

**Enhancing Thinking  
Through  
Cooperative Learning**

Edited by  
**NEIL DAVIDSON**  
and  
**TONI WORSHAM**

article: The Touchstones Project

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## 9

## The Touchstones Project

### Learning to Think Cooperatively

**Howard Zelderman, Geoffrey Comber,  
and Nicholas Malstrellis**

You don't want to just butt heads with other people. If you don't, they may give you something you need, something you can use later.

12th-grade student

Effective action in the modern world requires cooperation among persons of diverse abilities, expertise, temperament, and background. This is equally true in scientific, political, corporate, and social settings. Corporate actions have political and social consequences that can't be ignored. Scientific discoveries that don't have immediate social, political, and moral implications are rare, especially in the biological field. Politicians and even ordinary citizens are being called upon every day to judge the legitimacy and propriety of technical procedures that prolong life or reverse the effects of infertility. Even rarefied theoretical fields like cosmology and particle physics have immediate political and social consequences, since the experiments they require involve colossal expenditures of public money.

If we consider a global problem, such as how to reverse the deterioration of the environment, the degree of cooperation required among experts from different disciplines is truly extraordinary. It is not simply a matter of pooling information. It is, rather, a matter of bringing diverse points of view and talents together to define and construct the human world.

#### COOPERATIVE THOUGHT VERSUS SOLITARY THOUGHT

We are called on every day to make judgments that cut across ordinary lines of expertise. We cannot make these judgments by ourselves. The day of the solitary thinker, as exemplified in Descartes's "I think, therefore I am" or Rodin's *Thinker*, is for the most part gone. This is not simply because of the sheer proliferation of information; data

banks and computers can handle this. It is rather because in the real world the divisions of different disciplines are disappearing. There hardly exists an important modern problem that isn't multidisciplinary and therefore requires for its solution a collective judgment.

However, in order to learn to judge collectively, we must learn to think cooperatively. Cooperative thinking is not presently stressed in schools, where teaching and learning is largely, if not exclusively, governed by the model of a teacher informing, and students individually receiving.

This model of teaching and learning becomes the exclusive model as students diverge from one another in their various skills and interests. The very students who are successful in our schools, and who, therefore, are expected to confront and deal with the kinds of problems emergent in a technological world, become increasingly less able to achieve this. Their skills become increasingly compartmentalized. The finesse and subtlety needed to approach a poem and the rigor and precision displayed in mathematical concerns remain isolated from one another even when the same student can do both. Our students never learn the strengths and deficiencies of various approaches, or experience how these diverse methodologies can be focused on the same concern.

Recently, we have seen an increase among educators in the desire to think cooperatively. However, this desire does not, by itself, lead to cooperative thought. Cooperative thinking is a skill that must be learned and practiced. Such practice is a crucial aspect of Touchstones discussion classes. The first aim of Touchstones discussion classes is to challenge students' compartmentalized skills.

Successful students prepare for class, learn from teachers, do well on tests, and apply what they have learned to new contexts. From another perspective, each of these strengths often involves a corresponding weakness. Such students falter when they feel unprepared; they are made uneasy when a teacher's approval is not forthcoming. They are often at a loss when there is uncertainty about whether a problem has an answer, and they can be intellectually distressed when previous models or precedents cannot be extrapolated to deal with a new situation. In other words, such students lack the skills that would enable them to think on the basis of inadequate information, without experts, where a solution to a problem does not have a definite shape or there are no previous models. Yet these are precisely the conditions that increasingly characterize our intellectual, social, and political world and force us to develop the skill we have called cooperative thought. Our students have no experience and practice in responding to the very situations that will confront them. The skill to respond responsibly is one result of the Touchstones Project.

