Discussion Practicum

GOALS

1. To practice being in charge of the learning experience of a group of students. Just the experience of standing before the mock class with responsibility for leading the discussion is half of the value of the exercise.

2. To practice some of the repertoire of strategies (p. 25 below) to use in planning, starting, and leading a discussion. The scientific content is not important in this exercise; the process of discussion leading is important.

KEY CONCEPTS

• A discussion is distinctly different from a lecture. The students should do more talking than the discussion leader, who should just direct and catalyze the students’ comments.

• The discussion leader should have a clear idea of what subject matter content he/she wants students to come away with at the end of the discussion. The students should leave the discussion knowing what material from the discussion they are responsible for.

• The discussion leader should have a clear idea of what discussion techniques he/she will use to convey the desired subject matter content and why.

• There is no substitute for practice when learning to lead discussions.

PROCEDURE

1. Discussions will be based on the readings included below and any other resources you choose to draw upon. You will be assigned to groups of four. Each participant will take one turn as the discussion leader and three turns as a mock student.

2. There are two discussion topics outlined below. These topics are intended to elicit multiple points of view and opinions, such as might be used for assigning an essay question or term paper. One leader will open the discussion and one will close it for each topic, as indicated by the guidelines below.

3. At the introductory session Wednesday, you will choose one of the two discussion topics on the next page, and choose whether you will open or close the topic discussion. You will have overnight to read the materials supplied and prepare for the discussion on your topic.

4. For the topic you select, **prepare a plan**: a set of questions or points of emphasis that you want to cover in the discussion. **Bring two copies of this plan** to your session (one for you, one for the facilitator) and be prepared to share it with the “class” (using the board) after you finish your turn as leader.

5. Plan your time as discussion leader carefully--discussions usually proceed more slowly than you think they will. Plan a discussion on your topic for 15 minutes, keeping track of time (the facilitator may need to step in otherwise).

6. At the start of this session, assemble into the previously selected groups, each in a separate room, with one or more facilitators. Each participant will receive 3 copies of an evaluation form (one for each session playing a “student” role) containing the questions on page 26 below. This sheet may be used for making notes during the discussion.
7. Proceed in the designated order of topics. As a discussion leader, you should make an effort to coax the mock class members to respond to all of your questions or points, but you can be flexible about accommodating other responses as well.

8. Reminder: You are not presenting a lecture or research seminar at which you answer questions. The goal of your session is to guide the "class" to do the talking and fully elaborate the important issues and viewpoints.

9. The final 15 minutes are to be spent analyzing the discussion. First, the discussion leader should share the list of questions or topics list he/she prepared and reflect on how well those topics were covered.

10. The “class” then should complete the evaluation form. Then, the "class" and the facilitator should share their evaluations. Keep the tone of the evaluations positive. Turn in the evaluation forms to the mock discussion leader after each session.

DISCUSSION TOPIC 1: How to teach the origin of the Earth & life in public schools?

Goal of the discussion: You are the Science Department Chairperson in a public high school in a religious community. How should the subject of evolution vs. intelligent design be handled in your school? (Background reading from the New York Times)

Discussion opening
Identify and describe several possible approaches to presenting evolution vs. intelligent design, and consider the strengths and weaknesses of each approach.

Discussion closing
Forge a consensus among the discussion group on the best approach.

DISCUSSION TOPIC 2: How to communicate the role of uncertainty in scientific research?

Goal of the discussion: You are a scientific expert addressing a skeptical public meeting on climate change. How do you best convey the way that scientists draw conclusions despite uncertainty in their methods? (Background reading from the Christian Science Monitor)

Discussion opening
Identify and describe several possible approaches to conveying the role of uncertainty, and consider the strengths and weaknesses of each approach.

Discussion closing
Forge a consensus among the discussion group on the best approach.

Revised 9/17/07 R. Strickland
Issuing Rebuke, Judge Rejects Teaching of Intelligent Design

By LAURIE GOODSTEIN; KENNETH CHANG CONTRIBUTED REPORTING FROM NEW YORK FOR THIS ARTICLE. (NYT) 1757 words

Published: December 21, 2005

HARRISBURG, Pa., Dec. 20 - A federal judge ruled on Tuesday that it was unconstitutional for a Pennsylvania school district to present intelligent design as an alternative to evolution in high school biology courses because it is a religious viewpoint that advances "a particular version of Christianity."

