Elizabeth G. Cohen
Stanford University

Teaching in Multiculturally Heterogeneous Classrooms:
Findings from a model program*

Abstract

Teachers require technical assistance with multicultural classrooms
that have a wide academic range and status differences between students.
This paper reviews the strategies, theory and research of complex instruction,
an approach designed to deal with such heterogeneous classrooms. Special
attention is given to the creation of equity in the context of intellectually
challenging curricular materials and the use of small problem-solving groups

Résumé

Les personnes qui enseignent à des classes multiculturelles où les
différences de statut et de niveaux entre étudiants sont importantes ont besoin
d'un appui d'ordre technique. Cet article passe en revue les stratégies, la
théorie et les recherches menées sur l'ensiegnement complexe, méthode
élaborée pour l'enseignement dans des classes hétérogènes. La création d'un
sentiment d'équité dans un contexte pédagogique intellectuellement très stimu-
lant et le recours à des petits groupes de résolution de problèmes sont
également étudiés.

Cultural differences are only one type of heterogeneity in the multic-
ultural classroom. Multicultural classrooms often include students who have
limited proficiency in the language of instruction. These children from a
language minority background frequently come to school without the stan-
dard repertoire that makes for success in school. Thus the multicultural
classroom is also a classroom with a wide range of academic achievement.

The problems that the teacher faces are not just those of cultural
difference. Rather, the problem is that some cultural groups have a lower
status in the society at large than others. In many places in the United States

and Canada, there are large numbers of culturally different children who also come from economically oppressed groups in the society. In addition, there are large numbers of linguistically and culturally different immigrants who enter the classroom to take up positions of very low social status among their peers. They are not socially accepted. They face overt prejudice from their classmates (Olsen, 1988). They may be forced to cling together with the only other children who speak their language.

The teachers of such classrooms face many technical difficulties for which teacher training leaves them unprepared. In the first place, they face the problem of level of instruction. If they use traditional methods of instruction and pitch that instruction at a high level, many of the students, even if they understood the language of the presentation, would be lost. If they pitch the instruction at a low level, the material is inadequate for those functioning at grade level and above. Furthermore, unless there is some way for all children to receive the content expected for their grade level, those who are working well below grade level will only fall further behind.

If a teacher tries to meet these different needs by dividing the students into three ability groups for instruction in critically important subjects, the net result will be further retardation of those in the low ability groups. In a review of 217 studies, Persell (1977) found that there is a slight trend toward improving the achievement of high ability groups, but that is offset by substantial losses by the average and low groups. Hallinan (1984) states that the research she summarized led to the same conclusion, namely, that tracking and ability grouping depress growth in academic achievement for students in low groups.

In the second place, teachers face the problem of language. If they are fortunate, and they only have one language group that is limited in the language of instruction, and if they are fully bilingual, then there are a set of reasonable strategies available in teacher training programs that prepare teachers for this situation. However, in several provinces (e.g., Quebec) and in some states (e.g., California), there are multilingual classrooms where it is not uncommon that the students speak four or five different languages, none of which is known by the teacher. Schools in California and elsewhere often respond by segregating such children into special classes for the purpose of teaching them English. Grouping students by language ability is the most common approach used by districts in order to meet the needs of limited English-proficient students. However, these educational practices fail to recognize some basic tenets of second-language acquisition that linguistic research has demonstrated. If limited English-proficient students are placed in classrooms where they are a significant numerical majority, the opportunities for meaningful language exposure are nonexistent. If the students who do not speak the language of instruction or those who have only a limited

proficiency are mainstreamed, the teacher faces the significant problem of insuring access to instruction for those students. Handing over such children to an adult aide who speaks their language represents a common solution, but one that consigns these students to instruction by a relatively unprepared and often undereducated instructor.

In the third place, the teacher is concerned with how the students from different groups relate to each other. In a conventional classroom where the teacher uses direct instruction, there is very little opportunity for students from different groups to get to know each other. Language barriers may make new relationships most improbable. The result is often self-segregation of the various language and cultural groups. If the teacher uses traditional, competitive methods of evaluation and tasks that are standardized for all students, there will be a high level of agreement between students on the ranking of their classmates in an academic-status order (Rosenholtz & Wilson, 1980). Members of minority groups from low income families and newcomers are especially likely to be found at the very bottom of this status order.

