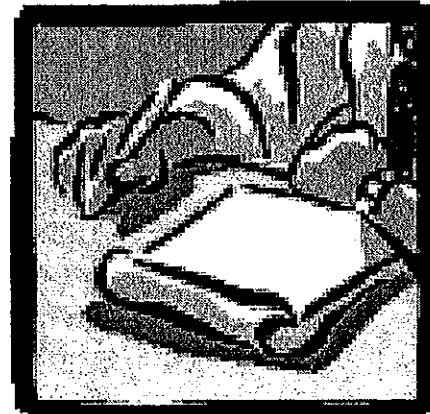


Civil Engineering Division of the American Society for Engineering Education April 2001

Newsletter editor Dennis J. Fallon, Professor and Head of Civil and Environmental Engineering, The Citadel, Office Phone 843-953-5083

Message from the Chairman



Is it spring already?? We are still knee deep in snow up here in Syracuse and yes it is time to think about sunny, wonderful Albuquerque in June !! So mark your calendars for June 24-27, 2001 for the great ASEE Annual Conference in the wide-open spaces of the west. **J.P. Mohsen** our Program Chair has done a fantastic job of arranging a program of exciting and new technical sessions and social events. If you want to find out what is planned you can get a full line up of all the session sponsored by the Civil Engineering division by using WEBMAT at <http://www.asee.org/webmat>. Just click on the block labeled Session Sponsoring Division, select the Civil Engineering Division, and then click on Search. You will most certainly be impressed with the great line up of technical programs, field trips and social events for our division!

I know that the sessions will be described in detail elsewhere in the Newsletter but I would like to point out that one of the excellent events that J.P. has arranged is the rap session which will be held on the campus at the University of New Mexico. This will provide us with a great opportunity to visit another campus and learn something about their academic programs. In the past I remember having the rap sessions at Marquette University (I still have the Tee shirt the chair gave us) and the University of Seattle. A great way to learn about other Civil Engineering programs. Thanks **J.P. Mohsen!**

I hope that our CE Social and Dinner will be as exciting as last year's event. If you were there you remember this strange interloper in quasi-military apparel that appeared and gave us a demonstration of some of the latest Army equipment. I expect there may be some retaliation from our good friends and West Pointers-- Col **Steve Ressler** and **Tom Lenox**.

I am hoping that Dean **Emeritus Bill Wilhelm** will attend the social and present his annual joke—I have been using the one about the walk on the moon for the past year.

On a more serious note, Please join me in congratulating our new division officers, **Steve Ressler** (U S Military Academy), **Marvin Criswell** (Colorado

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From the Program Chair
2001 ANNUAL MEETING IN ALBUQUERQUE
J. P. Mohsen

2001 Civil Engineering Division Program

The Program for the 2001 Civil Engineering Division has been finalized and it includes seven technical sessions, of which two are panel sessions. Additionally, there are two sessions co-sponsored with other Divisions. One with the Minorities Division and the other with the Environmental Engineering Division. There are five meal events in addition to the traditional RAP session during which appetizers will be served. The RAP session will be held on the University of New Mexico Campus at the President's House and will be sponsored by the Civil Engineering Department of UNM. This year, for the first time, the RAP session wi's program also includes a field trip to the Big I construction site. This will highlight the ongoing construction of the I-25 and I-40 interchange in Albuquerque. Originally, this field trip was scheduled to be offered on Sunday afternoon as well as Wednesday morning of the conference week. Here is some inside information for you; as of the date of this writing, due to the anticipated construction schedule, the Sunday field trip has been cancelled and only the Wednesday field trip is on. The number of participants on the trip is limited, so if you are interested in visiting this highly acclaimed construction project, be sure to sign up for it early.