In the nation's first case to test the legal merits of intelligent design, the judge, John E. Jones III, issued a broad, stinging rebuke to its advocates and provided strong support for scientists who have fought to bar intelligent design from the science curriculum.

Judge Jones also excoriated members of the Dover, Pa., school board, who he said lied to cover up their religious motives, made a decision of "breathtaking inanity" and "dragged" their community into "this legal maelstrom with its resulting utter waste of monetary and personal resources."

Eleven parents in Dover, a growing suburb about 20 miles south of Harrisburg, sued their school board a year ago after it voted to have teachers read students a brief statement introducing intelligent design in ninth-grade biology class.

The statement said that there were "gaps in the theory" of evolution and that intelligent design was another explanation they should examine.

Judge Jones, a Republican appointed by President Bush, concluded that intelligent design was not science, and that in order to claim that it is, its proponents admit they must change the very definition of science to include supernatural explanations.

Judge Jones said that teaching intelligent design as science in public school violated the First Amendment of the Constitution, which prohibits public officials from using their positions to impose or establish a particular religion.

"To be sure, Darwin's theory of evolution is imperfect," Judge Jones wrote. "However, the fact that a scientific theory cannot yet render an explanation on every point should not be used as a pretext to thrust an untestable alternative hypothesis grounded in religion into the science classroom or to misrepresent well-established scientific propositions."

The six-week trial in Federal District Court in Harrisburg gave intelligent design the most thorough academic and legal airing since the movement's inception about 15 years ago, and was often likened to the momentous Scopes case that put evolution on trial 80 years earlier.

Intelligent design posits that biological life is so complex that it must have been designed by an intelligent source. Its adherents say that they refrain from identifying the designer, and that it could even be aliens or a time traveler.

But Judge Jones said the evidence in the trial proved that intelligent design was "creationism relabeled."

The Supreme Court has already ruled that creationism, which relies on the biblical account of the creation of life, cannot be taught as science in a public school.

Judge Jones's decision is legally binding only for school districts in the middle district of Pennsylvania. It is unlikely to be appealed because the school board members who supported intelligent design were unseated in elections in November and replaced with a slate that opposes the intelligent design policy and said it would abide by the judge's decision.

Lawyers for the plaintiffs said at a news conference in Harrisburg that the judge's decision should serve as a deterrent to other school boards and teachers considering teaching intelligent design.
"It's a carefully reasoned, highly detailed opinion," said Richard Katskee, assistant legal director of Americans United for Separation of Church and State, "that goes through all of the issues that would be raised in any other school district."

Richard Thompson, the lead defense lawyer for the school board, derided the judge for issuing a sweeping judgment in a case that Mr. Thompson said merely involved a "one-minute statement" being read to students. He acknowledged that his side, too, had asked the judge to rule on the scientific merits of intelligent design, but only because it had to respond to the plaintiffs' arguments.

"A thousand opinions by a court that a particular scientific theory is invalid will not make that scientific theory invalid," said Mr. Thompson, the president and chief counsel of the Thomas More Law Center, a public interest firm in Ann Arbor, Mich., that says it promotes Christian values. "It is going to be up to the scientists who are going to continue to do research in their labs that will ultimately determine that."

The scientists who have put intelligent design forward as a valid avenue of scientific research said they were disappointed by Judge Jones's ruling but that they thought its long-term effects would be limited.

"That was a real drag," said Michael J. Behe, a professor of biochemistry at Lehigh University who was the star witness for the intelligent design side. "I think he really went way over what he as a judge is entitled to say."

Dr. Behe added: "He talks about the ground rules of science. What has a judge to do with the ground rules of science? I think he just chose sides and echoed the arguments and just made assertions about our arguments."

William A. Dembski, a mathematician who argues that mathematics can show the presence of design in the development of life, predicted that intelligent design would become much stronger within 5 to 10 years.

Both Dr. Behe and Dr. Dembski are fellows with the Discovery Institute, a leading proponent of intelligent design.

"I think the big lesson is, let's go to work and really develop this theory and not try to win this in the court of public opinion," Dr. Dembski said. "The burden is on us to produce."

Mainstream scientists who have maintained that no controversy exists in the scientific community over evolution were elated by Judge Jones's ruling.