Research by **The Program for Complex Instruction** offers an alternative to traditional instruction that is capable of dealing with this triple challenge of academic, cultural, and linguistic heterogeneity. Students can be taught to use each other as linguistic and academic resources (Cohen, Lotan, & Leechor, 1989). Learning activities that use a wide range of skills and abilities enable each student to make an important contribution. With students talking and working together, using various languages, and with materials in different languages, language learning occurs without isolating non-English speaking students (Neves, 1983).

This type of instruction enables the teacher of heterogeneous classes to teach at a high level. Children who arrive at school without a middle-class repertoire frequently fail to benefit from conventional curriculum and instruction. Instead of segregating these children in remedial classes or low-ability groups, this approach permits access to advanced instruction that involves higher order thinking skills.

Modification of Current Practice

The Program for Complex Instruction, initiated in 1978 at the Stanford University School of Education, under the author's direction, has developed, implemented, and evaluated an innovative instructional approach. Instruction is complex when a variety of grouping patterns and materials are in simultaneous use in the classroom. Complex instruction is particularly suitable for classrooms with language-minority students and for other settings that feature students with a wide range of academic skills. The curriculum materials presently used were developed by Edward De Avila and are called

Finding Out/Descubrimiento (FO/D).[1] These materials use concepts of math and science for the purpose of developing thinking skills in children. They consist of activity cards and worksheets prepared in English, Spanish, and pictographs.

From its inception, the goal of the program has been the educational development of children whose socioeconomic and language backgrounds do not prepare them for success in conventional school programs. In contrast to the commonly used methods of compensatory education, FO/D exposes the students in Grades 2-5 to concepts of mathematics, physics, and chemistry in the context of highly demanding tasks. The curriculum materials consist of intrinsically interesting manipulatives which permit the children to understand highly abstract concepts by experimenting, hypothesizing, measuring, solving problems, talking, manipulating, and working together. Activities have been created and/or adapted so that they do not presume middle-class, Anglo experiences. Activity cards contain instructions for students to engage in such activities as experimenting with electricity, measuring in liters, or plotting coordinates. For each activity there is a worksheet which requires the child to describe what happened, to make estimates and computations, or to form inferences about why things happened the way they did.

Children are assigned to heterogeneous small groups at learning centres. Each learning centre has a different activity card and worksheet. The use of individual worksheets in addition to responsibilities for the group represents a blend of individual accountability and collective responsibility for learning.

Students take responsibility for their own and for others' learning through the assignment of roles to each group member. For example, one person is a facilitator whose job is to see that everyone gets the help he or she needs. The roles are rotated over time.

Students are trained to use each other as resources, and to ask questions, explain, offer assistance, and help others without doing things for them. Behavior is governed by a new set of norms, such as "You have the right to ask anyone else in your group for help" and "You have the duty to assist anyone who asks for help." In this way, students gain access to the instructional activities that represent opportunities for learning. Because of the peer interaction, they understand the nature of the tasks at their learning centre; they receive assistance in filling out their worksheets.

Because the tasks are so varied and challenging, children who do not have basic skills find that they can make intellectual contributions while accepting help from classmates with better academic skills in reading the activity card and in writing on the worksheets. For example, children who are lacking in basic skills may make accurate estimates, keen observations, or clever predictions.

As a result of such engaging tasks in which the basic skills of reading, writing, and computation are integrated with higher order thinking skills, students make broad gains in achievement. Of particular interest is the finding reported by De Avila (1981) that learning in the program seems to take place across a broad front. That is, students improve in linguistic proficiency at the same time that they improve academically and cognitively. Moreover, the improvement that was found took place regardless of whether the child was LEP (Limited English Proficient) or FES (Fluent English Speaker). There were statistically significant gains on the *California Test of Basic Skills* (CTBS) for both. What this means is that both types of children can learn in the same atmosphere, and that learning for one group need not be at the expense of the other.