## THE TOUCHSTONES PROJECT

The Touchstones Project presently involves approximately 100,000 students in 25 states. The project sites range from inner-city schools in Hartford, Baltimore, Philadelphia, and Albuquerque to schools in suburban areas like Prince William County, Virginia and Greenwich, Connecticut, to schools in rural areas in Alabama, New Mexico, and Arizona. Students from the entire spectrum of social and economic backgrounds participate in both public and private schools. These students range from the highly gifted to those in at-risk programs and special educational classes. Extensive research with students in a Pittsburgh High School (Miller, 1990) as well as teachers' and students' reports from around the country indicate that after one year of Touchstones experience, students:

1. Realize that radically different approaches can illuminate an issue, problem, or task
2. Can cooperate with other students whose backgrounds, perspectives, and skills are different from their own
3. Can explore a problem where what counts as a solution is unclear, and allow the exploration to remain open-ended or devise strategies for a possible solution
4. Can think in conditions in which no one is an expert and that are characterized by "inadequate" information and intellectual uncertainty

The Touchstones Project develops these skills by bringing together specifically chosen texts and a specially designed discussion format.

Touchstones discussion classes generally meet once a week for a full class period. (In some schools there are two meetings per week.) There is no preparation for the class. A text from one of the four Touchstones volumes is read by the students at the start of the class. These texts are short and require no more than 6 to 8 minutes to read. The absence of outside preparation achieves a number of purposes. All students are placed on an equal footing. The brief allotted reading time results in the members of the group noticing different aspects of the text, so they are forced to depend on one another. Since the students do not feel entirely comfortable with their degree of mastery of the text, they also need to draw on their own experience to supplement their understanding. In addition, it is made clear early in the process that the teacher is not an authority on the content and so the discussion will not lead to a predetermined right answer.

## The Touchstones Texts

The texts used in the Project are the four volumes of the Touchstones series (Comber, Maistrellis, & Zeiderman, 1985-1988). Volume 1 is also now available in a Spanish translation. The texts were field tested in various sites with students in grades 7 to 12 and adults. They have been used with participants of all skill and ability levels from special education and at-risk groups to highly gifted students to teachers, college students and faculty, and corporate executives. The materials were all edited by the creators of the Project. Different stages of the Project require different kinds of texts. To form a group in which people learn how to take responsibility for opinions and begin to think cooperatively, noncontemporary classics are most useful. In the second year, students increasingly make their own intellectual presuppositions explicit. Texts from other cultures and by minorities and women are most suitable as a tool to develop these skills in the discussion process. In the final stage, students begin to think cooperatively about their own concerns. This is fostered by pairs of texts in which a noncontemporary work and a contemporary work are juxtaposed in the treatment of a concern.

*Touchstones Volume 1* is used by all students in their first year of work with Touchstones, whether these are middle or high school students. If the project is implemented beyond a one-year sequence of meetings, students use the other volumes in succeeding years. All the volumes are similar in approximate length of text. They differ in regard to the diversity of authorship and complexity.

Touchstones texts all fuse various degrees of familiarity and strangeness with regard to their fundamental presuppositions. This fusion is necessary to achieve the skills developed by the Project and dictates the use of noncontemporary works. Current works—newspaper or magazine articles or recent fiction and essays—manifest the same presuppositions as the students. They are, therefore, initially of no use in enabling students to discern their own intellectual presuppositions. What they assume is so familiar that our own assumptions remain invisible. The texts chosen for Touchstones, on the other hand, deal with recognizable concerns—revenge, happiness, geometrical figures—but in ways that are no longer familiar or obvious. In other words, the texts do not fit into our current categories of subject matters. Since these current categories determine our students' methodological approaches, the use of these texts enables students to get some distance from their own approaches to look at them and explore their strengths and weaknesses. The texts function as devices for the students to discern their own habits of thought.

The discussion format and the texts reinforce one another to develop the skills of cooperative thought. Since the texts are equally familiar and strange to all the participants, including the teacher, there are no experts on the issues that emerge. The issues need to be explored rather than settled. This encourages and requires a discussion format. Since the texts do not fit into the current divisions of subject matter, they require that the perspectives, skills, and approaches both of differing groups of students and apparently competing subject matters be employed in a complementary fashion to engage with the text. Some typical examples of texts from *Touchstones Volume 1* will clarify the approach.

