



## Controlled Fission: Teaching Supercharged Subjects

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# CONTROLLED FISSION

## TEACHING SUPERCHARGED SUBJECTS

David Pace

**Abstract.** Those who teach subjects that explore controversial issues often find that students have difficulty thinking about and responding productively to them. College instructors have leeway in structuring learning in ways that maximize the possibility of productive critical thinking. By shaping classroom experiences before the controversial material is encountered, the likelihood that students will maintain higher mental functioning when examining that material increases. This article discusses ten strategies for planning a course that facilitates quality discussion and thoughtful debate.

Every year I watched my history seminar, "The Dawn of the Atomic Age," plunge over a cliff. The class began well. Students would respond to my attempts to encourage critical thinking. They would engage in thoughtful discussions and show signs of intellectual growth. But as soon as the magic word "Hiroshima" was uttered, all of this ended. As if captured in some spell, even bright and thoughtful students began to repeat clichés. Across the entire ideological spectrum learning halted as students lost the ability to make distinctions, to establish criteria of judgment, to support arguments with evidence, and to understand the historical

context of actions. In the face of an issue that elicited powerful emotions they began to assume uncharacteristically extreme positions, and conflicts within the class threatened to poison interactions for the remainder of the course. Perhaps most disturbingly, the extreme nature of many students' comments pushed my "buttons," and the emotional and intellectual chaos of the argument made me less effective as an agent of critical thinking.

Such experiences must be painfully familiar to many veteran instructors who deal with emotionally charged issues in their classes. This phenomenon is connected in some ways with the difficulties in viewing issues from multiple perspectives described by William Perry in his celebrated *Forms of Intellectual and Eth-*

*ical Development in the College Years* (1970), but the fact that many of my students could view other issues from multiple perspectives suggested that the problem could not be reduced to a simple question of cognitive development. Similarly, John Gardner and others have systematically explored the manner in which pre-existing conceptions of the world can hinder learning (Gardner 1991), but here the difficulty seems to arise not so much from a deep-seated vision of how the world works as from the emotional charge that is attached to a single issue. A literature about teaching controversial issues in K-12 exists (Hahn 1994), but differences in both the learning and the institutional contexts make this work less useful for those dealing with these issues in college courses.

In the absence of an extended theoretical exploration of the role of pre-existing emotions in learning at the university level, faculty are obliged to experiment with approaches that can lessen the likelihood of such classroom disasters. In formulating strategies for dealing with controversial issues, it is important to remember that, unlike the participants in heated public debates, such as that surrounding the Enola Gay exhibit at the Smithsonian in the mid-1990s, college instructors have considerable leeway in structuring learning in ways that maximize the possibility of productive critical thinking. For several months we are able to dictate the books that the students read, the questions that

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they discuss, and the tasks that they undertake in and out of class. If we begin to shape these experiences well before the controversial material is encountered, we can greatly increase the likelihood that students will maintain their higher mental functioning even while examining an explosive topic.

Therefore I sought to minimize the impact of pre-existing emotions on critical thinking through the creation of structured learning exercises. The course became a kind of laboratory in which I could test these pedagogical strategies; the students' performance in the discussion of the bombing of Hiroshima was a yardstick by which I could measure the reliability of the basic pedagogical principles on which I based this project. Like any meaningful strategic response to a pedagogical challenge, my response to the challenge of getting students to think productively about the destruction of Hiroshima and Nagasaki was a direct response to the needs of this particular class (a freshman seminar) and to the culture and methodologies of my discipline (history). However, many of the ten strategies I employed in the redesign of this course should be applicable to a great variety of teaching situations.

***Strategy 1: Begin to shape the terms of debate long before the controversial issue arises in class.***

The emotional charges that engender classroom clashes have been in existence long before the course begins, and it is naive to imagine that they can be changed in the course of a single class period. Therefore, I moved "upstream" from the discussion of the bombing of Hiroshima and Nagasaki and reshaped the existing course material to create structured learning experiences at the beginning of the semester that prepared my students to think about these issues more productively.