Achievement data for 1982-83 and 1983-84: Teachers administered pre- and posttests in Fall and Spring of 1982-83 and 1983-84 in classrooms in which the curriculum was implemented. The tests used were from the CTBS. Statistical tests were used to ascertain whether or not the differences between pre- and posttest means for each class could have occurred by chance. There were statistically significant gains in every subscale of the Reading, Language Arts, and Math batteries. In 1983-84, when the CTBS Science test was administered for the first time, there was also a statistically significant gain for that test. Scores for the overall batteries show that the sample was operating at near or better than grade level despite the fact that the average pretest scores for some of the scales were far below grade level. The gain was particularly large for the Computation scale. In 1982-83, the average gains per classroom for the total Math battery were as high as 20 units of Normal Curve Equivalents (NCE). Clearly, these students greatly improved their position relative to national norms. (For a more detailed description of the results of data analyses for 1982-83, see Cohen and De Avila, 1983).

Achievement data for 1984-85: Data for this year were analyzed with a special focus on low-achieving children. Results for the group of students who scored below the 25th national percentile on the total reading subscale of the CTBS in the Fall are of particular interest because so many language minority children in these classrooms obtain very low scores on this scale. For all grade levels (2nd through 6th) there were statistically significant differences between the pre- and posttest scores of these children on the Computation as well as the Math Concepts and Application subscales. Achievement gains were particularly impressive for the second graders in the sample. On the average, these children started out in the 29th and in the 17th percentile (well below grade level) on the subscales measuring computation and math concepts and application, respectively. By spring, the students, on the average, were performing at grade level; the average scale scores were at the 64th

percentile in computation and at the 45th percentile in concepts and application.

Currently this approach is being used in over 200 California classrooms. In collaboration with the California State University system, it is being disseminated throughout the state. Gradually, other curricular materials are being adapted to the basic instructional approach.

Concern for the Low-Status Child

There is considerable evidence that ethnicity, language accent, and visible ethnic appearance (Rosenholtz & Cohen, 1985) act as status characteristics. Research on status characteristics has demonstrated the power of differences in race, ethnicity, and perceived academic ability to activate differential expectations for competence (Berger, Rosenholtz, & Zelditch, 1980). On a wide variety of intellectually important tasks, those who rank low in the status order are expected to be less competent than those who rank high. Once these general expectations become salient in a social situation, a status-organizing process takes place whereby high-status individuals are expected to be more competent on the specific task at hand. The initial differences in status become the basis for a self-fulfilling prophecy whereby those who are expected to be more competent become more active and influential in group interaction and are thus likely to be perceived as having made a more important contribution to the group task.

The most powerful status characteristics studied in classroom situations are perceived reading and academic ability. When language-minority children from lower social-class backgrounds have difficulty with the English curriculum and are placed in the lower ability groups and tracks, they can quickly become low-status students on an academic-status characteristic as well. Likewise, members of any racial or cultural group that come to school without preparation at home or in special preschools are very likely to acquire low academic status in a short time. In learning environments, where there is socioeconomic and academic heterogeneity, those who are in the low-ability groups are expected to do poorly at a wide range of academic/intellectual tasks (Cohen, 1988).

The educators we have worked with frequently say that language-minority children or lower-class black children have difficulty thinking abstractly and need to learn the fundamentals before they are ready for more advanced, abstract concepts. Their beliefs are not based on research; they are not even based on experience, because these children are rarely given the chance to try more advanced and abstract curricular materials. These beliefs, however, are consistent with educators' preconceptions about the intellectual competence of minority children from poor families. Such beliefs are also

consistent with the operation of status-organizing processes in which general expectations for incompetence are activated by characteristics such as race, ethnicity, accented speech, or lack of English proficiency.

Even the popular recommendation of cooperative learning for heterogeneous classrooms does not remove the problems connected with status differences between students. In classrooms with many language-minority students that encouraged children to work together, Cohen (1984) found that children who were more popular and who were seen as better in math and science talked more about their work and, as a result, learned more. This unequal pattern of interaction is a status problem resulting from differences in expectations for competence held by peers. In a study done by Neves (1983) with English- and Spanish-speaking students, it was found that the lowest status students in multilingual classrooms are often newcomers who do not speak much English as well as children who test as "limited" in both English and Spanish.

The Program for Complex Instruction has had a special concern with the low-status child. Low-status children have few friends and are seen by classmates as lacking ability in academic subjects. The program incorporates the results of over 20 years of research carried out by Cohen. Teachers learn how to improve expectations for intellectual competence of low-status children while also increasing their social acceptance by classmates.

