

# TEACHING **AT ISU**

## "Time to teach thinking, too?"

by Dr. Laird R. O. Edman,  
Associate Director,  
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When speaking to faculty about critical thinking instruction, I often hear about time constraints. Since students may need to know a large amount of material from introductory courses in order to succeed in upper-level courses, enter professional or graduate schools, or pass licensure exams, faculty teaching such courses feel pressure to work through material quickly and to "cover content" rather than spend time teaching thinking. At the same time, however, faculty may be dissatisfied with the quality of thinking exhibited by their students, and wonder if there is some way to cover a great deal of content while helping students learn to think about that content in more sophisticated ways.

Perhaps the best approach is to reconsider what we are trying to accomplish in the classroom. The idea that teaching thinking is something

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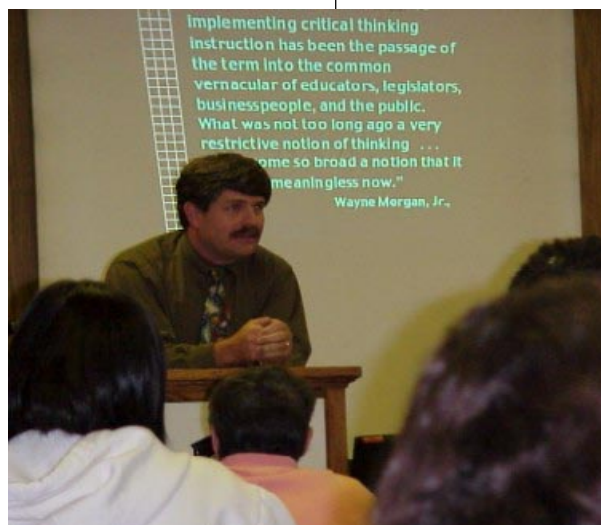
"added" to a course reflects a mistaken notion about critical thinking and disciplinary content. If we can assume that the goal of any course is to increase students' mastery and understanding of the topic, then the goal must also include *thinking* about the topic. I can hardly imagine a course that consists entirely of memorizing facts, rules, or vocabulary. If it is the instructor's goal that students be able to use those facts, rules, or vocabulary, such understanding and manipulation requires thought. And whenever thought processes are among the instructional goals of a course, critical thinking should also be among those goals.

Academic disciplines are not a collection of facts, but a system of types of questions, acceptable

methods for answering those questions, and rules of evidence for evaluating the answers. Any discipline is so called because it is a particular, "disciplined" way of thinking about something. Botany is a disciplined way of thinking about plants, psychology a disciplined way of thinking about human thought and behavior. Philosophy may share topics with psychology (human thought and behavior), but the questions asked in philosophy and the methods used to answer questions and evaluate answers are quite different from those of psychology.

There are also examples of good and bad thinking in every discipline. What constitutes good thinking in a discipline is reasoned judgment using the criteria for evidence established by that discipline.

For students to understand a topic within a discipline, they must understand and be able to use the



Laird Edman outlines some of the key elements of critical thinking at a CTE-sponsored presentation in the Memorial Union.

methods appropriate to that topic. So, while memorization is important in most disciplines, real learning occurs when students understand the modes of thinking appropriate to that topic, and see that declarative statements within a discipline are answers to previously asked questions. To help students understand the topic and build on that understanding in subsequent courses and outside the classroom, one *must* teach thinking.

Which courses best help students learn the thinking of the discipline in question? They are courses in which questions, problems, and issues provide the point of entry into the subject and a source of motivation for sustained inquiry, in which the criteria for making judgments are explicit and repeated often, and in which the criteria themselves are examined and questioned. These courses are assignment-centered rather than text- and lecture-centered, and they require students to formulate and justify their ideas based on clear standards of thinking that are presented and reinforced at every opportunity.

This is not a simple task, nor one that is accomplished quickly. Approaching teaching in this way should change what we consider essential in any class, and how we teach it. I believe teaching the thinking in one's discipline is the most satisfying – because it is the most effective – way to teach.

Laird Edman has a Ph.D. in Educational Psychology from the University of Minnesota.

**“Critical thinking is reasonable, reflective thinking that is focused on deciding what to believe or what to do.”**

- Robert Ennis

## Resources Available on Critical Thinking

by Susan Yager  
Associate Director, CTE

The Parks Library houses a large collection of recent materials on critical thinking. A quick look at the library's resources demonstrates how thoroughly the topic of critical thinking has permeated the college curriculum. Books on critical thinking are found not only in Parks' education collection, but also on the shelves dedicated to philosophy, psychology, literary theory, and aesthetics.