Business Meetings, Meals, and Social Events:

"Civil Engineering Division Executive Board Meeting Breakfast"

Session 1115, 7:00 am to 8:15 am Monday June 25

Ticket price for those wishing to have breakfast: \$15

The annual Civil Engineering Executive Board Business Meeting. All CE Division officers, directors, and standing committee chairs should attend. "Civil Engineering Business Luncheon"

"Civil Engineering Division Business Meeting and Luncheon"

Session 1415, 12:30 pm to 2:00 pm, Monday June 25

Ticket Price for those wishing to have lunch: \$25

The annual luncheon and meeting of the CE Division. All members should attend.

"Civil Engineering RAP session and Toys in the Classroom"

Session 1815, 7:00 to 10:15 pm Monday June 25

Free of Charge. Meets at the President's House on the campus of the New Mexico University. Round trip transportation will be provided from the Hyatt Hotel.

Current concerns in civil engineering education will be discussed in a free format fashion by Civil engineering educators. Proposed topics for discussion should be sent to J.P. Mohsen (jpm@louisville.edu) ahead of time. Also, Low cost physical models that can be used in Civil Engineering courses will be displayed, demonstrated and discussed. This will be an excellent HANDS-ON session where participants will get to observe and play with various instructional tools developed by CE educators and practitioners for instructional purposes. All authors listed below will be available to demonstrate and discuss their "TOYS" but there will be no formal paper presentations.

Design of Structures: An Introduction to Civil Engineering

Brenda Martin, J.P. Mohsen

Moment Distribution and Truss Model

(Continued on page 3)

Come Join Us

(Continued from page 2)

Karen Chou, Kenneth Thomas

Simple and Reliable Loading Device, Topographic Map Generation from 3-d
Robert Henry, Raymond Cook

"Civil Engineering Division Planning Luncheon"

Session 2415, 12:30 pm to 2:00 pm Tuesday June 26

Ticket Price for those wishing to have lunch: \$25

Plans for the 2002 ASEE Annual Conference will be initiated. All members should attend.

"Civil Engineering Social and Dinner"

Session 2815, 7:00 to 10:30 pm Tuesday June 26

Ticket Price: \$40

Members, guests and friends are invited. Division awards will be presented. This event will be at the Petroleum Club which is within walking distance of the Hyatt Hotel.

"Chi Epsilon Luncheon"

Session 3415, 12:30 pm to 2:00 pm Wednesday, June 27

Ticket price for those wishing to have lunch: \$25

The George K. Wadlin Award recipient will be the distinguished speaker.

"The Big I Construction Site Visit"

Session 3215, 8:30 to 11:00 am Wednesday, June 27

Ticket price: \$10

Technical Sessions:

SESSION 1315: 10:30 to Noon, Monday June 25

Co-ops, Internships, Experiential Learning

Influence of co-ops, internships, and experiential learning in CE Education will be discussed. Issues and opportunities will be highlighted by presenters and panelists.

Presentations:

- Connecting to the Practice of Civil Engineering: A Structured Approach
Robert Tillman
- Experiential Learning Exercised Through Project Based Instruction
Norm Dennis
- Experiential Learning from Internships in Construction Engineering
Bob Tener

SESSSION 1615: 4:30 to 6:00 pm, Monday June 25

ABET and Assessment Issues

Issues related to ABET EC 2000 assessment process will be presented and discussed

- What is in it for me? Engineering Educators Respond to Criteria-Based Evaluation Methods
Anna Phillips, Scott Yost, Paul Palazolo
- A Civil Engineering Program Developed in the "Age" of ABET 2000
Jess Walter Everett, Ralph Dusseau, Douglas Cleary, Kauser Jahan, Joseph Orlins,
Beena Sukumaran, Carlos Sun
- Assessing Unique Courses to Satisfy ABET Program Outcomes
Vincent P. Drnevich
- Integration of Analysis and Design in the Structural Engineering Curriculum
Andrew Scanlan, Andrea Schokker
- Assessment of Student Work Experiences in Civil Engineering

(Continued on page 4)

(Continued from page 3)

Enno Koehn

SESSION 2215: 8:30 to 10:15 am, Tuesday June 26

Excellence In Civil Engineering (ExCEED)

The focus will be on current initiatives to promote excellence in civil engineering education. These include the design, implementation, and assessment of the ExCEED Teaching workshop, the West Point Bicentennial Engineering Design contest. According to Tom Lenox, there will be lots of ASCE goodies given away during this session. So you all come!

