

Critical Thinking Through Structured Controversy

Through controlled argumentation, students can broaden their perspectives, learn material more thoroughly, and make better decisions.

DAVID W. JOHNSON
AND ROGER T. JOHNSON

David W. Johnson is Professor of Educational Psychology, and **Roger T. Johnson** is Professor of Curriculum and Instruction, both at the University of Minnesota, Cooperative Learning Center, 202 Pattee Hall, 150 Pillsbury Dr., S.E., Minneapolis, MN 55455.

Have you learned lessons only of those who admired you, and were tender with you, and stood aside for you?

Have you not learned great lessons from those who braced themselves against you and disputed the passage with you?

—Walt Whitman, 1860

Using academic conflicts for instructional purposes is one of the most dynamic and involving, yet *least-used* teaching strategies. Although creating a conflict is an accepted writer's tool for capturing an audience, teachers often suppress students' academic disagreements and consequently miss out on valuable opportunities to capture their own audiences and enhance learning.

Teachers generally avoid and subdue students' academic conflicts for

several reasons. For instance, they may view conflicts as divisive, alienating students from each other, with the least capable feeling defeated and humiliated (Collins 1970, DeCecco and Richards 1974). Another reason is that teachers do not have an instructional model for structuring and controlling academic controversies to stimulate learning.

Over the past 10 years, we have developed and tested a theory about how controversy promotes positive

outcomes (D. Johnson 1979, 1980; Johnson and Johnson 1979, 1985). Based on our findings, we have developed a series of curriculum units on energy and environmental issues structured for academic controversies. We have also worked with schools and colleges throughout the United States and Canada to field-test and implement the units in the classroom.

We will review these efforts by discussing the process of controversy; how teachers can organize and use it, and the advantages of using it to enhance both cognitive and affective learning.

“Controversies must be defined as interesting problems to be solved rather than as win-lose situations.”

A Model for the Process of Controversy

Controversy is a type of academic conflict that exists when one student's ideas, information, conclusions, theories, and opinions are incompatible with those of another and the two seek to reach an agreement. Structured academic controversies are most commonly contrasted with concurrence-seeking, debate, and individualistic learning (fig. 1). For instance, students

can inhibit discussion to avoid any disagreement and compromise quickly to reach a consensus while they discuss the issue (concurrence-seeking). Or students can appoint a judge and then debate the different positions with the expectation that the judge will determine who presented the better position (debate). Finally, students can work independently with their own set of materials at their own pace (individualistic learning).

When teachers structure controversy, students must rehearse orally the information they are learning; advocate a position; teach their knowledge to peers; analyze, critically evaluate, and rebut information; reason deductively and inductively; and synthesize and integrate information into factual and judgmental conclusions that are summarized into a joint position to which all sides can agree.

Consider the following illustration. A teacher assigns students to groups of four composed of two-person advocacy teams and asks them to prepare a report entitled "The Role of Regulations in the Management of Hazardous Waste." One team is given the position that more regulations are needed, and the other team, that fewer regulations are needed. During the first hour, both teams receive materials supporting their assigned positions. The teacher instructs them to plan how best to support their assigned positions so that they *and* the opposing team learn the information and the perspective within the materials so well that the opposing team is convinced.

During the second hour, the two teams present their positions to each other and then engage in general discussion in which they advocate their positions, rebut the opposing side, and seek to reach the best decision possible about the need to regulate hazardous waste management. This discussion continues during the third hour, and each team spends 30 minutes arguing for the opposing position.

During the fourth hour, the four group members reach consensus about the issue, synthesize the best information and reasoning from both sides, write a report on the role of regulations in hazardous waste management, and individually take a test on the factual information contained in the reading materials.

"Heterogeneity among group members leads to spirited and constructive argumentation . . ."

This illustration represents the structured use of academic controversy, a six-step process through which students advance from factual learning to reasoned judgment (fig. 2). During such a sequence, students realize that their conclusions are being contested by others who hold different views. They then become uncertain about the correctness of their own ideas, and an internal state of conceptual conflict is aroused. To resolve their uncertainty, students search for more information, new experiences, improved reasoning, and a more nearly adequate cognitive perspective. They try to understand their opponents' conclusion and rationale. The cognitive rehearsal of their own position and their attempts to understand their opponents' position result in a reconceptualization of their position. This new level of comprehension is characterized by understanding the opposing perspective, incorporating the opponents' information and reasoning, changing their own attitude and position if warranted, and using higher-level reasoning strategies. This process is repeated until the differences in conclusions among students have been resolved, a synthesis is achieved, an agreement is reached, and the controversy has ended.

