Preliminary Results of Assessing Self-Regulated Learning (SRL) for Associate Degree Electromechanical Engineering Technology Students.

Seymour Blank*, John Hudesman**, Robert Armstrong*, Ed Morton*, Adam Moylan**, Neisha White**

* Department of Computer Engineering Technology, NYCCT
** SRL Program, Education Psychology, CUNY Graduate Center

Nationally, students who are academically under-prepared for the rigors of two-year engineering technology programs, have a poor level of academic achievement and a high attrition rate. The problems reported at a national level are also true at New York City College of Technology (NYCCT), which is the bi-level technical college of the City University of New York (CUNY). NYCCT has an enrollment of greater than 11,800 students. The Electromechanical Engineering Technology (EM) program is the largest of the college's two-year programs in engineering technology. This program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC/ABET). Most of the students enter the EM program via an open admissions policy. Fifty-eight percent of NYCCT students work at least 20 hours per week. Given the circumstances, it is not surprising that from 1998 to 2003, only 15% of the students entering the EM program earned an associates degree. These statistics mirror the graduation rates at other two-year ABET accredited engineering technology programs throughout the country.

Previous attempts to address the needs of these under-prepared students have focused on teaching content courses together with a variety of academic/study skills strategies. These have met with limited success. Our department has recently (2005/2006 academic year) received a National Science Foundation (NSF) Course Curriculum and Laboratory Improvement (CCLI) Phase I grant to apply "Self-Regulated Learning" (SRL) to two engineering technology courses. SRL involves teaching students a new way of understanding their learning process and how to monitor and manage it. The SRL process includes an on-going three-phase cycle: (1) planning, (2) practicing and (3) evaluation. During the planning phase, students assess prior performance, set goals and choose appropriate learning strategies. The practice phase involves implementing and monitoring the use of these strategies. In the final phase, students evaluate the effectiveness of the chosen strategies in achieving their goals. These evaluations become the basis for the planning phase of the next SRL cycle. Students will use the SRL system to constructively use "quiz correction feedback" to develop their SRL skills. The goal of this program is to teach students that they can become more self-regulated in their learning activities and, in turn, can become more effective learners.

During the Spring 2006 semester, our department is running four simultaneous sections of two different courses (a total of eight sections): two simultaneous sections of "Electrical Circuits" (i.e., 4 sections of EM150, our gatekeeper course) and two simultaneous sections of "Digital Control" (i.e., 4 sections of EM250). The students were randomly assigned to either the SRL section or the section taught by instructors in their usual manner. A uniform department mid-term and final exam will be given to all sections. The results will be evaluated. We propose to report our preliminary findings to the Spring 2006 ASEE Mid-Atlantic Section Conference.