***Strategy 2: Define the kinds of mental operations that are required to deal effectively with the controversial issue that is causing problems.***

Without clearly defining the kinds of thinking that are required to deal productively with the controversial issue, it is difficult to prepare students to approach it more effectively. In the case of grappling

with American nuclear policy at the end of World War II, students particularly need to be able to

- consider a question from multiple perspectives;
- see these perspectives as rooted in specific historical contexts;
- weigh evidence to determine which of several positions is more plausible; and
- tolerate the ambiguity and uncertainty that generally surrounds the interpretation of historical events.

***Strategy 3: Systematically model the operations and roles that students will need to successfully encounter the controversial issue.***

The operations required for a successful encounter with a controversial issue must be repeatedly and explicitly modeled for students, and they must have opportunities to practice the skills with ample feedback. This involves modeling not only the kinds of cognitive operations that will be used in grappling with emotionally charged material, but also the kinds of social roles that are most productive in thinking collectively about such issues. It is particularly important for the instructor to consistently model productive intellectual interactions when dealing with the class.

***Strategy 4: Provide students with experiences of seeing a question from multiple perspectives.***

A productive discussion of controversial issues requires the ability to shift perspectives to see the question from different points of view. Therefore, I created structured exercises that gave students the opportunity to practice those skills with issues that carried less emotional charge. For example, I asked students to write a short paper on the differences in the presentation of the Manhattan Project in the 1946 film *The Beginning or the End* and in historian Martin Sherwin's book *A World Destroyed*.

Research on attitudinal change suggests that role-playing can be effective in loosening commitment to strongly held beliefs or habits (Bednar and Levie 1993). Therefore, I developed an in-class exercise in which students used the material in Sherwin's description of the Man-

hattan Project to play the roles of the scientists, military officers, and civilian leaders involved in developing the atomic bomb. Once the conflicts between the groups had been reenacted, the students left these roles and discussed how the interests, life history, professional norms, and experience of history of each faction might have predisposed it toward a particular way of viewing the Manhattan Project and the groups involved in it. Finally, near the end of the class, I asked them to consider what each group might have learned from the others about the world of the 1940s that it would have had difficulty discovering on its own.

***Strategy 5: Give students practice at contextualizing controversial issues.***

In most, if not all disciplines, students must be able to relate controversial questions to broader conditions, but such contextualization is particularly important in history courses. Therefore, I sought to give my students ample opportunities to relate intellectual positions to the roles and experiences of those who defended them. The role-playing exercise described above provides a good example of this process, but the most successful tactic for achieving this end was an oral history assignment at the beginning of the course in which students conducted structured interviews with five people of their parents' or grandparents' generations about their experience of nuclear issues. In small groups students compared the results of their interviews and discussed the factors (events, personal experiences, ideas, books, etc.) that seemed to have been particularly important in shaping their subjects' views.

When the class reassembled, I asked the students to place these factors on a timeline, and we rooted their subjects' views in their historical experiences. When I asked the students to situate themselves within this chronology, they quickly recognized that their year of birth determined whether particular experiences had influenced them, and that their own perspectives on nuclear issues might have been different if they had been born five, ten, twenty-five, or thirty years earlier. These classroom activities give students not only a richer vision of the historical background of nuclear culture, but

also a stronger sense of the limits of their own perspectives.

***Strategy 6: Give students practice at using evidence to support an argument.***

It was not my purpose to turn my students into the kind of pure relativists that William Perry has described so well. Therefore, I modeled for them the ways in which historians use evidence to support positions. Then I gave them a variety of individual and collaborative exercises in which particular aspects of defending a historical argument could be practiced, and I provided them regular feedback on their progress. In the process students were also mastering background information on such topics as the development of total warfare in the twentieth century, theories of aerial bombing in the 1930s and 1940s, the relationship between science and warfare, World War II propaganda, and anti-Japanese feeling, all of which would allow them to make more intelligent arguments when the bombing of Hiroshima and Nagasaki was discussed.

