Developments in team teaching are discussed in Team Teaching in Action by M. Bair and R. G. Woodward (Boston: Houghton-Mifflin, 1964); Team Teaching: Bold New Venture by D. W. Beggs (Ed.) (Indianapolis: Unified College Press, 1964); and Team Teaching by J. T. Shaplin and H. F. Olds (Eds.) (Evanston, Ill.: Harper & Row, 1964).

Additional information on microteaching is found in Microteaching by D. W. Allen and K. A. Ryan (Reading, Mass.: Addison-Wesley, 1969). A more complete discussion of minicourses is provided in The Minicourse: A Microteaching Approach to Teacher Education by W. R. Borg, M. L. Kelley, P. Langer, & M. Gall (Beverly Hills, Calif.: Macmillan Educational Services, 1970).

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