Structured academic controversies require students to invest physical and

"Students must value and respect one another."

psychological energy in their educational experiences. This investment takes many forms: absorption in academic work, epistemic curiosity, effort expended toward academic achievement, and the like. Student time and energy, of course, are finite resources, and educational success can be evaluated in terms of increasing the time and energy students willingly commit to their education.

Use of Controversy in the Classroom

For the past several years, we have been training teachers to use structured academic controversies, which they are now using in a wide variety of grade levels and subject areas. At the University of Minnesota, we are using controversies in several engineering courses and with undergraduate and graduate education and psychology students. The basic format teachers use for organizing structured academic controversies consists of four steps.

1. *Choosing the discussion topic.*

The choice of topic depends on the interests of the instructor and the purposes of the course. Two well-documented positions can be prepared and that students are able to manage the content are criteria for selection. Most environmental, energy, public policy, social studies, literary, and scientific issues are appropriate.

2. *Preparing instructional materials.* The following materials are needed for each position:

- a clear description of the group's task;
- a description of the phases of the controversy procedure and the collaborative skills to be used during each;
- a definition of the position to be advocated with a summary of the key arguments supporting the position;
- resource materials (including a bibliography) to provide evidence for and elaboration of the arguments supporting the position to be advocated.

3. *Structuring the controversy.* The principal requirements for a successful structured controversy are a cooperative context, skillful group members, and heterogeneity of group membership. Teachers establish a cooperative context by assigning students randomly to groups and by requiring each group to reach consen-

3. LEARNING: Instructional Strategies

Controversy	Debate	Concurrence-Seeking	Individualistic
Deriving conclusions by categorizing and organizing information and experiences	Deriving conclusions by categorizing and organizing information and experiences	Deriving conclusions by categorizing and organizing information and experiences	Deriving conclusions by categorizing and organizing information and experiences
Being challenged by opposing views	Being challenged by opposing views	Quick compromise to one view	Presence of only one view
Uncertainty about the correctness of own view, cognitive conflict	Uncertainty about the correctness of own view, cognitive conflict	High certainty	High certainty
High epistemic curiosity	Moderate epistemic curiosity	Absence of epistemic curiosity	No epistemic curiosity
Active representation and elaboration of position and rationale	Active representation and elaboration of position and rationale	Active restatement of original position	No oral statement of position
High reconceptualization	Moderate reconceptualization	No reconceptualization	No reconceptualization
High productivity	Moderate productivity	Low productivity	Low productivity
High positive cathexis	Moderate positive cathexis	Low positive cathexis	Low positive cathexis

Fig. 1. Four Learning Processes

“Students must feel safe enough to challenge each other’s ideas and reasoning.”

...sus on an issue and submit a report on which all members will be evaluated. Heterogeneity among group members leads to spirited and constructive argumentation and increases appreciation of different views. (In the next section we discuss five strategies for promoting constructive controversy.)

4. *Conducting the controversy.* To guide a controversy, the teacher gives students specific instructions in five phases.

• *Learning positions.* Plan with your partner how to advocate your position effectively. Read the materials supporting your position, and plan a persuasive presentation. Make sure you and your partner master the information supporting your assigned position and present it in a way to ensure that the opposing pair will comprehend and learn the information.

• *Presenting positions.* As a pair, present your position forcefully and persuasively. Listen carefully and learn the opposing position. Take notes, and clarify anything you do not understand.

• *Discussing the issue.* Argue forcefully and persuasively for the posi-

tion, presenting as many facts as you can to support your point of view. Listen critically to the opposing pair’s position, asking them for the facts that support their viewpoint, and then present counter-arguments. Remember this is a complex issue, and you need to know both sides to write a good report.

• *Reversing perspectives.* Working as a pair, present the opposing pair’s position as if you were they. Be as sincere and forceful as you can. Add any new facts you know. Elaborate their position by relating it to other information you have previously learned.

• *Reaching a decision.* Summarize and synthesize the best arguments for both points of view. Reach consensus on a position that is supported by the facts. Change your mind only when the facts and the rationale clearly indicate that you should do so. Write your report with the supporting evidence and rationale for your synthesis that your group has agreed on.

Instruct the students to follow specific discussion rules during the controversy (see fig. 3). After the controversy, spend some time processing how well the group functioned and how its performance may be enhanced during the next controversy. It is a good idea to highlight and discuss the specific conflict management skills students need to master.

Prerequisites to Promoting Constructive Controversy

Positive outcomes do not automatically appear every time students disagree intellectually. To produce them, teachers need to know how to initiate, nurture, and manage controversies

constructively. This involves five strategies.