- The ExCEED(Excellence in Civil Engineering Education)Initiatives of ASCE
Thomas A. Lenox, James J. O'Brien , Richard J. Scranton
- ExCEED Teaching Workshop: Taking it on the Road
Norm Dennis
- ExCEED Teaching Workshop: Fulfilling a Critical Need
Allen Estes, Stephen Ressler
- A Nationwide Internet-Based Engineering Design Contest for K-12 Outreach
Stephen J. Ressler, Eugene K. Ressler, Steven J. Schweitzer
- In Pursuit of Teaching Excellence - The Instructor Summer Workshop at USMAhe
Mark Evans, Joe Hanus

SESSION 2315 10:30 a.m. to noon Tuesday, June 26

Innovations in CEE Curriculum

Innovations in Civil and Environmental Engineering curricula will be presented and discussed.

- Addressing the Management Crisis in Engineering Education
Paul Chinowsky
- Suggested Topics for a Curriculum in Civil Engineering
James Yao, Jose Roesset
- A revised Civil and Environmental Engineering Curriculum
Kristen Sanford Bernhardt, Brett Gunnink
- A New Format for Continuing Education-Professional Development Lectures
Francis M. Thomas, Steven L. McCabe
- Mentoring Models in an A/E/C Global Teamwork e-Learning Environment
Renate Fruchter

SESSION 2515 2:30 p.m. to 4:15 p.m. Tuesday, June 26

Sooner City: Design Across the Curriculum

This session will focus on the development of the sooner City Project and it's effect nationwide on CE programs.

- The Sooner City Project
Randy Kolar
- We came, We saw, We Changed Some Things: Engineering Educators Extend the "Sooner City" Program to the Institution
Anna Phillips, Paul Palazolo, Norm Dennis, Jon Fricker
- Assessing the Impact of the Sooner City Project
K.K. Muraleetharan

SESSION 2615 4:30 p.m. to 6:00 p.m. Tuesday, June 26

The Culminating Design Experience in CE

This session will focus on the culminating design experience. Individual and team projects, multidisciplinary and collaborative learning.

- Humorous Engineering 101
Larry Cartwright

(Continued on page 5)

(Continued from page 4)

- The Use of "Superclients" in Civil Engineering Capstone Design Class
Wilford Nixon
- Our Experience with Guiding a Major Design Experience in Civil Engineering Curriculum
Franz Rad , Scott Huff, Azad Mohammadi, Thomas McCormack, Dale Richwine
- An open-Ended Research Project for Undergraduate Students
Anant Kukreti
- Open-Ended Projects for Graduate School-Bound Undergraduate Students in Civil Engineering
Carlos Sun , Ralph Dusseau ,Doug Cleary ,Beena Sukumaran, Douglas Gabauer
- Town Government, Industry, and University Involvement in the Capstone Design Course
David Pines , Mohammad Saleh Keshawarz

SESSION 3515 2:30 p.m. to 4:15 p.m. Wednesday, June 27

Computing/ IT Skills for CE Students

A Panel session to address various computing and IT requirements found in CE curricula. A discussion of educational objectives, identification of important skills, methods of achieving objectives, and assessment of results from industry.

Panel Members to Discuss Computing and IT Skills Required for CE Students :

Paul Chinowsky , Georgia Tech
Renate Fruchter , Stanford University
Bob Henry , University of New Hampshire

CO-SPONSORED SESSION with the Minorities Division

SESSION 2570 2:30 p.m. to 4:15 pm Tuesday, June 26

Computer Literacy and Students

Computer literacy and engineering students; what does faculty need to do? This along with other issues of technology in the engineering classroom will be presented along with some solutions.