"Jubilation," said Kenneth R. Miller, a professor of biology at Brown University who has actively sparred with intelligent design proponents and testified in the Dover case. "I think the judge nailed it."

Dr. Miller said he was glad that the judge did not just rule narrowly.

Jason D. Rosenhouse, a professor of mathematics at James Madison University in Virginia and a fervent pro-evolution blogger said: "I was laughing as I read it because I don't think a scientist could explain it any better. His logic is flawless, and he hit all of the points that scientists have been making for years."

Before the start of a celebratory news conference in Harrisburg, Tammy Kitzmiller, a parent of two daughters in the Dover district and the named plaintiff in the case, Kitzmiller et al v. Dover, joked with other plaintiffs that she had an idea for a new bumper sticker: "Judge Jones for President."

Christy Rehm, another plaintiff, said to the others, "We've done something amazing here, not only with this decision, but with the election."

Last month, Dover, which usually votes majority Republican, ousted eight school board members who had backed intelligent design and elected the opposition that ran on a Democratic ticket.

Witold Walczak, legal director of the American Civil Liberties Union of Pennsylvania, who helped to argue the case, said, "We sincerely hope that other school districts who may have been thinking about
intelligent design will pause, they will read Judge Jones's erudite opinion and they will look at what happened in the Dover community in this battle, pitting neighbor against neighbor."

The judge's ruling said that two of the most outspoken proponents of intelligent design on the Dover school board, William Buckingham and Alan Bonsell, lied in their depositions about how they raised money in a church to buy copies of an intelligent design textbook, "Of Pandas and People," to put in the school library.

Both men, according to testimony, had repeatedly said at school board meetings that they objected to evolution for religious reasons and wanted to see creationism taught on equal footing.

Judge Jones wrote, "It is ironic that several of these individuals, who so staunchly and proudly touted their religious convictions in public, would time and again lie to cover their tracks and disguise the real purpose behind the I.D. policy."

Mr. Bonsell did not respond to a telephone message on Tuesday. Mr. Buckingham, a retired police officer who has moved to Mount Airy, N.C., said, "If the judge called me a liar, then he's a liar."

Mr. Buckingham said he "answered the questions the way they asked them." He called the decision "ludicrous" and said, "I think Judge Jones ought to be ashamed of himself."

The Constitution, he said, does not call for the separation of church and state.

In his opinion, Judge Jones traced the history of the intelligent design movement to what he said were its roots in Christian fundamentalism. He seemed especially convinced by the testimony of Barbara Forrest, a historian of science, that the authors of the "Pandas" textbook had removed the word "creationism" from an earlier draft and substituted it with "intelligent design" after the Supreme Court's ruling in 1987.

"We conclude that the religious nature of intelligent design would be readily apparent to an objective observer, adult or child," the judge said. "The writings of leading I.D. proponents reveal that the designer postulated by their argument is the God of Christianity."

Opponents of intelligent design said Judge Jones's ruling would not put an end to the movement, and predicted that intelligent design would take on various guises.

The Kansas Board of Education voted in November to adopt standards that call into question the theory of evolution, but never explicitly mention intelligent design.

Eugenie Scott, executive director, National Center for Science Education, an advocacy group in Oakland, Calif., that promotes teaching evolution, said in an interview, "I predict that another school board down the line will try to bring intelligent design into the curriculum like the Dover group did, and they'll be a lot smarter about concealing their religious intent."

Even after courts ruled against teaching creationism and creation science, Ms. Scott said, "for several years afterward, school districts were still contemplating teaching creation science."

**Excerpt From the Ruling on Intelligent Design (NYT) 529 words**

Published: December 21, 2005

Following is an excerpt from the ruling by Judge John E. Jones III that the policy of the Dover, Pa., school board to introduce intelligent design as an alternative to evolution violated the First Amendment to the United States Constitution. The full text of the opinion is at nytimes.com/evolution.

"In making this determination, we have addressed the seminal question of whether I.D. is science. We have concluded that it is not, and moreover that I.D. cannot uncouple itself from its creationist, and thus religious, antecedents.

Both defendants and many of the leading proponents of I.D. make a bedrock assumption which is utterly
false. Their presupposition is that evolutionary theory is antithetical to a belief in the existence of a supreme being and to religion in general. Repeatedly in this trial, plaintiffs' scientific experts testified that the theory of evolution represents good science, is overwhelmingly accepted by the scientific community, and that it in no way conflicts with, nor does it deny, the existence of a divine creator.