A short excerpt from *About Revenge*, by Francis Bacon, deals with a subject well known to all the students but approaches it from a conceptually alien direction:

Whatever is past is gone and can't be changed. Wise people know they have enough to do in the present and with whatever might happen in the future. They don't spend their time taking revenge. People who spend their time worrying about past injuries just waste their time. Also, no person hurts another person just to hurt him. Rather, it is done for his profit or his own pleasure or his honor or for some other reason he might have. So why should I be angry with someone for loving himself better than he loves me? Suppose someone hurts me because he is evil. Isn't that just like a thorn or briar which scratches me because it can't do anything else? (p. 5)

His reasons for being against individual acts of vengeance are practical rather than ethical. He is concerned about the effect the desire for revenge has on the soul of a person, not on whether a rule is being broken. The important issue for him is that the desire for revenge, especially when it becomes an obsession, corrupts the person who feels it. The students expect to be preached at, but aren't. Such a text requires that the students work together to reconceive a type of experience all of them take for granted. Another text is a passage from Euclid's *Elements*. As a text on geometry, this engages the interest of students who are comfortable and skilled at mathematics. However, Euclid's approach differs radically from that of our mathematics textbooks—it is not an axiomatic system—and his language is not what one ordinarily finds in mathematics textbooks. In order to deal with this text other skills that are rarely, if ever, present in a mathematics class are required. These are precisely the skills that characterize investigating a poem: interpretation, attention to use of images, and exploration of self-contained structure of rules.

These two selections are typical examples of how Touchstones texts

act as distorting mirrors through which the students can discern their intellectual presuppositions and approaches. In the piece by Bacon, a familiar experience must be removed from the conceptual orientation familiar to all of us and reconceived. The Euclid text takes a different direction. Conventional subject categories must be surrendered and new hybrid strategies developed. These approaches make cooperative thought possible and can only emerge in a cooperative discussion format.

Students with diverse skills find they require one another to focus on the blend of familiarity and strangeness in each text. The student skilled in the analysis of poems can help the mathematically skilled student to think in conditions of uncertainty, where answers are better or worse rather than right or wrong. The mathematically skilled student can assist the others by teaching them to look for general principles underlying their thought and insisting on rigor in the approach. Although these texts both require and make discussion possible, they cannot create the skills necessary to discuss and think cooperatively. A specific approach involving large-and small-group exercises, explicit attention to the dynamical features of group discussion, and the utilization of degrees of interplay between students' experience and a text are necessary to create cooperative discussion skills.

### Touchstones Discussions

Touchstones discussions are designed for groups ranging from 4 to 32 students. The optimum class size is 14 to 28 students. At the smaller range, the size of the class encourages the teacher to continue in the dominant role that characterizes regular classes. If the teacher remains aware of this danger, this problem is avoidable. The problems with having too many students—more than 30—are more difficult. Since the group sits in a circular arrangement, two difficulties emerge. Regular classrooms are often not large enough to accommodate a circular arrangement of 30-plus chairs and, therefore, another room must be used for this activity. In addition, the circular arrangement of the chairs can encourage private side conversations. These break the public character of the discussion activity and can create severe classroom management problems for the teacher.

The creation of a cooperative discussion group faces four issues that are dealt with through the first year in seven-week stages. These are specifically addressed by Zeiderman (1989). In the first stage, students must learn to speak to one another without the mediation of the teacher. This involves developing the skill of thinking about a subject, text, or issue without anyone claiming expertise and authority. This is achieved

by the use of texts that encourage students to feel that their own experience is enough to make them sufficiently knowledgeable to speak.

The second issue and stage emerges once the teacher is no longer viewed as the focus of activity. The teacher's central position will generally be taken over by a few highly dominant students. The task now is to enable all students to view themselves as potential speakers. Once students do see themselves as potential speakers, they still tend to address their remarks only to certain other members of the group. In the second stage of the Touchstones activity, the students, through small-group exercises, discussions, and discussions about discussions, learn to focus on the dynamic relations of dominance, passivity, and disrespect for others that characterize any emergent discussion group, and to change these behaviors. These exercises will be elaborated later.

Once the students have realized that issues and problems can be discussed without an expert present and they have all started to act as potential speakers, they must in the third stage learn the skill of listening. Generally, all of us hear what we wish to hear or what we expect to hear. The students must now learn to hear what another speaker wished to say. In the first two stages the text played a role subordinate to the process. Now the texts and process take on equally important and interdependent functions. Students must learn to hear what other students say even if they disagree. They must learn to hear what an author has said even if initially this appears false or impossible. With the third stage, occurring in weeks 15 to 22 of the first year, the skills of cooperative thinking can become more central features of this activity.