***Strategy 7: Approach the controversial issue incrementally.***

All of this preparation assured that at least a good part of the class had the skills and knowledge needed to conduct an intelligent discussion of the use of the atomic bomb in the Second World War. However, my previous experiences in teaching this material taught me how easily students can revert to simplistic arguments when faced with an issue that provokes powerful emotions. Therefore I approached Hiroshima and Nagasaki very carefully, presenting my students with a series of smaller judgments that would create a little emotional distance from the subject matter, at the same time that it made the cognitive challenges less daunting. The following describes the four-step process through which I took my students.

*Step 1. Have students define the terms in which the issue has been faced in the past.*

I began by asking the students to generate, first in teams and then as a whole, a list of factors that might have consciously or unconsciously played a role in the decision making of the Interim Commit-

tee that made recommendations to Truman concerning the use of the bomb. The class produced twenty-six possibilities, ranging from concern about American casualties to the desire for political cover in Congress and anti-Japanese racism. I then asked them repeatedly to eliminate the one factor that they thought was least likely to have played a role in the decision. As the list began to shrink, differences of opinion appeared in the class, and I pressed students for concrete evidence to support the elimination or the inclusion of particular factors. Dealing with this evidence and with the fact that a large number of different and unrelated motivations converged in this decision forced them to grapple with both the complexity of the event and the ambiguity and uncertainty faced by historians.

*Step 2. Have students evaluate the validity of criteria that have been used to discuss the issue.*

At this point the class had dealt with most of the issues required for a historical understanding of American nuclear policy. But given the importance of the decision to use the bomb for future understanding of war and peace, I wanted them to evaluate this action from the perspective of the present. Therefore, once the list of factors had been reduced to a set of which everyone was firmly convinced, I asked the collaborative learning groups to consider which factors they believed were appropriate for the members of the Interim Committee to bear in mind when making this choice (either because they were factors that were ethically appropriate to consider or because they represented an accurate understanding of the world as it existed in 1945). I arranged the teams so that each contained students with different perspectives, and they began a series of noisy, but productive and amiable disputes.

*Step 3. Have students widen the range of possible positions.*

I next asked my students to explore—in groups and then as a whole—the range of possible decisions that could have been made concerning the use of the atomic bomb in summer 1945. They responded creatively to the charge, moving from a simple dualistic choice between using the

bombs precisely as they were or not using them at all, to a wide range of possible actions, including using demonstration bombs or allowing a longer period between the first and second bombings to allow the Japanese government time to surrender.

*Step 4. Then have students contemplate their personal responses.*

I wrote all of the possibilities they had generated on the board and confirmed that everyone understood each choice, then asked them to think silently about which position they would support if they were able to go back in history. I went through the alternatives and recorded how many students supported each. Last, I threw the class open to a free discussion about the use of the bomb.

***Strategy 8. Interrupt the discussion to make points of disagreement explicit.***

At certain points it was necessary to ask students to pull back from their interactions and explicitly consider some unexamined issue that had found its way into the discussion. Near the end of the process, for example, I realized that students were arguing in terms of very different beliefs about the moral limits to the use of violence in wartime. When I asked them to address this issue explicitly the level of tension decreased. The students were quite able to develop a mutually acceptable means of discussing this issue when it was consciously on the table, whereas it had been tearing the group apart when it was left implicit.

***Strategy 9: Despite the structure, make sure the discussion belongs to the students, and be prepared to take advantage of student input at every stage.***

Throughout this article I have been stressing the importance of creating structures within which the possibility of productive discussion is maximized. But within the framework established by such strategic concerns it is very important to let students make the discussion their own. As I have argued elsewhere (Bishel et al. 1990), structure and spontaneity are not antithetical, and the sequential unfolding of a well-considered series of questions to be discussed need impair



free participation of students no more than rhyming metric structures impaired that of poets of previous eras. But this is only possible if one has the patience to sometimes allow the students to take their own, somewhat circuitous route through the process.