1. *Structuring learning activities cooperatively.* For controversies to be constructive—neither competitive nor destructive—the following conditions must be met.

• Controversies must be defined as interesting problems to be solved rather than as win-lose situations.

• Controversies must be valued as opportunities and challenges.

• Similarities as well as differences between positions must be recognized.

• Information must be accurately communicated.

• Feelings as well as information have to be communicated and responded to.

• Students must value and respect one another.

• Students must feel safe enough to challenge each other’s ideas and reasoning.

2. *Ensuring that groups are heterogeneous.* Differences among students—in personality, sex, attitude, background, social class, reasoning strategies, cognitive perspective, information, ability level, and skills—

“A balanced presentation should be given for each side of the controversy.”

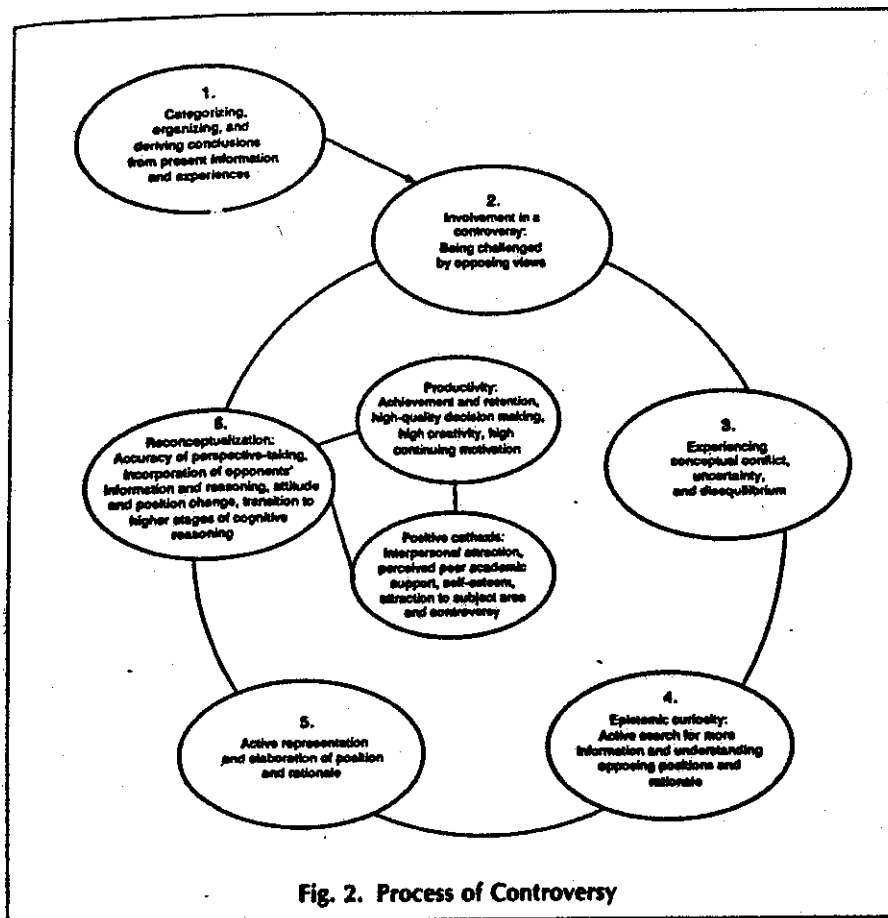


Fig. 2. Process of Controversy

“Engaging in structured academic controversies increases students’ perspective-taking abilities.”

dents engage in perspective-taking behaviors (e.g., paraphrasing).

A third set of skills involves the cycle of differentiation of positions and their resultant integration. Students need to perform several cycles of *differentiation* (seeking out and clarifying differences among ideas, information, conclusions, theories, and opinions) and *integration* (combining information, reasoning, theories, and conclusions of others into one new, creative solution).

5. *Teaching the procedures of rational argument.* During a controversy, students must follow the canons of rational argument. They should generate ideas, collect and organize relevant information, reason logically, empathetically enter into the perspective of their opponents, and make tentative conclusions based on current understanding. After presenting their perspectives and the rationales for their positions, as well as their conclusions, students should ask their opponents for proof that their analyses and conclusions are accurate. Students should keep an open mind, changing their conclusions if their opponents present persuasive rationales, proofs, and logical reasoning.

How Students Benefit

When students interact, conflicts among their ideas, conclusions, theories, information, perspectives, opinions, and preferences are inevitable. Teachers who capitalize on these differences find that academic conflicts can yield highly constructive dividends. Over the past 10 years, we have conducted systematic research to discover the consequences of structured controversy (Johnson and Johnson 1979, 1985). One of the most interest-

lead to differing styles of processing information, which in turn actually begin the cycle of controversy. Such differences promote learning and increase the amount of time spent in argumentation.