Program research has documented three important outcomes for low-status children: (1) there is increased social acceptance of these children during the course of the school year, (2) although the low-status children tend to start out with very low scores on achievement tests in the fall of the school year, they gain just as much as the high status children, according to tests in the spring, and (3) there are more classmates who choose them as "good in math and science" in the spring than in the fall (Cohen, Lotan, & Catanzarite, 1988). Such children in conventional classrooms may not understand the assignments, but may be unwilling to ask for help. In these classrooms, cooperative training gives them access to interaction with their peers and thus to learning.

An alternative model

Complex instruction is grounded in sociological and psychological theory and research. Using these theories, researchers have conducted detailed studies of classroom processes, and have linked these processes to measures of achievement. Thus they have been able to develop clear evidence for how the model works, why it is successful, and under what conditions it will continue to be successful. This extensive theory and research permits generalization beyond the particular curricular materials used to an alterna-

tive model of instruction that allows for instruction that is intellectually demanding in academically heterogeneous, multicultural classrooms.

What do theory and research have to say about what can be done in classrooms containing students with limited English proficiency as well as English-speaking students, classrooms with a wide range of academic skills? What are the major features that permit accelerated instruction in linguistically and academically diverse classrooms?

Changed classroom organization

If the curriculum is to include higher-order thinking skills, there must be more than one opportunity to grasp difficult concepts. If students are divided into small heterogeneous groups, each group can engage in an activity illustrating underlying concepts in different ways. The repeated experience of fundamental concepts in different contexts, using different media, will lead to the formation of a learning set so that a general and transferable understanding develops (De Avila, 1985).

When multiple groups and materials are in simultaneous operation, it is said that the instruction is "complex." Complex instruction can be combined with direct instruction for whole classes or for small groups in which teachers work with particular language lessons they feel are indicated for particular confusions that students exhibit.

The differentiation of the curriculum into small groups or learning centres assists the learning process in several ways: the more learning centres in operation, the more the students have an opportunity for talking and working together and thus more opportunities for active learning. In addition, the more learning centres in operation, the less likely are teachers to attempt direct instruction (Cohen, Lotan, & Leechor, 1989). Direct instruction has been found to be counter-productive for those periods of class time devoted to discovery and active learning processes. For example, the correlation between an index of direct instruction and the average gains for a class in 1984-85 in math concepts and applications was -.75 ($p < .01$); the correlation between the same index and the average gains in computation was -.58 ($p < .05$) (Cohen, Lotan, & Leechor, 1989).

The use of direct instruction was significantly negatively related to the percentage of students talking and working together. And finally, talking and working together has been repeatedly found to relate to achievement gains on CTBS both at the classroom and the individual level.

At the classroom level, the average gain scores in national (i.e., US) percentiles in 1982-83 were 15.48 for Math Concepts and Applications and

26.62 for Computation. For the school year 1984-85, the average gain in scale scores was 46.82 for Concepts and Applications and 74.39 for Computation. In two analyses of the average gain scores for each classroom, the larger the percentage of students talking and working together the greater were the average gains in both of the standardized achievement test scales for math. For example, the zero-order correlation between the percentage of students talking and working together with the average gains in Math Concepts and Application for the sample of classrooms in 1982-83 was .72 ($p < .01$) (Cohen, Lotan, & Leechor, 1989).

At the individual level, Leechor (1988) found that students who were reading English below grade level benefited even more from interaction in heterogeneous groups than students who were closer to grade level in reading skills. Leechor argued that interaction with peers reduced uncertainty for students who were perhaps unable to read the activity cards and worksheets unassisted. In other words, we have learned that a key to achievement in heterogeneous settings is **the students' use of each other as resources for learning.**

Classroom management

From the students' point of view, solving problems in connection with challenging instructional tasks is highly uncertain. According to sociologists, once the technology becomes uncertain in this way, supervision must shift from routine, bureaucratic supervision to delegation of authority and lateral communication between the workers (students) must increase. If this does not happen, there will be a loss of organizational effectiveness (Perrow, 1987). These general principles from organizational sociology have proven very useful for classrooms with the kind of instructional approach we have described. The teacher can delegate authority to groups and to individuals through their role assignments. Students literally "mind each others' business," keeping each other on task, enforcing safety procedures, making sure that work is completed, and reducing uncertainty for each other through procuring help when it is needed.