To be sure, Darwin's theory of evolution is imperfect. However, the fact that a scientific theory cannot yet render an explanation on every point should not be used as a pretext to thrust an untestable alternative hypothesis grounded in religion into the science classroom or to misrepresent well-established scientific propositions.

The citizens of the Dover area were poorly served by the members of the board who voted for the I.D. policy. It is ironic that several of these individuals, who so staunchly and proudly touted their religious convictions in public, would time and again lie to cover their tracks and disguise the real purpose behind the I.D. policy.

With that said, we do not question that many of the leading advocates of I.D. have bona fide and deeply held beliefs which drive their scholarly endeavors. Nor do we controvert that I.D. should continue to be studied, debated, and discussed. As stated, our conclusion today is that it is unconstitutional to teach I.D. as an alternative to evolution in a public school science classroom.

Those who disagree with our holding will likely mark it as the product of an activist judge. If so, they will have erred as this is manifestly not an activist court. Rather, this case came to us as the result of the activism of an ill-informed faction on a school board, aided by a national public interest law firm eager to find a constitutional test case on I.D., who in combination drove the board to adopt an imprudent and ultimately unconstitutional policy.

The breathtaking inanity of the board's decision is evident when considered against the factual backdrop which has now been fully revealed through this trial. The students, parents, and teachers of the Dover Area School District deserved better than to be dragged into this legal maelstrom, with its resulting utter waste of monetary and personal resources."

U.S. Constitution Bill of Rights Amendment I
Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

[Link to Constitution of the United States Bill of Rights]

Divided Over Evolution
A recent survey shows that most Americans believe God created life, but are divided on the question of how life has changed since its creation.

<table>
<thead>
<tr>
<th>Humans and other living things have ...</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>existed in present form only</td>
<td>18</td>
</tr>
<tr>
<td>evolved over time. (48%)</td>
<td>26</td>
</tr>
<tr>
<td>Guided by a supreme being</td>
<td>4</td>
</tr>
<tr>
<td>Through natural selection</td>
<td>10</td>
</tr>
</tbody>
</table>

Total: 64 26 38 42

Source: The Pew Research Center

Favor Teaching Creationism...

<table>
<thead>
<tr>
<th>Along with evolution...</th>
<th>Instead of evolution...</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>%</td>
</tr>
</tbody>
</table>

Change in hottest year fuels global warming skeptics
A tweak to NASA’s record shows that 4 of the 10 warmest years in the US occurred during in the 1930s, not more recently. Climate change deniers say this points out that concern over global warming is unfounded.


By Brad Knickerbocker
Was 1998 the hottest year in United States history, as most reporting on climate change has presumed? Or was that record set back in 1934 before "global warming" became a scary household phrase?
A corrective tweak to National Aeronautics and Space Administration's formulation shows that the hottest year on record in the US indeed was back during the Dust Bowl days.

But does this mean that all the concern about global warming being a relatively recent phenomenon tied to carbon-belching power plants and hulking SUVs is a bunch of Al Gore hooey?

Climate change skeptics and their cheering section among conservative bloggers and radio shoutmeisters think so – even though most scientists say, no, the tweak is not a big deal and overall trends are in the direction of toastier days around the globe.

The controversy began "when Steve McIntyre of the blog Climateaudit.org e-mailed NASA scientists pointing out an unusual jump in temperature data from 1999 to 2000," reports The Los Angeles Times.

"When researchers checked, they found that the agency had merged two data sets that had been incorrectly assumed to match. When the data were corrected, it resulted in a decrease of 0.27 degrees Fahrenheit in yearly temperatures since 2000 and a smaller decrease in earlier years. That meant that 1998, which had been 0.02 degrees warmer than 1934, was now 0.04 degrees cooler."

Put another way, the new figures show that 4 of the 10 warmest years in the US occurred during the 1930s, not more recently. This caused a stir among those critical of the push to stem human-induced climate change.

"Conservative radio talk show host Rush Limbaugh used reports of the revisions to argue that climate change is a hoax perpetrated by scientists with liberal agendas," reported The Washington Post.

"We have proof of man-made global warming," Limbaugh said on his show…. "The man-made global warming is inside NASA. The man-made global warming is in the scientific community with false data."

