

ACTIVE LEARNING ENVIRONMENTS FOR ENGINEERING EDUCATION
CEUT-SUCCEED Workshop, Virginia Tech
September 30 or October 1, 1998, 1:30-4:30, Hillcrest dining room

Background

The Core of the Engineering Learning Community (ELC) is composed of Teaching Leaders from Felder/Brent Workshops and Terry Wildman, director of the Center for Excellence in Undergraduate Teaching (CEUT). We started meeting in the spring of 98 to plan how to build an active faculty support network, which we eventually called the ELC. Our goal is to have the ELC grow to form a critical community in the Engineering College and beyond. It is important to stress the inclusive nature of this community.

We decided to initiate the building of the ELC with a joint CEUT-SUCCEED workshop. Two concerns dominated our planning: How to attract participants and to make the workshop worthwhile for the participants. We devised the following plan to address our concerns.

Presenters and Promotion

1. Five of the six presenters were engineers, and not all of them are known as outstanding teachers. One of them came back from a Felder/Brent Workshop and proposed to lead a team of six faculty in teaching an active, team-based sophomore design course.
2. We stated the objectives of the workshop in the agenda.
3. We scheduled the same workshop on two successive days to minimize scheduling conflicts.
4. We met with the Dean of Engineering and explained that we are trying to build an ELC that can sustain itself when SUCCEED is gone. He said he would help us promote the workshop and give the welcome address. The Dean redirected our first announcement of the workshop to the department heads and asked them to encourage the faculty to participate.
5. We identified one person in each department to personally invite potential participants, particularly during the last days before the workshop. This worked best with departmental representatives who belonged to our core ELC and who share our vision. Ownership was the key element.
6. We compiled e-mail addresses of all workshop registrants and mailed a reminder the day before the workshop.

Siegfried Holzer (holzer@vt.edu) for the ELC

Agenda

Objectives: (1) To share experiences with new learning and teaching strategies designed to engage students actively in learning.
(2) To help develop an active faculty support network for effective teaching and learning¹.

Hosts: CEUT & SUCCEED

Welcome: Dean Stephenson

Part I – Presenters

Margaret Hable – Cooperative Learning
Siegfried Holzer – Active Learning with and without Multimedia
George Filz – Bringing Engineering Practice into the Classroom

Break

Building a Learning Community: Terry Wildman and Ron Daniel

Part II – Presenters

Richard Goff – Freshman Hands-on Lab Activities
Ron Kander – Creativity in Engineering Problem Solving
Bob Mahan – Recent Experience with Active Learning

Social Function – 4:30

Please send Siegfried Holzer (holzer@vt.edu) your name and the date of your workshop selection.

¹ We plan to experiment with various modes of interaction to provide an environment where faculty can share their experiences and give and receive support. Possible venues: (1) monthly, informal meetings where one faculty member briefly (5 minutes) shares a teaching experience to provide a discussion focus; (2) electronic interactions; (3) a web site with teaching resources; and (4) workshops, similar to this one.

Questionnaire and Responses

1. Was the workshop worthwhile?

100% of the respondents answered “Yes.”

The following comments were added:

- *I am currently trying to implement a lot of active learning in the classroom and I got a lot of good tips.*
- *Hearing real examples was interesting, although some are quite specialized (e.g., require extensive multimedia, a lab which cannot be duplicated, etc.)*
- *Super—I learned a lot.*
- *I am inspired.*
- *Very good.*
- *Very much so! Let’s keep it up!*
- *It was useful learning experiences of others.*
- *Absolutely. I even realized that the homework I just assigned in my grad engineering math class could have been made a coop learning experience.*
- *Excellent workshop.*
- *Thanks.*

2. Workshop in Spring Semester

Are you interested in attending a similar workshop in the spring semester?

All except the following responses were simply “Yes.”

- *Depends on topics. I would prefer a monthly brown bag to go over such topics.*
 - *Yes, with related but different topics.*
 - *Yes, 2nd step might be more actual class exercises.*
 - *Yes, with new faces to share the experiences of other teachers.*

Is the last week of the winter break a good time for a workshop (classes begin January 18)?

Three fourth of the respondents answered “Yes” one fourth “No.”

Please list workshop topics of interest.