The assignment of roles in small groups such as that of the facilitator has a highly favorable effect on the percentage of students talking and working together (Zack, 1988). The facilitator role represents a delegation of authority from the teacher who, in more conventional classrooms, spends much of her time helping students complete their tasks. In this case, a student is given the authority to see that people receive necessary help and that everyone understands what they are doing. Even if the facilitator does not have requisite academic skills, he or she can and does act as a catalyst to encourage group members to share the skills and insights they have achieved with each other. This delegation of authority to the group allows the teacher

to increase the amount of teaching behavior in the classroom dramatically without having to do it all herself.

Teachers are assured that student behavior is under control in still another way. When students internalize norms for cooperative behavior, such as, "You have the duty to assist anyone who asks for help," they are more willing to help each other and to demand that others conform to this rule. If students learn exactly how to behave during complex instruction, there are few discipline problems and the number of students who are disengaged is minimal (Cohen & De Avila, 1983). These new norms must, however, be explicitly taught to students in a series of skill-building exercises (Cohen, 1986).

Helping teachers learn to delegate authority is not an easy task. They must be assured that they are not losing control of the classroom. Furthermore, they require assistance with an alternative role, substituting for the familiar task of instructing and facilitating students' completion of their assignments. Unless teachers learn to avoid use of this traditional role while small groups are in operation, they will inadvertently cut down on the amount of communication between the students, and will thus "short-circuit" the learning process (Cohen, Lotan, & Leechor, 1989). Lotan (1985) found that the teachers' grasp of the underlying theory concerning delegation of authority is related to an ability to implement the management system just described.

Teachers do not learn about delegation of authority solely through lectures in workshops. They also need specific feedback on how well they are doing through videotapes and through systematic observation and problem-solving sessions based on data collected during classroom observation.

Multiple-ability curricula

Curriculum materials should consist of challenging and uncertain, but intrinsically interesting tasks, utilizing real objects. Science curricula such as *Science Curriculum Improvement Study* (SCIS) or *Elementary Science Study* (ESS) developed in the 1960s include many excellent tasks that can be adapted to this approach (Rowe, 1978).

Tasks should be open-ended so that precocious students can carry them further, while less mature students can complete the tasks on a simpler level. For example, the level of inference the child makes on a worksheet as to why an experiment worked could differ greatly. Or, one child can carry out multiple experiments with a set of materials while another will only be able to complete one task.

Instructions should be in as many languages as the students require; and the inclusion of pictographic representations is additionally helpful. Reading and writing should be integrated in a meaningful context; they become means to the end of accomplishing a fascinating task. Systematic observation of a sample of target children using FO/D has shown that the number of observations that included reading instructions or writing on worksheets was a significant predictor of posttest scores on CTBS Reading Scales (*Beta* Coefficient of .188, $F = p < .001$). In this analysis, the Reading posttest score was regressed on the frequency of reading or writing, the Reading pretest score, the number of learning centres in use, and the average rate at which the children were observed talking and working together (Cohen, Intili, & De Avila, 1981).

Multilingual groups should include a bilingual student to act as a bridge. The use of real objects facilitates communication among students who do not share the same language. Names of real objects should be included on the instructional materials so that they become the subject of discussion among peers. In this arrangement, students can speak in their own language, but they also hear English-speaking students discuss concrete objects as they are touched and manipulated. Students will attempt to communicate across the language barrier. This is the ideal situation for second-language acquisition. Neves found that the more frequently initially monolingual Spanish speakers were heard interacting in Spanish, the higher were their gains in English proficiency over the school year ($r = .243, p < .05$) (Neves, 1983, p. 66). This seemingly counter-intuitive result can be explained by the mixture of English- and Spanish-speakers in the same groups. Receptive language is greatly increased when everyone is talking about the same thing even if the conversation proceeds in several languages.

Reading and writing are only two of the abilities required in this type of curricular approach. Visual and spatial reasoning, interpersonal intelligence, and a variety of other real-world intellectual abilities should be required.