In the first three quarters of the year, the students learn to take the initiative in the discussion but the format of the class is prearranged. In the fourth stage, students also begin to take on these responsibilities. They explore how to select a class period design that will enable the group to initiate cooperative inquiry. The students learn how to manage a discussion group. They learn when and how as leaders to intervene, and select the texts to be read (generally from Touchstones but in two sessions they prepare the materials themselves). They determine whether and what kind of small-group work will precede the full-group discussion and choose, if they feel it is necessary, exercises to assist the class pursue its discussion. In this last stage, they have taken on both the responsibility and the initiative for their cooperative thinking.

A group of ninth graders in the 28th week of Touchstones were allowed to choose a topic for discussion. Five very vocal students advocated a discussion on teenage sex and persuaded the rest of the class. The other students, however, insisted that these five take responsibility for planning and leading the discussion. The group of leaders met twice to

design the format. By the next week's meeting, they had realized how volatile such a subject was and how difficult it would be to discuss it without getting into arguments and disagreements about it. They therefore designed a format focusing on small-group work, which was to last for half the class period. The task they assigned the small groups was to consider the difficulties of such a discussion and strategies to avoid these. They then brought the class together to hear their reports and moved into a discussion on the topic lasting about 15 minutes. These students had learned to recognize that a topic they wished to discuss would fractionalize a group and devised an approach that made cooperation possible.

Cooperation is a skill that must be learned. In Touchstones classes, this skill is developed by small-group work and large-group exercises focused on the particular impediments to cooperation. From the very first meeting of the year, it is important for the teacher to convey to the students that the Touchstones' activity is theirs. However, this is at first merely a piece of information. It becomes a reality as the students take increased responsibility for the direction of the class. This occurs in small-group work and also in large-group discussions about the problems and successes of the group which are encouraged throughout the year.

### Structure of a Touchstones Class

A typical Touchstones class has a number of segments, each designed to encourage the students to take ownership of the activity and to learn to cooperate. The class generally lasts for 40 to 45 minutes. Students enter the classroom, move the chairs into a large circle, and choose where and next to whom they sit. The books are then distributed. The text to be discussed is read aloud and then silently. Students are then given time to write down a question they feel would be interesting to discuss. Next, students work in small groups of three to five members, either assisting one another in reformulating their individual questions, devising a group question, or discussing how to approach a text as if they were to lead the discussion. The small-group work is always composed of task-oriented activities requiring cooperation. When the class reconvenes, the groups report their results to the class. A Touchstones class occurring about 10 weeks into the year raises the cooperative task to a different level. In this meeting, the students are divided into two groups. For the first 10 to 12 minutes one of the groups will discuss a text while the other group sits in an outside circle and uses a student observation sheet. The observers keep track of the speech incidents, determine the reason for silences if these occur, and evaluate the discussion itself—giving a grade and justifying it. In the second segment of the class, the groups switch roles and go through the same process. In the

last 12 minutes of the class, the entire class is reunited. The students in the outer circle present their reports, propose recommendations for class improvements, and discuss these. At this stage the students begin to cooperate, not only on specific tasks, but also on the issue of how to deal with those areas where the group is failing to cooperate.

The roles of the students change drastically as the year progresses. Though the students are told that the teacher is not the source of answers in the discussion and that they can initiate the questions and the discussion, their habits and expectations about a classroom activity carry over into the first Touchstones classes. They address their remarks to or through the teacher and expect their answers to be right or wrong. As this changes, the students take on greater responsibility for the initiation of the discussion, the directions for improvement, and eventually for the leadership itself. The goal of the first year in regard to the students' role is that in the last seven classes they, in groups of 3 to 6, will choose the text and lead the large group discussion. A crucial moment in this transformation of roles occurs in the 22nd week. The students spend one session working on the issues involved in leading discussions. They receive a handout describing 10 typical situations that can arise in a discussion and that require a leader to decide whether and how to intervene. As exhibited in the two samples shown below, each situation is followed by three possible interventions by the leader.