Among the library's recent acquisitions, several are general guides to the field or textbooks for courses on thinking. One of the best of these is Diane Halpern's *Critical Thinking Across the Curriculum* (Erlbaum, 1997; BF441 .H246). Halpern, who is well-known for her work in this area, offers specific guidelines and exercises on memory, if-then reasoning, hypothesis testing, problem-solving, and creative thinking. This clearly written book should be useful for both students and faculty. Another recent addition, Matthew Allen's *Smart Thinking: Skills for Critical Understanding and Writing* (Oxford, 1997; BF441 A45x), is meant primarily for undergraduates, with the aim of helping students create clear arguments. The book's study questions and glossary of terms are among its strong points. So is its point of view; written for students in Australia, this book's examples can be striking to American readers.

Several books in Parks approach critical thinking from a disciplinary perspective. For example, Bruce N. Waller's *Critical Thinking: Consider the Verdict* (Prentice Hall, 2001; BC177 W3), is both a guide for undergraduates and an examination

of critical thinking from a juror's viewpoint. Anne Thomson emphasizes moral arguments in *Critical Reasoning in Ethics: A Practical Introduction* (Routledge, 1999; BJ43 T47), while M. Neil Browne and Stuart M. Keeley stress careful reading and “panning for gold” by the recursive process of asking critical questions. Critical thinking as a component of education in music, sculpture, and painting is the topic of Ivan Olson's *The Arts and Critical Thinking in American Education* (Bergin & Garvey, 2000; BH39 O45). Olson's book explores the relation between cognition and creativity and offers specific suggestions on teaching.

Barbara J. Thayer-Bacon takes a feminist approach to critical thinking in *Transforming Critical Thinking: Thinking Constructively* (Teachers College Press, 2000; BC177 T45). Thayer-Bacon critiques the traditional models of critical thinking and uses the metaphor of a quilting bee to emphasize the social, communicative, and relational aspects of thinking “constructively.”

Older than any of these but still significant is Stephen D. Brookfield's *Developing Critical Thinkers* (Jossey-Bass, 1987; BF441 .B79). Brookfield's emphasis is less on classroom exercises for critical thinking and more on critical thinking in adult life – in the workplace, at home, in front of the television. Some of his ideas, however, can be applied to the classroom, particularly in Part Two, “Practical Approaches for Developing Critical Thinkers.”

### Foundational Resources for Critical Thinking:

John Dewey, *How We Think*

D.C. Heath, 1910

BF455.D515h

Robert Ennis, “A Concept of Critical Thinking”  
*Harvard Educational Review*, 1962, 32(1), 81-111,  
L11 H263

## From the Director

by Corly Brooke  
Director, CTE

Fall semester arrived with a flurry of activity for the CTE. In August we were involved in a full day of orientation activities for new faculty followed by two days of a very successful ISU Teaching Seminar that involved new faculty and graduate assistants. It was a pleasure to meet so many enthusiastic new colleagues!

We are engaged in many activities related to teaching and learning this year. I want to highlight a few. One innovation is a theme or focal point for our CTE programming. We chose the theme of "critical thinking and problem solving" based on your responses to our needs assessment survey conducted last Fall. We've already had a successful faculty forum and a workshop offered by **Laird Edman**, Associate Director of Honors, on this topic. You will see many other related offerings on this topic throughout the year.

Another new CTE focus is a weekly e-mail containing teaching tips, suggestions, and news about teaching and learning on this campus. It's brief, lively, and informative. Nearly 600 faculty and staff have already requested the teaching tips. If you are not receiving this e-mail and would like to be added to our mailing list, contact Pam Patterson at [pamela@iastate.edu](mailto:pamela@iastate.edu).

Included in this CTE newsletter is an insert containing the *Focus on Learning* information produced through a partnership with the Vice Provost for Undergraduate Programs office. This will share important information on assessment and scholarly grants related to teaching and learning. We are also very pleased to be sponsoring a new workshop series on assessment designed for departmental teams led by **Mary Huba**, Assistant Vice Provost for Undergraduate

Programs. This series was so enthusiastically received that Mary will be offering it again in the future. Watch for details.

**David Meltzer**, Assistant Professor of Physics, is our CTE Teaching Scholar for 2002/2003. David's scholarly work focuses on improving student learning in large-enrollment introductory physics courses through the development of active learning and critical thinking methods and materials. David will be sharing his work with the ISU community throughout the year. We are already learning a great deal from his scholarly approach.

In addition, we are delighted to welcome **Heather Cole** to our staff as our graduate assistant for this year. She is a Master's candidate in Family and Consumer Sciences and will be assisting with our programming this year. The rest of our staff consists of **Susan Yager**, Associate Director; **Jane Henning**, Assistant to the Director; and **Pam Patterson**, Program Coordinator. All of us are eager to meet your needs.

I sincerely hope that you will have the opportunity to participate in many of our activities whether it is a teaching and learning circle, workshop, faculty forum, grant writer's workshop or social activity. We also offer up-to-date resources in our CTE library and on our web site <http://www.cte.iastate.edu/>. We continue to strive to build a campus community dedicated to teaching excellence. Best wishes for a successful academic year.