It is also crucial that pedagogical planning not get in the way of taking advantage of opportunities presented by the students themselves. For example, in one of those lucky breaks that occur in teaching, one of my students articulated a concern that must have been felt by many of others in the class, when she asked: "Aren't these just our individual opinions? Aren't we all going to come to our own conclusions?" This provided an opportunity for a student-generated exploration of the nature of historical argument and the value of systematic and collective explorations of charged issues. It also provided me with another opportunity to encourage my students to regard the differences among class members as a gift, not as an obstacle to be overcome.

#### **Strategy 10: Reintegrate emotions with the intellect.**

There remained a final step—the integration of the ideas about the wisdom of a particular strategy for using the atomic bomb and the feelings evoked by the devastation of these Japanese cities. The isolation of emotions from reasoned argument may be essential at certain points in the process, but emotions are an essential part of dealing with the world that should not be completely banished from the classroom. Whatever gains have been achieved in thinking seriously about a controversial issue are apt to disappear if they have never had to come into contact with the emotions that such issues typically generate. I assigned John Hersey's

*Hiroshima* and gave them the opportunity to discuss the differences between the impact of his descriptions of the suffering of concrete individuals and earlier abstract discussions of using the weapon against "the Japanese."

#### **Results**

The discussions in this and subsequent offerings of this course were radically different than those that I had observed in earlier semesters. Convictions were combined with evidence. There was no clear consensus on most issues, but students listened to one another, and some were visibly ambivalent. Nuances of argument and a realization of the complexities of the questions were very apparent. In the most recent class, for example, a majority of the students supported the use of the weapon against Hiroshima, but none believed that it was appropriate to bomb Nagasaki before the Japanese had had an opportunity to surrender. Moreover, there seemed to be a much greater awareness of the kinds of pressures that the original decision makers had been under and of the historical context within which they had acted.

The students in these discussions were in no more agreement with one another than their predecessors in earlier classes, but the nature of their thought processes and argumentation was very different. They had gone through a careful process of thinking about the different aspects of this issue over several class periods and had devoted many more hours to the question than the Interim Committee had given to the actual decision. The increased quality of the discussion and of the students' writings on these issues is evidence that instructors do not need to remain passive victims of the emotional charge that students bring to certain

issues. To an extent unimaginable in encounters about controversial topics outside the classroom, we have the ability to create structures that maximize the likelihood that our students will think seriously about questions that they have been taught to shout about. We cannot directly control the great power struggles that occupy the broader cultural spaces of our nation, but through careful planning we can model for our students a more careful, more knowledgeable, and more open approach to issues that they themselves may choose to bring to public debates of the future.

*Key words: controversial issues, classroom discussion, debate, critical thinking*

#### **NOTE**

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#### **REFERENCES**

- Bednar, A., and W. H. Levie. 1993. Attitude change principles. *Instructional message design: Principles from the behavioral and cognitive sciences*. M. Fleming and W. H. Levie, eds. Englewood Cliffs, NJ: Educational Technology Publications.
- Bishel, B., R. Beck, P. Holquist, G. Makowski, and D. Pace. 1990. Structure and spontaneity: Pedagogical tensions in the construction of a simulation of the Cuban missile crisis. *The History Teacher* 24(1): 53–65.
- Gardner, H. 1991. *The unschooled mind: How children think and how schools should teach*. New York: Basic Books.
- Hahn, C. 1994. Controversial issues in history instruction. *Cognitive and instruction processes in history and social sciences*. M. Carretero and J. F. Voss, eds. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Perry, W. G. 1970. *Forms of intellectual and ethical development in the college years*. New York: Holt, Rinehart, and Winston, Inc.