1. There is five-second period of silence.
  - a. Ask another question.
  - b. Call on a student to speak.
  - c. Wait a little longer to see if a student will speak.
2. Some members of the group keep talking to their neighbors.
  - a. Tell them to stop and remind them of the ground rules.
  - b. Ask them if they would like to say what they just said to the whole group.
  - c. Pretend not to notice it. (p. 157)

The students choose among options, give reasons for their choices, and discuss the benefits and defects of the possible interventions. Following this class, the students take on the role of leader that the teacher has modeled through the year.

### The Touchstones Discussions Leader

The most complex aspect of the Touchstones process is the role of the teacher as discussion leader. The teacher-leader is neither the source

of authority on the content of the text, nor the judge of the value or correctness of the student's opinions. Nor is the teacher simply a mere observer of the process. The teacher remains a teacher but with different goals and responsibilities. The teacher's goal is to enable the students to conduct the discussion themselves by the end of the first year. To achieve this, teachers continually make decisions about whether and how to intervene.

The teacher-leaders are prepared to conduct Touchstones discussions through participating in a one-day workshop, or by viewing a 5½-hour video training tape. These sessions clarify the goals and problems of Touchstones discussions outlined as the four stages of the first year. Teachers then use the *Guide for Leading Discussions Using Touchstones* (Vol. 1) (Zeiderman, 1989) as a reference when conducting the classes. In the *Guide*, classes are divided into the small-group work and large-group discussions. During the periods of small-group work, teachers often act as they would in regular classes. They monitor that the groups stay on task, and assist each group by giving suggestions and by clarifying and explaining the task.

Once the large group discussion begins, however, the teacher's role shifts. At first the teacher uses the text to invite students to consider common experiences such as, for example, "getting even" when discussing Bacon's *About Revenge*. This is done to allow the students' own expertise to free them from dependence on the teacher's opinion and to maximize participation. In the early stages, teachers withhold approval of particular remarks. This forces students to realize that the success or failure of the activity depends on them. The teacher manages the situation in order, eventually, to turn over that responsibility to the students. The teacher's response to silences is an instructive example. In a regular class, a period of silence following a teacher's question is a danger signal. The teacher will generally allow silence to last for about 6 to 7 seconds before reformulating what was asked. In a Touchstones discussion an initiating or opening question can be greeted by silence, or an active discussion can suddenly stop and turn into silence. A Touchstones teacher-leader will generally allow a silence to continue for 10 to 15 seconds before considering an intervention.

A 15-second period of silence is painful for both leader and students. In a regular class, silence is viewed as the teacher's problem. However, in Touchstones classes, silence is seen by the leader both as a problem and an opportunity for the entire class. By not breaking the silence, the leader makes it clear that the problem of silence is everyone's responsibility. In addition, a leader will also view silence as an opportunity.

Often the student who breaks the silence is one who has had difficulty participating.

## CONCLUSIONS

### Evaluation

The evolution of a group and of the student's discussion skills can be studied, or the effects of participation on individual students in non-Touchstones environments—i.e., transferability of skills—can be investigated. Extensive documentation has been collected concerning groups and individual changes within the Touchstones format. Video histories of classes, in-depth interviews of students and teachers, teacher reports and studies of teacher/student participation, student/student collaboration, have all been collected. When teachers have adapted the recommended Touchstones format in conducting Touchstones classes, the studies show

1. A marked increase in student participation, initiative, and collaboration
2. Increased demands among students for evidence to support an opinion
3. Participation by students who are generally reticent about speaking in class approximately equals the activity of those who aren't
4. High activity by students of all skill levels who are generally disaffected

The issue of transferability studies is quite complicated. The means are being sought to determine which skills developed in Touchstones by groups and by individuals transfer into other school environments. One problem is that the format of regular classes often does not leave room for the skills of questioning and cooperating to become apparent. We are trying to deal with this by keeping teachers who are not leading Touchstones discussions informed about the project's methods and goals. In addition, it is not clear that an evaluation instrument presently exists that can quantify listening and questioning skills, or can determine successful collaboration in problem solving. Also, there is little general confidence about what is evaluated by the various critical-thinking tests and just how these might be utilized to determine the effects of participation in Touchstones. Attempts to clarify the difficulties in order to devise a useful evaluation instrument are currently being made in Maryland, Connecticut, Alabama, and New Mexico.

