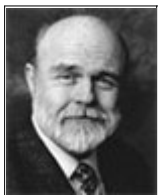




The Case Method of Teaching Science

Case studies are stories with an educational message. They have been used as parables and cautionary tales for centuries, yet their formal use in the science classroom is recent. So recent, in fact, that until the early 1990s the case study literature in science was virtually non-existent. Until this time, faculty had neither taught with cases, written cases, nor seen one. This only began to change as more and more faculty realized the inadequacies of the lecture method and began to seek novel methods of instruction. Enter the case study, a method imported from business, law, and medical schools.

Here we have listed videotapes, articles, books, bibliographies, and web links to the case study literature. Hopefully, this will give you a sample of the recent attempts to introduce the method into the science classroom and a glimpse of its potential as seen through the eyes of some of its most ardent advocates.



Videotapes by Clyde Freeman Herreid

- [The Use of Case Studies and Group Discussion in Science Education](#)
- [Team Learning: Cooperative Learning in the Science Classroom](#)

Articles by Clyde Freeman Herreid

- [Case Studies in Science: A Novel Method of Science Education](#)
- [What is a Case? Bringing to Science Education the Established Teaching Tool of Law and Medicine](#)
- [What Makes a Good Case? Some Basic Rules of Good Storytelling Help Teachers Generate Student Excitement in the Classroom](#)
- [Sorting Potatoes for Miss Bonner: Bringing Order to Case Study Methodology Through a Classification Scheme](#)
- [The Maiden and the Witch: The Crippling Undergraduate Experience](#)
- [Saint Anthony and the Chicken Poop: An Essay on the Power of Storytelling in the Teaching of Science](#)
- [Cooking With Betty Crocker: A Recipe for Case Writing](#)

- [The Way of Flesch: The Art of Writing Readable Cases](#)
- [And All That Jazz: An Essay Extolling the Virtues of Writing Case Teaching Notes](#)
- [Return to Mars: How Not to Teach a Case Study](#)
- [Don't! What Not to Do When Teaching Cases](#)
- [Structured Controversy: A Case Study Strategy](#)
- [Jigsaw: A Case Study Technique Where Students Become Experts](#)
- [The Bee and the Groundhog: Lessons in Cooperative Learning](#)
- [I Never Knew Joe Paterno: An Essay on Teamwork and Love](#)
- [When Justice Peeks: Evaluating Students in Case Study Teaching](#)
- [Using Case Studies to Teach Science](#)

Other Case Method Articles

- [Case Studies Across a Science Curriculum](#) by Joseph Bieron and Frank Dinan, Department of Chemistry and Biochemistry, Canisius College in Buffalo, NY.
- [Using Posters in Case Studies: The Scientific Poster as a Teaching Tool](#) by Charles R. Fourtner, Mary Bisson and Christopher A. Loretz, Department of Biological Sciences, University at Buffalo.
- [Case-Stimulated Learning within Endocrine Physiology Lectures: An Approach Applicable to Other Disciplines](#) by Marian R. Walters in *Advances in Physiology Education* (AJP: Advan 1999 276: S74-S78).
- [Problems: A Key Factor in PBL](#) by Barbara Duch, Center for Learning Effectiveness, University of Delaware.
- [Problem-Based Learning in Biology with 20 Case Examples](#) and [Critical Thinking in Biology: Case Problems - A Guide for Instructors](#) by Peter Ommundsen.
- [Problem-Based Learning, Especially in the Context of Large Classes](#) from McMaster University's Department of Chemical Engineering.
- [Problem-Based Learning: A Paradigm Shift or a Passing Fad?](#) by Gwendie Camp, Ph.D., The University of Texas Medical Branch.
- [What We Know About Cooperative Learning at the College Level](#) by David and Roger Johnson.
- [Peer Ratings in Cooperative Learning Teams](#) by Deborah B. Kaufman, Richard M. Felder, Hugh Fuller, North Carolina State University.

- [Commonly Asked Questions about Teaching Collaborative Activities](#) from the *Penn State Teacher II: Learning to Teach; Teaching to Learn*.
- [Exploring Cases On-line with Virtual Environments](#): Article by B. Lindeman, et al., Curry School of Education, University of Virginia.
- [Cooperative Learning in Technical Courses](#) by Richard Felder, Department of Chemical Engineering, North Carolina State University, and Rebecca Brent, School of Education, East Carolina University.
- [Using a Formal Collaborative Learning Paradigm for Veterinary Medical Education](#) by W. R. Klemm from the Department of Veterinary Anatomy & Public Health, Texas A&M University, published in the [Journal of Veterinary Medical Education](#), Volume 21, Number 1.

PowerPoint Presentations

- [Using Science Case Studies to Promote Interdisciplinary Learning](#)
Presented at the Association of American Colleges and Universities (AAC&U) Network for Academic Renewal Conference, "Pedagogies of Engagement: Deepening Learning In and Across the Disciplines" in Bethesda, Maryland, April 14–16, 2005. Presented by Deborah Allen, Department of Biological Sciences, University of Delaware, and Katayoun Chamany, Science, Technology and Society Program, Eugene Lang College.
- [Clickers and Case Studies: Alternatives to Lectures in the Undergraduate Classroom](#)
Presented at the Association for Cell Biology Conference in Washington, DC, on December 8, 2004, by Katayoun Chamany, Director, Science, Technology and Society Program, Eugene Lang College, New School University, and Deborah Allen, Associate Professor and Director of Undergraduate Programs, Department of Biological Sciences, University of Delaware.

Bibliographies

- [Bibliography on Case Study Teaching in Science](#), compiled by C.F. Herreid, Biological Sciences Department, University at Buffalo, State University of New York.
- [Problem-Based Learning Bibliography](#), compiled by the Department of Medical Education, Southern Illinois University School of Medicine.

Reviews

- [Review of *Thinking Toward Solutions: Problem-Based Learning Activities for General Biology*](#), written by Deborah E. Allen and Barbara J. Duch; reviewed by Clyde F. Herreid



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