

Landmark Assesses Technology Education Needs at Community Colleges

By Stephanie Kreseen, Ellen Engstrom, and Steve Fadden

For the past year, staff at the Landmark College Institute for Research and Training (LCIRT) have been engaged in activities to create professional development for technology educators at community colleges. LCIRT has been working with its partner institutions (Community College of Allegheny County, Pittsburgh, PA; Lone Star College System, Houston, TX; and Western Nevada College, Carson City, NV) on a project funded by the National Science Foundation's (NSF) Advanced Technological Education (ATE) program. Initial grant activities included visits to each partner institution to conduct interviews with faculty, staff, administrators, students, community interest groups, and employers to gather data concerning strengths and weaknesses of students who graduate from technological degree and certificate programs.

The data collected during these visits were analyzed to establish high-level themes across the partner colleges, and inform the creation of a professional development program to better prepare educators and staff who work with students who may have learning differences in technological education programs. The themes identified through the assessment processes include the following:

- Strong community support for technical degree and certificate programs;
- Development of strong relationships between colleges and area high schools;
- Absence of academic prerequisites in technical programs (making them more appealing for many students);
- Faculty take an active role in noting which students struggle, and referring them to disability services;
- Technical faculty have a strong desire to engage students and help them succeed;
- College-wide advising services do not specialize in technical programs;
- Faculty rely heavily on disability support personnel for their understanding of disability law, awareness of learning disabilities, and principles to support students with diverse learning needs;
- Students are under-prepared in the areas of reading, writing, and mathematics;
- Lack of follow-through on student success once students have entered the workforce;
- Difficulty in establishing approaches for supporting specific student populations; and
- Lack of "soft skills" and employable skills among students.

Many of these themes demonstrate a strong commitment to students, and a strong degree of engagement between faculty members and disability services personnel, indicating an environment and culture conducive to supporting and preparing students for success. However, the lack of follow-through with students once they enter the workforce, plus a lack of understanding of how to support diverse learners and foster the development of soft skills, highlights opportunities for these systems to incorporate Landmark College methods and strategies to better serve students.

The assessment themes have helped to shape the creation of professional development modules, which the LCIRT team has

been implementing in a hybrid format at each partner college. The hybrid format features a one-day, face-to-face workshop at each college campus, followed by an online discussion and activity component that engages faculty members in the development and revision of their course activities. One instructional method that has been implemented for this project is Scenario Based Learning (SBL), a form of experiential learning centered on the investigation and resolution of meaningful problems that students may face when they enter the workplace. SBL has roots in Problem Based Learning, developed to train medical students to diagnose and treat patients.

In SBL, students work together in small groups to learn what they need to know in order to solve a problem. The instructor acts as a facilitator to guide student learning, and can act as a coach for the development of effective group practices such as soft skills and group problem solving. Students are presented with a problem scenario that they must analyze and develop a hypothesis about how they may be able to solve the problem. As students complete the problem, they reflect on their process and what knowledge they have gained. Educators are interested in SBL because of its focus on active, transferable learning and its potential for motivating students.

The NSF promotes SBL as an effective learning strategy for engaging students in technology education, as well as preparing them for the demands of the workplace. SBL can be most effective when instructors engage in effective instructional design practices, including backward curriculum design, the development of formative and summative assessments, the linking of all tasks to course goals and objectives, and syllabus design. The NSF ATE hybrid professional development course has been developed to incorporate information about SBL as well as a number of other effective educational practices, and participating faculty members and their students are providing LCIRT with feedback and data to establish the feasibility of the approach and its potential effectiveness as a means to support students in technological degree and certificate programs.



Steve Fadden

Landmark College and the Access-Computing Alliance

By Alicia Brandon

Several years ago, LCIRT was asked to partner with the University of Washington, Gallaudet University, and the Rochester Institute of Technology in a National Science Foundation grant alliance known as the ALLIANCE FOR ACCESS TO COMPUTING CAREERS, or ACCESSCOMPUTING ALLIANCE. The project is led by the Department of Computer Science and Engineering and DO-IT (Disabilities, Opportunities, Internetworking, and Technology) at the University of Washington. This year, the AccessComputing Alliance was granted an extension, further cementing our partnership with this group for an additional five years.

The goal of the AccessComputing Alliance is to make computing opportunities available to more citizens and enhance computing fields with the perspectives of people with disabilities. Project activities are designed to assist students with disabilities achieve critical milestones towards their college studies and eventually, careers in computing fields. Most of the efforts of AccessComputing serve individuals with a wide variety of disabilities, with some activities designed for individuals with learning disabilities due in part to LCIRT's involvement, and some activities geared towards students who are deaf or hard of hearing due in part to the participation of Gallaudet University and Rochester Institute of Technology.

Alliance partners include other National Science Foundation grant projects such as several programs promoting students with disabilities in science, technology, engineering, and math including Reaching the Pinnacle (New Mexico State University); the National Center for Women and Information Technology (University of Colorado); National Girls Collaborative (EdLab Group, WA); Computing Alliance of Hispanic-Serving Institutions (University of Texas at El Paso); Commonwealth Alliance for Information Technology Education (University of Massachusetts, Amherst); Empowering Leadership: Computing Scholars of Tomorrow (Rice University); and Advancing Robotics Technology for Societal Impact (Spelman College and Carnegie Mellon University).

The AccessComputing webpage contains a wide array of information and useful resources for students and faculty, and is available at: www.washington.edu/accesscomputing/



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