- Teaching Web-Assisted Courses to Minority Engineers
Charles Glass
- A Case Study of Using the Web to Teach Civil Engineering Ethics, Professionalism, and History
Vincent Drnevich
- An Assessment of the Redesigned Computational Methods course at the University of Michigan
Donald Carpenter, Nikolaos Katopodes

CO-SPONSORED SESSION with the Environmental Engineering Division

SESSION 2451 12:30 to 2:00 pm Tuesday, June 26

Multidisciplinary approach to Environmental Engineering

Presentations focus on multidisciplinary nature of environmental engineering. Papers address the ever-changing nature of environmental education and its integration in other disciplines.

- Defining a new engineering course and emphasis for the 21st Century – Natural Resources Engineering
Ernest Tollner
- Revision of a Capstone Design Course
Audeen Fentiman
- Preparation for a Successful ABET 2000 Accreditation Visit
Max Anderson
- Sustainable Design in Engineering Technology
Elizabeth Coles
- Modeling Biodegradation Kinetics Using Matlab
Raul Ordonez , Kauser Jahan
- GIS and its applications
Harvinder Singh, Sripriya Subramanian

ASCE REPORT CARD ON THE INFRASTRUCTURE

From WWW.ASCE.org Web Site

ROADS: D+ One-third of the nation's major roads are in poor or mediocre condition, costing American drivers an estimated \$5.8 billion a year. Road conditions contribute to as many as 13,800 highway fatalities annually. Twenty-seven percent of America's urban freeways - which account for 61% of all miles driven - are congested.

BRIDGES: C As of 1998, 29% of the nation's bridges were structurally deficient or functionally obsolete, an improvement from 31% in 1996. It is estimated that it will cost \$10.6 billion a year for 20 years to eliminate all bridge deficiencies.

TRANSIT: C- Transit ridership has increased 15% since 1995 - faster than airline or highway transportation. Capital spending must increase 41% just to maintain the system in its present condition.

AVIATION: D Airport capacity has increased only 1% in the past 10 years, while air traffic has increased 37% during that time. Airport congestion delayed nearly 50,000 flights in one month alone last year. Congestion also jeopardizes safety - there were 429 runway incursions ("near misses") reported in 2000, up 25% from 1999.

SCHOOLS: D- Due to either aging or outdated facilities, or severe overcrowding, 75% of our nation's school buildings are inadequate to meet the needs of school children. The average cost of capital investment needed is \$3,800 per student, more than half the average cost to educate that student for one year. Since 1998, the total need has increased from \$112 billion to \$127 billion.

DRINKING WATER: D The nation's 54,000 drinking water systems face an annual shortfall of \$11 billion needed to replace facilities that are nearing the end of their useful life and to comply with federal water regulations. Non-point source pollution remains the most significant threat to water quality.

WASTEWATER: D The nation's 16,000 wastewater systems face enormous needs. Some sewer systems are 100 years old. Currently, there is a \$12 billion annual shortfall in funding for infrastructure needs in this category; however, federal funding has remained flat for a decade. More than one-third of U.S. surface waters do not meet water quality standards.

DAMS: D There are more than 2,100 unsafe dams in the United States. There were 61 reported dam failures in the past two years. The number of "high-hazard potential dams" - those whose failure would cause loss of life - increased from 9,281 in 1998 to 9,921 in 2001.

SOLID WASTE: C+ The amount of solid waste sent to landfills has declined 13% since 1990, while the amount of waste recovered through recycling has nearly doubled. Most states have ten years' worth of landfill capacity and waste-to-energy plants now manage 17% of the nation's trash.

HAZARDOUS WASTE: D+ Effective regulation and enforcement have largely halted the contamination of new sites. Aided by the best clean-up technology in the world, the rate of Superfund clean-up has quickened - though not enough to keep pace with the number of new sites listed as the backlog of potential sites is assessed.