Multiple-ability curricula are not confined either to young children or to science and math as a subject matter. In a recent study, Bower (1990) created a multiple-ability unit for American history suitable for the secondary school heterogeneous class. Bower took the content from the required textbook and transformed it into small group tasks such as role play, interpretation of political cartoons of the period, and the preparation of multi-media presentations. These tasks followed the presentation of a lecture using slides and discussion by the teacher. Students were also assigned the textbook chapter to read. This approach was compared to an alternative approach that utilized small group discussion and answering of questions concerning primary source documents. The tasks were challenging but purely verbal in

nature. The treatments were identical in using training for cooperative behavior, small group tasks, and the assignment of roles to each student. The treatments were different in the nature of the curriculum and in the use of a treatment for status problems in conjunction with the multiple-ability curriculum. Analysis of results clearly shows that the multiple-ability approach to curriculum construction yields statistically significant improvement in scores in a content-referenced test of the social studies content in comparison to the purely linguistic approach.

If the group tasks require multiple abilities and do not make reading and writing the only prerequisite for success, then those who are weak in reading and writing may request assistance from those who are stronger in academic skills. In return, those who are strong in conventional academic skills receive assistance from others in tasks requiring alternative kinds of abilities. It should be noted that this exchange process **does not take place** unless status problems are explicitly treated.

Status treatments

Teachers must be trained in the use of several status treatments designed to prevent the domination by high-status students in the groups. The first of these treatments is called the Multiple-Ability Treatment. The task of the teacher is to convince the students that many different abilities and skills, in addition to reading and writing, are required by the assigned tasks. Teachers must explicitly state: "No one person is going to be good at all these abilities and everyone will be good on at least one." The Multiple-Ability Treatment originated in laboratory and experimental classroom research (Tammivaara, 1982).

The second status treatment is called Assigning of Competence to Low-Status Students. This treatment takes advantage of the power of the teacher to make public evaluations of students that are very likely to be believed by any student within earshot. The teacher carefully observes low-status students as they work in small groups on multiple-ability tasks. When she sees these students demonstrate competence at one of the intellectual abilities required by the tasks, she publicly and specifically gives a favorable evaluation to the student, explaining exactly what he or she did well and why this is an important ability in the adult world.

This is a difficult skill for teachers to master. It requires that they **notice** the good things that problematic students do, something that busy teachers often miss. Secondly, it requires giving a specific and public type of feedback, very different from most praise given by teachers. Thirdly, it requires a fundamental understanding of status processes in the classroom so that the process of status generalization can be recognized and treated (Benton, in progress).

Recent research has demonstrated the effectiveness of these two treatments in modifying the process of status generalization in heterogeneous elementary school classrooms. In classrooms where teachers use these treatments more frequently, low-status students interact just as frequently as high-status students (Cohen, 1988).

In secondary school classrooms, the status problems are even more severe because academic skills may range from fourth grade level to that of a college student. In Bower's study (1990), the Multiple-Ability Treatment was included with the Multiple Ability Curriculum. Although the status problems in some of the classrooms receiving this treatment were less severe than in those classrooms receiving the alternative treatment, status problems remained severe in other classrooms receiving the Multiple-Ability Treatment. In all probability, teachers will need to use both treatments in order to modify status problems consistently in middle school and secondary school classrooms.

Organizational support for teachers

Particularly in the first year of implementation, more sophisticated and complex instruction requires more organizational support for teachers than they usually receive. Teachers who receive specific feedback on the basis of systematically observed classroom performance are better able to implement the most difficult features of their new role (Ellis, 1987). In schools where principals assist teachers with the preparation and storage of materials for complex instruction, teachers implement more units (Ellis, 1987). In addition, the principal's skill and ability in coordinating personnel and meeting times for teaching teams, and implementation of observation and feedback, is a strong predictor of the quality of classroom implementation (Parchment, 1989).

In an ongoing analysis of the first year of implementation of complex instruction, Lotan and Cohen find that the two most powerful predictors of quality implementation are **organizational expectations** that the teacher will follow through with the new instructional methods and **receiving highly specific feedback** based on clear criteria and on an adequate sample of classroom observations.

Beyond the first year of implementation, collegial observation and feedback continue to be correlated with quality of implementation. Lotan (1989) found that the use of highly specific and structured feedback based on classroom observations that teachers made of each other was highly correlated with a measure of quality of implementation.

It is not accidental that working together is a solution to dealing with uncertainty for **both students and teachers.** Sociologists who have studied

organizations have found that uncertainty in the work of the organization demands interdependent work arrangements among the staff. Unless teachers become more interdependent than they are in the typical school, we may expect complex instruction such as cooperative learning to deteriorate over time. Not only do teachers need each other for collegial feedback, but for planning, for problem solving, and for curriculum development.

