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Honoring Controversy: Using Real-World Problems to Teach Critical Thinking in Honors Courses

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Many studies have found that a university education does not guarantee the ability to think critically (Arum and Roska; Bok) despite the fact that the community of honors colleges and programs constantly emphasizes that we teach critical thinking. My 300-level honors students, though, do not demonstrate critical thinking when they are easily swayed by the messages contained in one-sided movies about how our food is produced or how hydraulic fracturing (fracking) is an evil perpetrated only to line the pockets of greedy corporations. The simple exercise of showing students one-sided films such as *Food Inc* and *Gasland* and then discussing them has repeatedly proven that many honors students are either not noticing the biased nature of the reporting or are not influenced by it when forming their opinion about genetically modified foods or fracking. Some students are already convinced that genetically modified foods (GMOs) and fracking are bad for humanity because of previous media exposure, but many students have said they had no strong

opinion about the topics until they watched the two-hour films but could now see nothing possibly beneficial in these technologies. Suffering from the “availability bias,” i.e., relying only on what one has been told in forming an opinion, they are not yet open to the possibility of valid counterarguments. If my students might be representative of honors students elsewhere, then anecdotal evidence suggests that honors programs might not be succeeding at teaching critical thinking any better than many other departments and that we are contributing to the national problem of producing unskilled graduates.

Since 2000, fewer than a dozen articles have focused specifically on critical thinking in *Honors in Practice*, the *Journal of the National Collegiate Honors Council*, and the NCHC monographs. In 2000, Laird Edman wrote an excellent general piece titled “Teaching Critical Thinking in the Honors Classroom,” reminding us that not even senior faculty achieve the ability to think critically once and for all; no one “gets there,” he writes (48). Faculty need to practice critical thinking throughout their careers, and students cannot learn it in a single class. Also in 2000, William Taylor offered techniques for improving discussion in order to teach critical thinking. In 2001, Julie Fisher Robertson and Rane-Szostak shared a study they did on teaching a course dedicated to critical thinking, lamenting the “paucity of literature on critical thinking within honors programs” (41). Subsequent discussions of critical thinking in NCHC publications include several chapters in the 2012 monograph *The Other Culture: Science and Mathematics Education in Honors*: “Information Literacy as a Co-Requirement to Critical Thinking: A Librarian and Educator Partnership,” “Confronting Pseudoscience: An Honors Course in Critical Thinking,” and “Recovering Controversy: Teaching Controversy in the Honors Science Classroom” (Buckner & Garbutt). What follows here might be seen as a continuation from this last piece, in which Richard England touts the virtues of controversy as “central to a liberal education” (75). Although his focus is on discussing scientific controversies and intelligent design in particular, I generalize the argument by asserting that controversy can and should be taught in most courses. All fields have controversies, and getting our students used to analyzing them consistently will contribute to their developing a disposition toward critical thinking.

REASONS FOR TEACHING CRITICAL THINKING THROUGH CONTROVERSY IN HONORS COURSES

Many seasoned colleagues think that honors already successfully promotes critical thinking. As Greg Lanier reported, the phrase “critical thinking”

is among the most used in honors mission statements. But what if, as Dail W. Mullins, Jr., implies in his 2005 *JNCHC* article, our mission statements could “well have been produced by an ‘Honors Program Description Generator’” (19). Maybe people thoughtlessly grab catch phrases to insert in their mission statements. Perhaps a symptom of the overuse of a concept is under-reflection on whether we understand or achieve it. Mullins writes that “most honors administrators may find they have scant time left to reflect on the philosophical/political dimensions of their activities” after attending to financial and other problems (20). Honors administrators may be too busy to make sure that their curricula provide proper scaffolding for teaching critical thinking skills, but when we make the claim for critical thinking in our mission statements, we should make sure we teach it in our courses.