NAVIGABLE WATERWAYS: D+ The U.S. Army Corps of Engineers has a backlog of \$38 billion in active authorized projects. On the inland waterways system, 44% of all the lock chambers have already exceeded their 50-year design lives. Key deep-draft channels are inadequate for the mega-container ships, which are the world standard for international trade; and intermodal connectors to ports are in poor condition. Transportation demand on waterways is expected to double by 2020, and serious performance problems are likely if current levels of investment continue.

ENERGY: D+ Since 1990, actual capacity has increased only about 7,000 megawatts (MW) per year, an annual shortfall of 30%. More than 10,000 MW of capacity will have to be added each year until 2008 to keep up with the 1.8% annual growth in demand. The U.S. energy transmission infrastructure relies on older technology, raising questions of long-term reliability.

America's Infrastructure G.P.A.: D+ Total Investment Needs = \$1.3 Trillion

Message from the Chair

(Continued from page 1)

State University) and **Jim Hanson** (Lawrence Technical University). Our present Secretary/Treasurer **K. C. Mahboub** informs me that there were no dimpled, pregnant or hanging chads on the ballots.

Steve Ressler was elected as the Vice-Chair /Program Chair for 2001-2002 and will be responsible for all division activities during the Annual Conference in Montreal, Canada

(mais oui) in June 2002. In the following year 2002-2003, he will serve as Division Chair. Steve was elected in an odd numbered year and will replace me as the ASEE Liaison on the Committee on Curriculum and Accreditation (CC&A)—a challenging and rewarding assignment!

Marvin Criswell will replace **K. C. Mahboub** as the Secretary/Treasure for the Civil Engineering Division. Thank you Marvin for taking on this demanding position!

I have to take time here to thank **K.C. Mahboub** for being an outstanding officer in this taxing position as Secretary/Treasurer. He has provided us with great minutes and has kept an excellent accounting of our funds (K.C. thanks for the trip to Aruba this year). We are truly fortunate to have had such a great officer for **thirteen years** (since 1988). Thank you K. C. for your wonderful service to the Division!!

Jim Hanson was elected as a Division Director for 2001-2004 and replaces **Steve Ressler** whose three-year term as director ends this year.

Congratulations to all of these new officers and please accept my thanks on behalf of all the members for agreeing to serve the Civil Engineering Division. It is a very rewarding experience.

Following the usual rotation, **J. P. Mohsen** will replace me as division Chair next year. He will take over at the close of the Social and Dinner in Albuquerque. The Division will be in great hands under his leadership. Good Luck J.P.—the Chairs position sure is a lot more fun than the Program Chair!

Finally I would like to thank everyone who has made this year a most enjoyable one as Chair—please make an effort to invite one of your colleagues to join us in Albuquerque and join in continuing to make the Civil Engineering division one of the most active and dynamic divisions of the

ASEE and the engineering profession.

PS—Dennis Fallon you are a great editor!!!

Sad Note on the passing of Dr. Gerald R. Seeley

The entire campus community is saddened because of the untimely death of Dr. Gerald Seeley. Dr. Seeley joined the VU faculty in 1983, was named Brandt Professor of Engineering in 1998 and accepted appointment as Dean of the College of Engineering in 1999 following a national search. He served two appointments totaling five years as chair of the Department of Civil Engineering.

In addition to his teaching and administrative responsibilities, he served the University community in many ways. Most recently he devoted significant time in his role as chair of the Campus Planning and Space Allocation Committee. He also had served on numerous committees and ad hoc groups including the Budget Advisory Committee, the North Central Association Steering Committee, Faculty Senate, Honor Council and the University Level Strategic Planning Committee to name a few.