Conclusion

In summary, there are available technical solutions to the teaching problems faced by teachers of multicultural classrooms. These solutions in no way conflict with the more common recommendations of broadening the curriculum to include representation of various student cultures, teaching students to view the world from multiple perspectives, and designing class-room experiences that will reduce stereotypes and increase social acceptance.

Recommendations for curricular change made by multicultural specialists can easily be adapted to the multiple-ability curriculum. Learning about different cultures and taking the perspective of others are curricular activities that cry out for multi-media, active learning which require a variety of intellectual abilities. For example, the curricular materials developed by the Global Education Project at Stanford University contain some excellent multiple-ability activities for groups that are designed to foster multicultural-ism.

The recommendation of cooperative learning in order to decrease prejudice is already part and parcel of the model described here. Cooperative learning will produce increased friendliness and social acceptance that is so important in the multicultural classroom (Slavin, 1983). Thus, the strategies that have achieved broad consensus in the multicultural field can easily be incorporated in complex instruction as described in this paper.

The most important implication of the research reviewed in this paper is that teachers of multicultural classrooms need much more assistance. They face severe technical problems for which their training is inadequate. Unless they get the technical assistance they require to utilize more sophisticated methods of instruction, the achievement of lower-status, culturally different children is unlikely to improve. Nor will use of techniques such as cooperative learning, by themselves, change expectations for intellectual incompetence for such children held by their classmates and often by themselves.

Teachers need extensive retraining in methods of classroom organization and management so that they can expand their teaching repertoire to include complex instruction such as that involved in cooperative learning. They will need considerable help with the development of curricular materi-

als that are multiple-ability and that permit students to use each other as resources. They must be sensitized to problems of status differences and given some strategies for treatment of status problems. Finally, these changes and strategies cannot be carried out in the traditional context of an isolated classroom teacher. Principals and teachers must work together to support these more sophisticated forms of classroom instruction.

What is at stake here is the attempt to undo the effects of inequality in society at large as it affects the day-to-day life of the classroom. Social scientists have documented the ways in which classrooms tend to reproduce the inequalities of the larger society. Undoing these effects is an ambitious undertaking. Nonetheless, the application of sociological theory and research to the problem of increasing equity in heterogeneous classroom leaves room for hope that these goals are within our reach.

NOTE

1. The *Finding Out/Descubrimiento* curriculum is published by Santilana Publishing Company, 257 Union Street, Northvale, New Jersey 07646-2293.

REFERENCES

Benton, Joan. (Forthcoming). Treating status problems in the classroom: Training teachers to assign competence to students exhibiting low-status behavior in the classroom. Dissertation in progress. Stanford University.

Berger, J., Rosenholtz, S.J., & Zelditch, M. Jr. (1980). Status organizing processes. *Annual Review of Sociology, 6,* 479-508.

Bower, A. (1990). The effect of a multiple ability treatment on status and learning in the cooperative social studies classroom. Unpublished doctoral dissertation. Stanford, CA: Stanford University.

Cohen, E.G. (1984). Talking and working together: Status interaction and learning. In P. Paterson, L. Wilkinson, & M. Hallinan (Eds.), *The social context of instruction: Group organization and group processes*. New York: Academic Press.

Cohen, E.G. (1986). *Designing groupwork: Strategies for heterogeneous classrooms.* New York: Teachers College Press.

Cohen, E.G. (1988, July). Producing equal status behavior in cooperative learning. Paper presented at meeting of the International Association for the Study of Cooperation in Education. Shefayim, Israel.

Cohen, E.G., & De Avila, E. (1983, December). *Learning to think in math and science: Improving local education for minority children. A final report to the Johnson Foundation.* Stanford CA: Stanford University, Program for Complex Instruction.

Cohen, E.G., Intili, J.A., & De Avila, E. (1981). *Interdependence and management in bilingual classrooms.* Final Report to NIE. Stanford, CA: Stanford University.

Cohen, E.G., Lotan, R.A., & Catanzarite, L. (1988). Can expectations for competence be altered in the classroom? In M. Webster, Jr., & M. Foschi (Eds.), *Status generalization: New theory and research*. Stanford, CA: Stanford University Press.

Cohen, E.G., Lotan, R.A., & Leechor, C. (1989). Can classrooms learn? *Sociology of Education, 62*, 75-94.