Blogger Steve McIntyre, who started the controversy, lives in Canada. His hometown newspaper, The Toronto Star, headlined its story "Red faces at NASA over climate-change blunder."

"They moved pretty fast on this," McIntyre said. "There must have been some long faces."

Still, McIntyre called his finding "a micro-change," and others agree. For one, the reranking didn't affect global records, and 1998 remains tied with 2005 as the hottest year on record, the Los Angeles Times notes, quoting climatologist Gavin Schmidt of NASA's Goddard Institute for Space Studies in New York.

"The data adjustment changes 'the inconsequential bragging rights for certain years in the U.S.,' he said. But 'global warming is a global issue, and the global numbers show that there is no question that the last five to 10 years have been the hottest period of the last century.' "

A main target of criticism over the data shift is James Hansen, director of the Goddard Institute at NASA and a frequently quoted expert on climate change. On his website, Dr. Hansen explained the reasons for the change, and he played down its importance.

"How big an error did this flaw cause?... The effect on U.S. average temperature is about 0.15°C beginning in 2000. Does this change have any effect ... on the global warming issue? Certainly not…. What we have here is a case of ... contrarians who present results in ways intended to deceive the public into believing that the changes have greater significance than reality. They aim to make a mountain out of a mole hill."

Meanwhile, evidence of global warming continues to mount. Citing a new study by researchers at the University of East Anglia, The Guardian newspaper reports that "some tipping points for climate change could be closer than previously thought."

"In drawing together research on tipping points, where damage due to climate change occurs irreversibly and at an increasing rate, the researchers concluded that the risks were much greater than those predicted by the latest report by the Intergovernmental Panel on Climate Change (IPCC)."

Is the issue settled? Far from it, says Roy Spencer, a principal research scientist for the University of Alabama, who describes himself as "skeptical of the claim that global warming is mostly manmade."

Blogging on TCSDaily.com Dr. Spencer writes:

"In case you hadn't noticed, the global warming debate has now escalated from a minor skirmish to an all-out war…. In the last year or so, more and more scientists have been coming out of the closet and admitting they've had some doubts about this whole global warming thing."
DISCUSSION STRATEGIES (from “The Art of Discussion Leading”)

• Make personal contact. Treat your students as individuals. Help the students feel at ease in the classroom.

• Get there early and set the place up. Read every signal you can get.

• Proceed with a series of three types of questions: 1) A general overview; 2) Analyzing & explaining in greater depth; 3) Elaborating alternative explanations. (These move roughly up the scale of Bloom’s taxonomy of cognitive skills).

• Restate the students’ remarks in your own words to clarify their statements and stimulate more responses.

• Respectfully request the students to participate, rather than demanding (if possible).

• A strength of discussion over lecture is the ability to share multiple points of view.

• Thank the students for participating. Give positive reinforcement. Lower the anxiety level.

• Create a safe environment in which students can express themselves, even their "incorrect" ideas or lack of understanding.

• Be aware of the students as well as of the narrative. The discussion is as much process as content.

• There is great value in the ability to read your students using very brief signals and subtle cues.

• Students learn more by thinking for themselves and by verbalizing their thinking than by passive listening.

• Students learn from your conduct as well as from the course content.

• It's about the students, not about you.

REFERENCES


“The Art of Discussion Leading” (Derek Bok Center for Teaching and Learning, Harvard, 1995) available on loan from UWCIDR.
Please take 5 minutes to complete the following evaluation form for each discussion leader in your group. Your thoughts and comments are valuable to the discussion leader, and the discussion will benefit from your constructive criticism.

DISCUSSION LEADER:________________________

1. In your opinion, what did the discussion leader do well?

2. Was the discussion leader able to maintain an authoritative presence while still encouraging participation?

3. Was the discussion leader able to involve participants in the discussion?

4. Was the discussion leader respectful of students’ views and opinions?

5. Did the discussion leader make his/her plan for the session evident? How? Was the leader able to follow the plan successfully?

6. What kinds of questions did the discussion leader ask (think back to the morning session Writing Questions)? Was the level of difficulty of the questions appropriate? Did the question leader form questions clearly?

7. In your view, was the discussion successful? How do you define a successful discussion?

8. What suggestions do you have for how to improve the discussion?