The National Collegiate Honors Council’s Basic Characteristics of a Fully Developed Honors Program indicates that courses should be “established in harmony with the mission statement,” yet, studies have revealed that “faculty’s knowledge . . . of concepts of critical thinking is severely lacking” (Stedman and Adams 9) and that “faulty perceptions of critical thinking” are common (Bailin et al. 269). Teachers might assume that critical thinking is being taught, but judging from the national data published in Arum and Roska’s *Academically Adrift*, maybe we should be questioning this assumption.

The value of teaching critical-thinking skills complements the movement of many honors programs toward teaching more than just disciplinary content. In their 2008 *HIP* article, *Honors 2025: The Future of the Honors College*, Scott and Frana find “honors colleges moving away from being defined by specific problems or disciplinary approaches and heading instead towards missions that convey flexible problem-solving skills” (29). Re-emphasizing the teaching of critical-thinking skills, especially in dealing with controversial issues, fulfills their call to teach the “ability to solve real-world problems collaboratively and creatively” (29–30).

At the same time, since interdisciplinary honors curricula often focus less on the specific content and methodology required in a disciplinary major, explicit instruction in critical-thinking skills is especially important in interdisciplinary honors programs that intend to serve leaders in all fields. Employer surveys suggest that what they want from college graduates is not people with specific knowledge but rather people who have skills in communication and critical thinking (Hart Research Associates 2). Critical thinking that focuses on controversy adds these skills to the interdisciplinary approach that is often a hallmark of honors teaching, maintaining “a tradition of critical inquiry that transcends disciplinary boundaries” (Carnicom 53).

Real-world controversies are necessarily interdisciplinary, pushing honors students out of their comfort zone and into intellectual risk-taking (Wintrol and Jerenic 49; Zubizarreta 16) and providing “ways to stretch boundaries.” (Bruce 20) By definition, critical thinking challenges and stretches the intellect. Analyzing controversies in a way that requires deep consideration of all sides of an issue induces the kind of discomfort that leads to serious thought.

DEFINING CRITICAL THINKING

Critical thinking has many definitions. Facione defines critical thinking as “the process of purposeful, self-regulatory judgment” (7). Norris and Ennis define it as “reasonable, reflective thinking that is focused on deciding what to believe and do” (qtd in Douglas 130). Halpern writes that it is “purposeful, reasoned, and goal-directed. It is the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions” (5). Bok writes that what people often mean in using the phrase includes analytical thinking, problem solving, and reflective judgment (68). Gerald Nosich explains that some features are common to all the definitions and together reveal that critical thinking involves *reflective* thinking, has *standards* or criteria for making judgments, and is *authentic* because it is applied to real problems in real-life settings and not just brain-teasers (3). The easiest definition to remember is Richard Paul’s: “critical thinking is thinking about your thinking, while you’re thinking, in order to make your thinking better” (qtd in Nosich 2).

HOW TO TEACH CRITICAL THINKING

Nobel Prize winner Daniel Kahneman has discovered how challenging it is for human beings to be habitually reflective and to follow sound standards. He views our minds as inherently lazy, preferring easy answers that impede critical thinking, and so we are readily swayed by persuasive rhetoric. Kahneman explains in Part I of *Thinking Fast and Slow* that no one can escape the mind’s proclivity to prefer the first message it encounters on a topic, to prefer an easy explanation over a difficult one, or to believe a message it hears more consistently than one it does not (19–105). Knowing that powerful forces fight our ability to be careful in thought reinforces our need to question the assumption that we are consistently practicing critical thinking.

Research on how to teach critical thinking is ongoing and will likely never be exhausted. Although honors courses are known for active learning and

discussion-style seminars, honors teacher William Taylor has written, “By itself, a classroom discussion about course content does not teach students how to think critically about that content” (78). He agrees with studies demonstrating that faculty need to be explicit with students in articulating the goal of thinking critically (Lloyd and Bahr; Van Gelder; Bailin). Ways to achieve this goal include listing critical thinking as a student learning outcome on syllabi and sharing definitions with students in class. Another useful strategy is assigning the inexpensive, pocket-sized publication by Paul and Elder, *Critical Thinking*, which provides seven dimensions of thinking and includes exercises for applying them to any problem or text: finding point of view, purpose, the problem, the data, conclusions, concepts, assumptions, and implications. Research has also shown that some kinds of student writing force more complex thinking than other kinds; essays based on independent research, writing that requires analysis more than description, rewriting, and writing on both sides of an issue require more complex thinking (Tsui “Courses” and “Fostering”). After determining some common ideas and language for critical thinking, honors teachers can easily begin promoting it more actively in their courses.