De Avila, Edward. (1981). *Multicultural improvement of cognitive abilities: Final report to State of California, Department of Education*. Stanford, CA: Stanford University, School of Education.

De Avila, Edward. (1985). Motivation, intelligence and access: A theoretical framework for the education of language minority kids. In *Issues in English language development*, National Clearinghouse for Bilingual Education, pp. 21-31. Rosslyn, VA: American Research Associates.

Hallinan, M.T. (1984). Summary and implications. In P.L. Peterson, L.C. Wilkinson, & M. Hallinan (Eds.), *The social context of instruction: Group organization and group processes*. San Diego: Academic Press.

Ellis, Nancy. (1987). Collaborative interaction and logistical support for teacher change. Unpublished doctoral dissertation. Stanford, CA: Stanford University.

Leechor, C. (1988). How high and low achieving students differentially benefit from working together in cooperative small groups. Unpublished doctoral dissertation. Stanford, CA: Stanford University.

Lotan, Rachel A. (1985). Understanding the theories: Training teachers for implementation of complex instructional technology. Unpublished doctoral dissertation. Stanford, CA: Stanford University.

Lotan, Rachel A. (1989). Collegial feedback: Necessary conditions for program continuation. Paper presented at the annual meeting of the Sociology of Education Association, Asilomar, CA.

Neves, Andrea. (1983). The effect of various input on the second language acquisition of Mexican-American children in nine elementary school classrooms. Unpublished doctoral dissertation. Stanford, CA: Stanford University.

Olsen, Laurie. (1988). *Immigrant students and the California public schools: Crossing the schoolhouse border*. San Francisco, CA: California Tomorrow.

Parchment, Charles. (1989). The role of the principal in implementation of a complex instructional program.Unpublished doctoral dissertation. Stanford CA: Stanford University.

Perrow, Charles. (1967). A framework for the comparative analysis of organizations. *American Sociological Review, 32*, 194-208.

Persell, C. (1977). *Education and inequality: The roots and results of stratification in America's schools*. New York: The Free Press.

Rosenholtz, S.J., & Cohen, E.G. (1985). Activating ethnic status. In J. Berger, & M. Zelditch, Jr., *Status rewards and influence*. San Francisco, CA: Jossey Bass.

Rosenholtz, S.J., & Wilson, B. (1980). The effects of classroom structure on shared perceptions of ability. *American Educational Research Journal, 17*, 175-182.

Rowe, Mary Budd. (1978). *Teaching science as continuous inquiry: A basic*, 2nd edition. New York: McGraw Hill.

Slavin, R.E. (1983). *Cooperative learning*. New York: Longman.

Tammivaara, Julie S. (1982). The effects of task structure on beliefs about competence and participation in small groups. *Sociology of Education, 55*, 212-222.

Zack, Marcia. (1988). Delegation of authority and the use of the student facilitator role. Paper presented at meeting of the International Association for the Study of Cooperation in Education. Kibbutz Shefayim Israel.

Elizabeth G. Cohen is Chair of Social Sciences in Education and is Director, Program for Complex Instruction, at Stanford University. Her research centres on improving competence expectations of low-status youth and on directing extensive research on bilingual and multilingual clasrooms. Under Dr. Cohen's guidance, the Program for Complex Instruction is currently developing and evaluating complex instruction for the middle school. Numbered among her many publications is a book for teachers, *Designing Groupwork: Strategies for heterogeneous classrooms* (New York: Teachers College Press, 1986), which specifically addresses cooperative learning in multilingual settings with a wide range of academic skills.

Elizabeth G. Cohen est directrice des sciences sociales pédagogiques et directrice du programme d'enseignement complexe à l'Université Stanford. Ses recherches ont pour but d'améliorer les espoirs des jeunes de condition modeste et de développer l'enseignement bilingue et multilingue. Sous son égide, les membres du programme d'enseignement complexe procèdent actuellement à l'élaboration et à l'évaluation des enseignements complexes pour les élèves entre le primaire et le secondaire. Parmi ses nombreuses publications, il faut citer un livre à l'intention des enseignants, *Designing Groupwork: Strategies for heterogeneous classrooms* (New York: Teachers College Press, 1986), qui porte sur l'apprentissage collectif dans un cadre multilingue avec un vaste éventail de compétences scolaires.