Among his many professional activities, he was a past president of the Indiana Section of the American Society of Civil Engineers and a past chairman of the Civil Engineering Division of the American Society for Engineering Education. He also was a former chair of the PEE Division of the Indiana Society of Professional Engineers and a past chair of the History of Science Committee of the Indiana Academy of Science. He was awarded an ASEE Centennial Certificate in 1993 and its George K. Wadlin Distinguished Service Award in 1997. Prior to joining the VU faculty, he taught 10 years at Tri-State University in Angola, Indiana, serving his last five years there as Dean of the School of Engineering. Earlier, he was a development engineer with Honeywell Inc. and Union Carbide Corp. Once a professional baseball player in the Detroit Tigers minor league system, he was assistant baseball coach for two years while at Tri-State.

Dr. Seeley's is survived by his parents, Raymond and Dolores Seeley of Wausau, Wisconsin, his wife, Barbara Woller Seeley, and sons, Marc and Kris.

He will be missed by all of us.

White paper authors promote the FE for outcomes assessment

(Continued from page 9)

design of pavements.”

To aid institutions using the FE for outcomes assessment, the National Council of Examiners for Engineering and Surveying (NCEES) makes available through state boards the discipline- and institution-specific Report 5. This report includes the performance outcomes of students taking a specific discipline module who attend the engineering school requesting the report, as well as the state and national performance averages in the specified discipline. Based on this report, faculty can determine over several exam administrations how students are performing compared to the school's own goals, as well as the national and state performance averages. White cautions engineering faculty that the FE national averages are based largely on performance outcomes from a self-selected population. In other words, most students who currently take the FE choose to take it. “Typically when students choose to take the FE, they score higher than students who are required to take it for graduation,” says White. “As a result, the national average tends to be higher than the performance outcomes of a population that is required to take the FE.” Keeping this in mind, in order for the FE to provide an accurate assessment of an engineering program, the population taking the exam must be representative of the entire graduate population. This means that all students should take the exam or the group taking the exam should be selected so to adequately represent the graduate population.

Elliott points out that another concern with using the FE for assessment is student motivation. Students must prepare for the test and do their best in order for the outcomes to accurately reflect what they have learned in the program. LeFevre says, “Based on studies I’ve done, there is no correlation between a student’s GPA in the degree program and his/her passing percent performance on the FE. What matters is how well a student prepares for the test.” Another consideration is that “the discipline-specific exam is a better assessment tool than the general engineering exam,” Munger says. “In order to analyze the areas in which our students are underperforming, we need to encourage them to take the discipline-specific exam. They don’t realize it, but they will actually perform better on it than on the general exam.” Elliott mentions that students should not take the exam too early in their senior year for it to be a reliable assessment tool. “The FE would be a much better assessment tool if seniors would take it during their last semester after they have finished most of the upper-level engineering courses,” he says. One way to account for student

preparedness in the assessment is with a post-exam survey. Through the survey, students can indicate what courses they have or have not taken and rate their perception of their own preparedness in each subject area.

In analyzing the FE results, it is also important to compare one’s program with similar institutions. Therefore, based on suggestions from the authors of the white paper, future Report 5s will also include statistics from three groups of institutions (Carnegie Research, Doctoral, or Comprehensive) with a standard deviation of the national average as well. This additional data will allow institutions to compare their programs to others that are equivalent in expectations and requirements instead of solely to the state and national averages.

Conclusion

At the conferences, White and LeFevre presented the advantages of using the FE and discussed some of the concerns expressed by attending faculty. White says, “For faculty to appreciate the use of the FE examination, they need to be educated, and the easiest way to do that is in an exchange with someone. People can read the white paper, but to discuss and understand the nuances of using the FE for outcomes assessment -- seeing how others have used it over time -- [takes a forum or conference atmosphere]. It gives them a lot of encouragement that the FE can be one of many

Learnon.org

Learnon.org, the continuing education initiative of the American Society for Engineering Education (ASEE), is the nation’s online resource for continuing engineering education and distance learning, offering engineering professionals a searchable database of thousands of courses across all engineering disciplines.