Analyzing controversial issues in honors courses allows teachers to use all the techniques of critical thinking. In addition to exposing students to different points of view and helping them see what constitutes a good argument, controversial topics typically create the mental tension and provocation that scholars since at least Aristotle maintain is necessary for establishing the path toward critical thinking (Mills; Shim and Walczak). As Browne and Freeman write, “thinking only begins when a state of doubt about what to do or believe exists” (306). Surely we should make it a practice to build moments of tension and doubt into all our courses.

One honors colleague warned me against teaching controversy in a small seminar because he feared discussions would become too heated. However, framing the classroom agenda in terms of learning critical thinking encourages students to focus on the authors’ arguments—describing what they are, how they were constructed, flaws in assumptions, biases, or poor data—and keeps the conversations on the research and on the process of making arguments. Students do nevertheless feel strongly about their conclusions. As England has written, it is important for students to arrive at a strong conclusion rather than sticking with a relativistic position that opinions are not right or wrong, that they just depend on which side you are on; a strong conclusion “may well be evidence that the conclusion has been thought through” (78).

Honors students who have learned critical-thinking skills are often aware that they have developed more nuanced opinions. Students often ask how they should deal with useful points made on the side they don't agree with, for example. In focusing on how arguments are constructed and which ones are sound, honors classes are able to discuss important controversies without necessarily arguing sides. That is, students describe the debate they are studying (usually revealing where they stand), but they avoid orienting the class around disagreements among themselves.

CASE STUDY

Monsanto's use of genetic engineering (GE) has proven to be an excellent topic for teaching critical thinking to honors students, who are advanced enough to appreciate the complex issues it raises. Discussing GE through the lens of Monsanto involves attitudes about corporations, food, and rural farming life. So that students have some common material to begin with, their first assignment is to watch a film, either *The Future of Food* or *Food Inc.*, without any commentary beforehand. These specific films are good examples of biased reporting, which makes them excellent teaching tools. I give them a questionnaire to fill out while watching the film in order to highlight some of the points that we will discuss later when we take a topic from each film to learn more about and then analyze the film's portrayal of it. In our first general conversation about one of these films, though, students mostly comment on all the disturbing feelings they have had. Even if they notice that the films approach the issues only from one side (many do not), they usually adopt all the negative messages about Monsanto and genetically engineered foods. In unpacking the issues over the next few weeks, their attitudes change, and they become aware of that change.

For example, we review the way *The Future of Food* presents the case of the Canadian farmer Percy Schmeiser, who was sued by Monsanto. The movie shows Schmeiser complaining that the multinational corporation sued him for having a little bit of GE corn in his crops, which he says was blown in from trucks filled with corn driving by. When we compare his remarks to the Monsanto website's explanation of what happened and also to the Canadian Supreme Court's decision on the case, we get a very different story about Schmeiser's involvement that suggests he knowingly planted the GE seed. It is true that he had GE corn that he didn't pay for, it is true that he got sued, but it is also true that he had about one thousand acres of it. The court cases determined that Schmeiser had to have knowingly replanted seed to reach

that amount. *The Future of Food* chooses to focus on the little guy getting sued and implies that the GE corn was present only in small and unwanted quantities, but with only a minimal amount of exploration the issue turns out to involve the farmer's right to save seed. The film does not explore the arguments presented before the courts. The class does not need to debate whether GE is good or bad at this point in order to see the filmmaker's (mis) use of the facts.