### Student Responses

The three following vignettes show the evolution of skills and changes in attitudes typical among Touchstones students. In a Hartford magnet school where fairly skilled seventh graders participate, a class of 22 students was discussing a text from Euclid on geometrical straight lines. A highly skilled math student began asserting a typical textbook definition of a straight line. Another student, who is strong in English but never speaks in math class, interrupted. He told the math student that the words he was uttering were not his and then directed the group to the consideration of the quite different definition of a straight line given by Euclid. This student then led the class in a discussion comparing the two definitions. The results of this class were that a student alienated from mathematics found an entry into that subject, that a mathematically proficient student could recognize the need for developing skills enabling care and attentiveness to language, and that the whole class could become more reflective about what many were taking for granted.

A different kind of incident occurred in a Pittsburgh High School in a year-end discussion in which students discuss the Touchstones Project itself. Many of the students described their increased self-respect, ability to communicate, and sense of empowerment. A student described how he felt when he caused someone else to change an opinion. However, following this assertion he continued, "But what's really weird is when someone else changes *your* mind. When that happens, it kind of makes you feel whole." When he finished, many students in the group agreed. What is surprising is not that a discussion format empowered students; one would expect that. What is surprising is that having one's own mind changed by another student was not viewed as a diminution of empowerment. In other words, collaborative thinking was seen as a further instance of one's own strength of thought.

A third incident in Pittsburgh illustrates another form of empowerment. A class of 10th and 11th graders who are functionally nonreaders were discussing the scene in Homer's *Iliad* in which Priam came to retrieve Hector's body from Achilles. The students' access to the text was mediated by the leader's reading aloud of the text. The text was initially an object of fear, as are all writings for these students. Although Touchstones is not primarily a reading project, the discussion format makes the text less fearful. In this discussion, the students spent much of their energy trying to decide about a purely factual matter in the text. The teacher tried once to straighten them out, but they ignored his attempt. He wisely backed off and allowed them to handle the problem themselves. Finally, one student and then others slowly and laboriously read



passages from the text to settle the matter. It didn't. However, what it did reveal is that a discussion format in which students take one another seriously enables them to confront their intellectual fears. Fear—and most students feel it toward some subject or necessary skill—can be mastered only when students realize the urgency of their need and feel the confidence necessary to attempt to satisfy it. This recognition and confidence develops in Touchstones discussions.

The Touchstones Project is only a first step in realizing large-group cooperative thought. As students develop these skills, it becomes possible to apply them in concrete ways in regular classes. Occasions should be sought where discussion skills and cooperative exploration can be utilized in the various subject areas. Facts, techniques, and many skills can be acquired by means of lecture, presentation, practice, and cooperative learning strategies. However, students most fully appropriate the framework that gives order, import, and significance to information and grasp the long-range purposes that bestow life on specific skills through the cooperative thinking and exploration that occurs in discussion. In a technological world, Descartes's solitary *cogito* must surrender its primacy to cooperative thought.

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## Cooperating for Concept Development

*Linda Hanrahan Mauro and Lenore Judd Cohen*

The development of conceptual knowledge is a lifelong process that begins at an early age and continues in both school and everyday life. Concepts enable us to categorize and classify knowledge and experience; by developing concepts, we provide frameworks for our continued learning. The teaching of concepts may well be the most important teaching we do.

Teachers, teacher educators, and staff developers have for years both used and advocated the use of two particular models of teaching that are especially effective in the teaching of concepts. The models of teaching known as concept attainment and concept formation offer three major strengths.

1. Students are active participants in the process of attaining and forming concepts.
2. Critical thinking occurs as students participate in the natural processes of comparing and contrasting examples.
3. Metacognitive skills are developed as students reflect on the ways in which they use examples and nonexamples to develop conceptual understanding.

These models have been used successfully with diverse sets of learners, across grade levels and content areas, in a variety of settings, and with concepts varying in degrees of difficulty.

The two scenarios presented below provide glimpses of two different teachers teaching two different concepts to students at two different grade levels. The first scenario describes the beginning of a concept attainment lesson; the second scenario portrays a concept formation lesson in progress.