At no cost, engineers can search the database by course subject matter, geographic location, price, or course provider. Listings include traditional classroom courses, distance learning courses, evening courses, weekend seminars and workshops, web-based courses, CD-ROM courses, and video courses; all of which are offered by U.S. engineering colleges and universities and engineering professional societies.

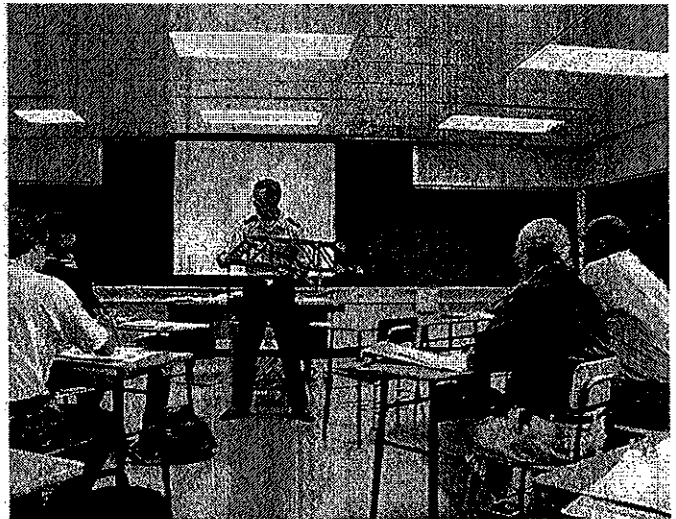
Learnon.org also contains articles, academic papers, conference announcements, news items related to continuing education and distance learning and useful links to all course providers’ web sites.

Feedback from ExCEED Graduates

By Allen C. Estes, West Point

As the ExCEED Teaching Workshop (ETW) prepares to begin its third year, workshop coordinators have completed the long-term feedback from the previous two years. The comments are overwhelmingly positive and it appears that the one-week teaching workshop is making a significant difference in the way these civil engineering faculty members approach and succeed at teaching students in the classroom.

ExCEED (Excellence in Civil Engineering Education) is the ASCE landmark faculty development initiative which includes the ETW as part of a greater program to improve civil engineering education in colleges and universities. The ETW is a highly intensive, hands-on, five-day workshop consisting of seminars, demonstration classes and small group labs. The workshop is limited to 24 faculty members with less than five years teaching experience from universities across the country. Each participant teaches three sample classes as part of the workshop and receives detailed critiques from senior mentors and peers, as well as videotapes of their efforts. The ETW was conducted at the United States Military Academy at West Point in 1999 and 2000 and at the University of Arkansas – Fayetteville in 2000. Surveys at the end of the workshop (when the activities of the grueling week were still fresh on the participant's minds) provided feedback that was tremendously favorable.



To assess the long-term effect of the ETW, similar surveys were mailed to former participants 18 months after the workshop for the 1999 group and six months after ETW for the 2000 group. The response rate on the surveys was 75% for both groups which in itself indicates the profound effect of the workshop. Participants were asked to rate themselves on a scale of 1 to 5 in 10 separate aspects of teaching that included lesson organization, interaction with students, and level of confidence both before ETW and after ETW. On average, both groups reported an improvement of an entire level in every category. At least some improvement was reported in every area. The answers to the open-ended questions about the value of the program produced some terrific testimonials:

"This program is an absolute must if we are to continually improve civil engineering education."

"Absolutely worth my time. It changed my life."

"My student evaluations have improved and my overall feelings about teaching have improved."

"ExCEED has made a big difference in my ability to assess my teaching, mostly because I didn't really understand teaching until ExCEED."

"Questioning techniques that I learned from ETW are helping me a lot to involve students in class discussions."

"I earned an Excellence in Teaching Award."

The ETW will be conducted at both West Point and the University of Arkansas this summer. The workshop will continue to develop and improve. The result will be more civil engineering teachers who engage students in the classroom, provide high quality instruction and motivate students to continue learning throughout their lives.