We then learn about global hunger by reading a few chapters from the book *Food Security* by Bryan McDonald. This text forces us to think about world food needs as opposed to just American food preferences, thus further transforming the conversation. Vast differences exist between the U.S., which has plenty of land to feed its people cheaply, and some places in Africa where people have not yet achieved the ability to feed themselves. Then we read peer-reviewed journal articles about the health and safety claims of organic and GE foods indicating that numerous academies of science have found the latter to be safe. Despite the billions of meals served that contain genetically modified foods, not one person has been reported to die from these foods. In contrast, people die every year from organic fruits and vegetables that carry *E. coli*. Although many students are aware of popular criticisms that GE is damaging to the environment, they are surprised to read about the devastating impact all agriculture has on the environment and the pros and cons of all planting methods, be they conventional, organic, or biotech, on soil health, land usage, and use of pesticides and water.

None of these examples or conversations solves any problem, but such examinations of arguments and sources force students to notice that some of their previous opinions were not based on research. Honors students are typically willing to learn from their mistakes and are often well prepared to recognize the difficulty of interpreting contradictory information. As we discuss these issues, students learn that some reasonable arguments can be made for using all three planting approaches in addressing world hunger. Students with anti-corporate views may not feel any better about Monsanto's role in the food chain (not my goal), but for many students their thinking on some of the topics are no longer simplistic (this is my goal). It is important for me, when teaching controversy, to explain that I grade students not on what opinion they hold but only on the way they argue it and how they handle their data in making their claims.

THE QUESTION OF TRANSFER

How can we be certain that learning to think critically about one topic will ensure thoughtful analysis of all problems? A recent author in *Honors in Practice* quotes research showing that “Learners acquire skills and knowledge in one situation and fail to make connections to other situations where those skills and knowledge would prove valuable” (Perkins & Salomon qtd. in Lindememann-Biolsi 72). Lindememann-Biolsi shares research that has shown how often students cannot reproduce a classroom-taught skill if they are tested in a different room from the one in which they learned it. She argues that we must do more to teach metacognition so that our students can recognize when another situation requires the same kind of information and skill taught in a previous course. As metacognition is the “awareness of one’s own thought process,” such thinking happens almost automatically when students study a controversy they have previously thought about. They notice that they are becoming better informed about their opinions or, more likely, that they are making some changes in that opinion. As one student said to me, “this class has me questioning everything!”

Having a class work on one problem together is a useful strategy for practicing some critical thinking, but more is required to instill the ability to transfer the skill. Kahneman teaches us that we have strong tendencies not to pursue information on topics that contradict our initial opinions because of the availability heuristic, i.e., we prefer information that is readily available rather than taking the time to ensure we get breadth of knowledge. Combine this availability preference with our bias for information that we agree with, and the need to constantly reinforce the skill of researching multiple perspectives becomes apparent. Most people never notice how quickly they accept one point of view on a controversial topic rather than seeking out multiple perspectives, but we want more from our honors students, especially because they are most likely to become thought leaders.

In my course, students present research to the rest of the class on controversial topics such as fracking, the US government’s use of drones that kill people, government spying on U.S. citizens, Edward Snowden’s leaks, vaccines, gun control, and raising the minimum wage. Through such presentations, students promote awareness among their peers of the deep structure that permeates so many of our contemporary issues rather than just informing each other about the surface structure of a single issue. Daniel Willingham argues that students cannot transfer critical thinking skills if they remain

focused on the surface characteristics of a problem (22). Through examining the deep structure, they can see that, although the topics are different, the qualities of strong and weak arguments are similar and that all controversial topics can be analyzed by determining factors such as authors' points of view, implicit assumptions, and selections of data. When different students work on various controversial topics in the same course, they learn that they are all using similar methods to approach different problems, thus also learning how to transfer such skills more successfully.

Both Willingham and Van Gelder maintain that the skill of transfer has to be explicitly taught and that it takes time, so I give my students six weeks to work on a single problem of their choice from a set list. They also write short papers in which they take different sides of an issue being studied in order for them to seriously consider a perspective they have never thought of or do not agree with. Nosich extends Paul and Elder's elements of critical thinking to include considering alternatives to an author's point of view as an essential skill; having witnessed how hard that is for some students, I am in full agreement about the necessity of teaching it.

