

**The Tennessee Exemplary Faculty for  
Advanced Technological Education Project  
an Overview\***

**Kurt D. Frederick**

**Nashville State Technical Institute**

**Abstract**

The various activities making up the Tennessee Exemplary Faculty for Advanced Technological Education (TEFATE) project through the South East Advanced Technological Education Consortium (SEATEC), funded by the National Science Foundation, will be described in this presentation. TEFATE highlights include the use of interdisciplinary teams, specialized training and workshop activities, site visits to industry locations for data gathering, the placement of faculty in industry internships, and the preparation of 25 case studies developed as a result of the project activities and faculty experiences. Also to be discussed are the activities and events planned for the follow-up project to TEFATE, named the South East Advanced Technological Education Consortium Case Model Development Project.

**Introduction**

SEATEC is a consortium of five two-year colleges located in Tennessee. Those colleges are Chattanooga State Technical Community College, Jackson State Community College, Nashville State Technical Institute, Pellissippi State Technical Community College, and State Technical Institute at Memphis. An overall goal of this consortium is to provide leadership for reform of technological education through the use of case-based instructional delivery. A synthesis of the best thinking and practice of experts in the field along with the established structure of the SEATEC interdisciplinary teams and industry partners will lead to the development of real-world model cases. The impact of the case studies on students will also be studied.

The SEATEC consortium began in August 1995, with the award of a planning grant (DUE #9454648 - \$50,000) awarded to Chattanooga State Technical Community College to develop a telecommunications center proposal. This center proposal led to the two-year TEFATE project (DUE #9602401, FY 96: \$219,662, FY 97: \$229,972) award in September 1996. In the fall of

1998 SEATEC was awarded a three year project award (DUE # 9850307, FY98: \$597,889, FY99: 516,763, FY 2000 \$514352) for case study model development.

### **TEFATE Project**

Case-based and problem-based learning is rapidly being adopted in professional curriculum programs, but the technology fields and community college level courses specifically have not yet been addressed on a large scale. The National Science Foundation funded TEFATE project recognized the need to develop fresh updated approaches to technical curriculum in which faculty could learn to bring the workplace to the classroom.

The primary goal of the TEFATE project was to develop a group of faculty who will provide leadership in telecommunications curriculum development. A secondary goal of the project was the development and dissemination of a clearly defined curriculum framework for telecommunications technician education at the Associate Degree level. This curriculum includes the development of case studies to present work-based applications for use in classroom activities.

Dr. Roger Deveau of the University of Massachusetts Dartmouth, as independent evaluator, noted that TEFATE is an example of educational reengineering and that to accomplish this type of educational reengineering the following critical success factors are essential:

- (1) There must continue to be a shared *vision* for change. The TEFATE project serves as a focus for this change by providing a road map for action, enlisting cooperation, and avoiding counter productive activities.
- (2) This change process must be successfully managed. Someone needs to be in charge to facilitate this change process, to provide methodology and strategies for change, keep the project in focus, and keep in mind the people dynamics of the change process.
- (3) The teaching faculty must do it! The plan may be top down, but the implementation must be bottom up.
- (4) There must be a continued effective partnership between teachers and business people. Our legislators must also be informed of this process.
- (5) The implementation of this process must address the entire curriculum from end to end. This may be like changing a tire while a car is speeding down the highway at 65 mph, but technology requires this approach.
- (6) There must be a climate, which provides for training and support of innovative approaches in the classroom. We need to provide faculty with the skills and experiences necessary to bring this change in the educational process. Significant changes evolve through teamwork. Educational institutions must provide the climate that permits faculty to employ new approaches in teaching.
- (7) TEFATE must institutionalize the results of this change process. We need a long-term focus throughout our educational institutions. Major changes are difficult to sustain. The new way of doing things must be firmly established.

## **SEATEC Project**

The vision for the SEATEC consortium of two-year colleges is to provide leadership for reform of technological education through the use of case-based instructional delivery. SEATEC is building a foundation for this vision by developing a fundamental understanding of case-based instruction in technological education. Synthesis of the best thinking and practice of experts in the field along with the established structure of the SEATEC interdisciplinary teams and industry partners is leading to the development of real-world model cases. Development and field testing of these model cases will determine the impact on students. As the implementation of case studies matures through regional and national field testing, the SEATEC model for developing and using case studies in technical education will impact students and teachers on a widening scale. An ongoing program of dissemination will inform a national constituency of educators about the development and implementation of a case-based approach to technological education.

### **Project Goals:**

Goal 1: To provide national leadership for the development and implementation of case-based instruction for technological education.

Goal 2: To provide opportunities for continuous and appropriate professional development of participating faculty.

Goal 3: To assess the effectiveness of the case study approach to teaching technology-related material in the classroom.

Goal 4: To disseminate information nationally related to the SEATEC activities, materials, and results, including outcomes of the use of case studies in field-test settings.

A consensus of expert opinion provides the foundation for extending our understanding of case-based instruction in technology. Models, based on this foundation, provide vehicles for implementation strategies in case-based education. SEATEC uses an aggressive national dissemination program, which informs practitioners of successful techniques, strategies, and models for use in technological education.

The SEATEC vision for the short-term leads to a long-term potential that can help reform technological education through the introduction of fundamentally sound model materials and methods. At conclusion, this project will have in place a body of research-based knowledge about the development and implementation of case studies in technology and the resulting improvements in student learning. Samples and models of materials and case-based implementation techniques will provide a foundation for reform in the development and delivery of successful case-based tools for instruction.

## Conclusion

In the fall 1986 Special Curriculum Issue of the *Office Systems Research Journal*, Dr. Michael Bronner of New York University eloquently stated the situation. He observed that “When one of these two components—business or education—fail to work, it is called the sound of one hand clapping.” Dr. Bronner could not have put it better. The Tennessee Exemplary Faculty for Advanced Technological Education Project (TEFATE) is a conscious effort to bring both business and education closer, and get both hands clapping.

As Niccolo Machiavelli stated in 1513, “There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who would gain by the new ones. The hesitation of the latter arises in part...from the general skepticism of mankind, which does not really believe in an innovation until experience proves its value.” TEFATE, however, can become the model for business and education cooperation...a way to get both hands clapping.

## Bibliography

Deveau Roger J. “Evaluation of the Tennessee Exemplary Faculty for Advanced Technological Education (TEFATE) Project”. June, 1997

Proceedings of the Tennessee Exemplary Faculty for Advanced Technological Education Project. Nashville, TN NSF DUE #9602401.

Smith, Karl A. “Characteristics of an Effective Case Study”. Strategies for Using Case Studies in Teaching and Learning Forum. Nashville, TN 25 Feb 1999.

## Biographical Information

KURT D. FREDERICK instructs management courses and serves a dual role as assistant to the Vice-President of Academic Affairs and to the director of the TEFATE and SEATEC – National Science Foundation Advanced Technology Education funded projects.



\*This project was supported in part by the National Science Foundation (DUE-9602401). Opinions expressed are those of the author and not necessarily of the foundation.