3. *Distributing information relevant to both sides.* A balanced presentation should be given for each side of the controversy. The more information students have about an issue, the

greater their learning tends to be. Having relevant information available, however, does not mean that students will use it. They need the interpersonal and group skills necessary to ensure that all participants contribute pertinent information and synthesize data effectively.

4. *Teaching conflict management skills.* To manage controversy constructively, students need collaborative and conflict management skills (D. Johnson 1981, Johnson and Johnson 1982). One of the most important is the ability to challenge another’s ideas while at the same time confirming that individual’s personal competence. Students can learn to value disagreements as interesting opportunities to learn something new, not as personal attacks.

Perspective taking is another important ability for exchanging information and opinions within a conflict (D. Johnson 1971). Additional information, both personal and impersonal, can be disclosed and is more often accurately comprehended when stu-

“To produce [positive outcomes], teachers need to know how to initiate, nurture, and manage controversies constructively.”

"Students should keep an open mind, changing their conclusions if their opponents present persuasive rationales, proofs, and logical reasoning."

1. I am critical of ideas, not people.
2. I focus on making the best decision possible, not on "winning."
3. I encourage everyone to participate and master all the relevant information.
4. I listen to everyone's ideas, even if I do not agree.
5. I restate (paraphrase) what someone has said if it is not clear.
6. I first bring out *all* the ideas and facts supporting both sides and then try to put them together in a way that makes sense.
7. I try to understand both sides of the issue.
8. I change my mind when the evidence clearly indicates that I should do so.

Fig. 3. Discussion Rules for Participating in an Academic Controversy

stimulation and enjoyment, and originality of expression in problem solving, resulting in greater emotional commitment to solving the problem, greater enjoyment of the process, and more imaginative solutions.

Within controversies are elements of disagreement, argumentation, and rebuttal that could result in divisiveness among peers and the promotion of negative attitudes. The research, however, indicates that compared with the other three learning processes, structured controversy promotes a greater liking among participants, greater perceived peer academic support, higher academic self-esteem, and more positive attitudes toward both the subject and the process of controversy.

Other interesting findings relate to student achievement and attitudes. For instance, compared with concurrence-seeking, debate, and individualistic learning efforts, structured controversy results in:

- greater student mastery and retention of the subject and greater ability to generalize the principles learned to a wider variety of situations;
- higher-quality decisions and solutions to problems;
- the promotion of creative insights by influencing students to view a problem from different perspectives and reformulate it in ways that allow the emergence of new orientations to the problem;
- an increase in the number and quality of students' ideas, feelings of

A Generic Problem-Solving Strategy

If students are to become citizens capable of making reasoned judgments about the complex problems facing society, they must learn to use the higher-level reasoning and critical thinking processes involved in effective problem solving, especially problems for which different viewpoints can plausibly be developed. With structured controversy, students of all ages are learning how to find high-quality solutions to complex problems.

References

- Collins, B. *Social Psychology*. Reading, Mass.: Addison-Wesley, 1970.
- DeCecco, J., and A. Richards. *Growing Pains: Uses of School Conflict*. New York: Aberdeen Press, 1974.
- Johnson, D. W. "Students Against the School Establishment: Crisis Intervention in School Conflicts and Organization Change." *Journal of School Psychology* 9 (Winter 1971): 84-92.
- Johnson, D. W. *Educational Psychology*. Englewood Cliffs, N.J.: Prentice-Hall, 1979.
- Johnson, D. W. "Group Processes: Influences of Student-Student Interaction on School Outcomes." In *The Social Psychology of School Learning*, edited by J. McMillan. New York: Academic Press, 1980.
- Johnson, D. W. *Reaching Out: Interpersonal Effectiveness and Self-Actualization*. 2d ed. Englewood Cliffs, N.J.: Prentice-Hall, 1981.
- Johnson, D. W., and F. Johnson. *Joining Together: Group Theory and Group Skills*. 2d ed. Englewood Cliffs, N.J.: Prentice-Hall, 1982.
- Johnson, D. W., and R. Johnson. "Conflict in the Classroom: Controversy and Learning." *Review of Educational Research* 49 (Winter 1979): 51-61.
- Johnson, D. W., and R. Johnson. "Classroom Conflict: Controversy vs. Debate in Learning Groups." *American Educational Research Journal* 22 (Summer 1985): 237-256.
- Whitman, W. *Leaves of Grass*. New York: Viking Press, 1860.