CONCLUSION

Comments from the honors students taking my controversy and critical thinking course affirm the need for it. As one junior said, "When it comes to critical thinking, I pride myself as being fairly adept; . . . however, one of the most fundamentally important aspects of true critical thinking is humility, and understanding at any time you could be proven wrong and need to change your views slightly to continue being a critical thinker. I found myself time and again being humbled . . ." A philosophy student wrote, "This really made me think about how much I actually think things through, and how little I actually do that. I never realized how much we were affected by things that we aren't even conscious of. . . . I need to train myself to actually use my critical thinking more in daily life." Finally, another junior wrote, "I have never had a good grasp on how to critically think about a subject. . . . I took away how to receive information and be able to thoroughly examine it and think about it. I am able to form an opinion but I am also able to think of various points of views about the subject and why those views may exist. Critical thinking helps me keep an open mind to everything I come across. I have realized the things I hear are not the only sources of information on certain topics."

Discussing controversy is an important practice for living in a democracy. If we want to live in a pluralist society, then we have to accept differences and

be able to talk in light of them. In addition to examining opinions they do not hold, honors students, perhaps more than most other undergraduates, face the possibility of disagreeing with faculty and each other in the safe and controlled environment of the seminar classroom. Since respectful disagreement is not usually modeled in TV shows or the news media, it becomes morally imperative for us as honors teachers to practice it with our students who will be leaders in and outside of academe. Using controversy to teach critical thinking in honors classrooms accomplishes two important pedagogical goals: it helps our students who already have at least a rudimentary awareness of the utility of research learn to research differences (avoiding the availability heuristic) and to accept that sometimes good reasons exist for holding differing opinions on a topic. Teaching them such skills forces them to employ higher-order thinking not only in an honors class but beyond the classroom in their lives as twenty-first-century citizens of the most powerful and influential nation in the world.

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APPENDIX

Abbreviated Syllabus for *Why People Believe Weird Things*

Course Description

You know the media distorts information, you know that your own thinking can suffer from biases and prejudices, and you have certainly noticed that some people reason very poorly. This class is going to show you why this happens and how to arm yourself against assaults on your mind. You will also learn how to be a better thinker, thereby improving the quality of your life. Recent books written on the topic are clever fun, which make this class enjoyable (when not slightly frightening). The title of the class comes from one of the books we'll read, and in it we'll discuss why people believe in unusual phenomena from religion to UFOs. (This is not a negative claim about religion, just an acknowledgment that some religious beliefs are extra-ordinary.) We will examine the role of scientific reasoning, and numerous forms of illogical thinking that lead us astray. This course has potential to help you become an even smarter person.

Student Learning Outcomes

Upon completion of the course the student will be able to:

- Enumerate numerous biases that keep us from seeing facts clearly.
- Explain characteristics of scientific thinking and its strengths and limits.
- Make a public poster presentation.
- Define critical thinking.
- Demonstrate critical thinking in a research project.

Texts

- *Why People Believe Weird Things*, Michael Shermer (app. \$12)
- *Thinking Fast and Slow*, Daniel Kahneman (app. \$9)
- Selections from opposing thinkers Richard Dawkins and Keith Ward (supplied)
- Additional books and articles based on your chosen research topic.

Note

For the first half of the semester we will learn about thinking. For the second half of the semester you will practice critical thinking by thoroughly researching and presenting

on both sides of a controversial topic. You will be able to choose from the following list of topics:

- Climate change
- Fracking (Hydraulic fracturing)
- Genetically modified foods
- Gun control
- Mandatory childhood vaccination
- Increasing the minimum wage
- Immigration in the U.S.
- U.S. use of enhanced interrogation techniques or torture during “war on terror”
- U.S. use of drones to kill people in the “war on terror”

Respectful and inclusive behavior is expected at all times. Differences of opinion are expected and welcome as long as the people holding the opinions are treated politely.