- *Introducing practice into classes. Especially at lower, introductory levels.*
- *Providing structure within the Active Learning Environment [ALE]. The role of technical information in the ALE.*
- *Addressing problems with implementing active learning.*
- *How do we work active learning into the bulk of engineering courses which are currently predominantly lecture based?*
- *How to battle grade inflation. An artists point of view on teaching.*
- *Down to earth tips, like Bob Mahan’s presentation which I can associate better.*
- *Specific collaborative exercises from various disciplines.*
- *Techniques for accommodating students with different levels of preparation.*
- *Cooperative learning.*
- *Not sure.*

- *Active learning examples and experience.*
- *Case studies, cooperative learning.*
- *Examples of active learning in a class—more case studies.*
- *Teaching “fundamental” courses with focus on creativity.*
- *Using multimedia (not the mechanics of it—the learning theory behind the use).*
- *Team working strategies (application). Multimedia application for senior/graduate classes.*
- *Emphasis on covering syllabus vs. explaining concepts and not caring about syllabus (right balance).*
- *Creativity.*

Should the workshop format (length, number of topics, etc.) be changed?

All except the following responses were simply “No.”

- *Good length.*
- *No, very nice as is.*
- *No, the workshop format is appropriate.*
- *Half day would be fine.*
- *More time for discussion, so that experienced folks can help address concerns.*
- *It works OK—other formats could too.*
- *It was good as is.*
- *No—this is about right.*
- *A little shorter.*
- *Give time to “practice.”*
- *Use of some more ALE in the workshop would be good.*
- *No _ day is fine.*
- *_ presentation _ discussion.*
- *It was reasonable.*
- *About 2 hours.*

Are you willing to give a presentation at a workshop?

All except the following responses were simply “Yes.”

- *Yes. I would like to discuss my experiences implementing these techniques [ALE] in ME 2024.*
- *Someday...but I am very new at this!*
- *If I have something worthwhile.*
- *Yes, after I’ve had some measurable success!*
- *No, not yet.*
- *Not yet.*
- *Not this semester.*
- *I could—on what?*
- *Maybe.*
- *Sure.*
- *Possibly.*

3. Informal Interactions

Are you interested in attending informal meetings to discuss teaching strategies and experiences—for example, once a month for a 50 minute coffee break?

Would you prefer to meet at lunch or another time and more or less frequently?

All except the following responses were simply “Yes.”

- *Yes. Lunch.*
- *I've already signed up for this.*
- *Yes. Lunch.*
- *Good idea. Our design team (of faculty) meets weekly and has a Round-Robin.*
- *Yes, I would be interested. One lunch a month or every other month is preferable.*
- *50 minutes is OK, just difficult to plan and go to place for a 50 [minute] meeting.*
- *Yes, lunchtime.*
- *Yes. I might not have 100% attendance.*
- *Yes lunch is great.*
- *I have joined such a group via CEUT.*
- *Yes—at lunch.*
- *Lunchtime.*
 - *Possibly.*
 - *Yes I am.*
 - *5PM every other month.*
 - *A meeting every 1-2 months is reasonable. Lunchtime is better for me.*
 - *Maybe.*

Are you willing to share briefly (5 minutes) one of your experiences (success or challenge) to provide a discussion focus?

All except the following responses were simply “Yes.”

- *Yes, I wouldn't be able to stop after just 5 minutes (!)*
- *Yes, when I have an experience to share.*
- *Maybe.*
- *In the long term.*
- *Sure.*
- *Yes, very good idea. I would like to have 3 minutes to present my problems and receive responses (most probably) from the group.*

Are you willing to invite colleagues to visit your classroom?

All except the following responses were simply “Yes.”

- *Yes. But right now I'm not sure they would be very impressed. Give me time.*
- *Any time. I need all the help I can get.*
- *Yes, if I feel my teaching is worth watching.*
- *Maybe.*
- *Perhaps.*
- *Depends?*
- *Sure.*
- *No.*

Comments or Questions?

- *I plan to change/add/try some of these concepts in my spring senior elective course.*
- *Invite interactive collaborative teachers from other disciplines: Architecture, English, Philosophy, Sociology, etc.*
- *Thanks for the effort. What is the student response to group learning? I had mixed reactions.*
- *I enjoyed Dr. Holzer's presentation on Statics. He probably came closest to my view of a good active learning environment for a technical course. Ms. Hable's presentation gave me very interesting ideas on class implementation.*
- *Wine and cheese is good!*
- *This is an art, not a science. How can we train artists? Can artists help scientists?*
- *Please invite me to future workshops*
- *Concerned teachers need to pressure the University to upgrade the teaching learning environment. All classrooms should contain projectors with computer input. All faculty that wish to use the computer as part of teaching should be provided one. I realize alternatives are possible now.*
- *Good presentations.*
- *I enjoyed this workshop. Perhaps we could have it in a room with better acoustics.*
- *You all did a good job today. Varying the topic more will be welcome.*
- *We must move from a teaching focus to a learning focus.*