## Publish Your Syllabus?

If you have a syllabus that demonstrates a learner-centered approach to teaching, then Judith Grunert O'Brien may have a publishing opportunity for you.

Grunert O'Brien, of the Center for Support of Teaching and Learning at Syracuse University, is working on a new edition of *The Course Syllabus*, a collection of learner-centered syllabi originally published by Anker in 1997.

In the new edition, she would like to include syllabus examples from a range of institutions, including state universities, and from many disciplines. She is especially interested in "examples that are based on a learner/learning-centered perspective."

The deadline for submission is November 1, and decisions will be made within a month.

If you think your syllabus would be useful for other faculty and are interested in having it published in this collection, contact Grunert O'Brien by email at [jgrunert@syr.edu](mailto:jgrunert@syr.edu). She will acknowledge syllabus authors unless they prefer to not be recognized.

## Thinking of a Miller Fellowship?

It's not too early to begin planning your proposal for the 2003-2004 Miller Faculty Fellowships. Proposals will be due at your college by Monday, February 3, 2003. Your deadline may be earlier, since if multiple proposals are submitted from your department, they must be prioritized by the department chair.

Miller Fellowships support faculty proposals to develop new approaches to teaching existing undergraduate courses, or to develop entirely new courses that will enrich the undergraduate experience. Any ISU faculty member, whether tenured, tenure-track, adjunct, lecturer or clinician, is eligible to apply, though preference may be given to first-time applicants. Miller Fellows can receive \$1000 to \$25,000, depending on the nature of the proposal.

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These fellowships may provide support for faculty release time during the academic year; relevant travel; new instructional equipment (or software, CD-ROMS, or other instructional media); graduate assistants; or special assistance from support units on campus, such as the Parks Library, the Instructional Technology Center, or the Academic Information Technology Center.

Details on what the proposal must include and how proposals will be evaluated are available on the CTE Website, at [www.cte.iastate.edu/fellowships/miller.html](http://www.cte.iastate.edu/fellowships/miller.html).

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## Mini-Conference Highlights Electronic Portfolios

The Instructional Technology Center, together with Academic Information Technologies and the Center for Teaching Excellence, is organizing a half-day conference on Wednesday, Oct. 30, on the use of electronic portfolios at Iowa State. The conference, at the ITC, 1200 Communications Building, will cover the basics of using portfolios to improve and assess student learning, and will also include discussion of how “e-portfolios” are now being used in various courses on campus.

Speakers will include **Mary Huba**, Assistant Vice Provost for Undergraduate Programs, on how

portfolios are used in assessment, and **Lee Honeycutt**, Assistant Professor of English, on software that can be used in establishing e-portfolios. In addition, faculty who have experience in using electronic portfolios, such as **Gene Takle**, Professor of Geological and Atmospheric Sciences, will take part in a panel discussion.

Electronic portfolios are being studied and used in several areas of the university, including Extension, Engineering, Design, and LAS. Courses across campus require or encourage students to set up their own electronic portfolios. In addition, the ISUComm initiative refers to e-portfolios as a means of assessing students’ communication skills in foundation courses and afterward.

The conference is free, but registration is requested. If you would like to attend, register by calling 294-8022 or enroll online through AccessPlus <<https://AccessPlus.iastate.edu>>.

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## Weekly Teaching Tips E-Newsletter

The Center for Teaching Excellence has started a brief weekly e-newsletter containing timely teaching tips, suggestions, and announcements related to teaching and learning at Iowa State. It is e-mailed each Thursday during the academic semester. To subscribe, send an email to [pamela@iastate.edu](mailto:pamela@iastate.edu) or call 294-4512.

## Upcoming CTE Workshops

The CTE will sponsor two workshops in the coming weeks aimed at helping faculty assess student progress and understand students’ learning styles.

**Steve Jungst**, Professor of Natural Resource Ecology and Management, and **Jan Thompson**, Assistant Professor of Natural Resource Ecology and Management, will lead a lunch-hour workshop on “Developing Expected Outcomes and Assessing Student Progress” on October 22. The discussion will include the importance of developing specific expected outcomes for a class, looking at how expected outcomes help focus the content of the course, and examining formative assessment strategies that help determine student progress toward accomplishing the expected outcomes.

On October 29, from 3:30-5 PM, **Sharon McGuire**, Assistant Dean of Students and Director of the Academic Success Center, will present a workshop entitled “Understanding Students’ Learning Styles.” This workshop will describe a variety of learning styles for both students and teachers. It offers an opportunity to assess your own learning style and understand how learning styles shape strategies for teaching and learning.

To register for either workshop, please contact Susan Yager at 294-7555 or [syager@mail.adp.iastate.edu](mailto:syager@mail.adp.iastate.edu).

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