

Teaching Students & Educators at West Chester University

Colorado Springs, COLORADO, July 2 2008

In June 2008, Dr Giovanni Casotti and Dr Maureen Knabb, Professors of Biology at West Chester University in Pennsylvania, hosted life science educators from across North America to share curriculum ideas, teaching experiments and laboratory techniques. As teachers to at least 400 students every year, Dr Casotti and Dr Knabb are well-qualified to share what does and doesn't work in the laboratory classroom.

Dr Casotti and Dr Knabb use PowerLab teaching systems with Chart (now LabChart) software in three of their courses. West Chester has been using their systems with the Macintosh operating system for the past three years, and runs laboratories using inquiry approaches to learning, "where students take ownership of their experiments because they are the ones coming up with ideas to test".

For the past two years Dr Casotti and Dr Knabb, with their colleague Loretta Reiser-Danner, have presented conference papers with results from implementing this learning approach as, "Inquiry-based learning in physiology laboratories using computer technology" in the FASEB Journal.

Replacing Chart Recorders in Student Laboratories

West Chester's PowerLab systems replaced six physiographs. The physiographs cost over \$10,000 each, getting the constantly-needed parts for repair was both expensive and difficult, and the possible experiments, "limited student creativity, and students used to view the lab negatively as a result" says Dr Casotti.

In contrast, "PowerLab simply WORKS. It never crashes or has to be rebooted, and is 100% reliable. There is little if anything students can do to mess up their experiments," says Dr Casotti. Further, the PowerLab systems, "can do a greater variety of experiments for a fraction of the cost".

Making an Impact on Non-Major Students

Twice a year, West Chester runs a Human Anatomy and Physiology course for non-majors. The large cohorts are divided into lab groups of 20 students, with each PowerLab teaching system being shared among four students. Since switching to PowerLab data acquisition, "one laboratory instructor is sufficient to handle questions... The instructor has little direction to give the students and can instead spend their time explaining the physiology," says Dr Casotti. "Students enjoy the ability to very quickly obtain data that actually looks like the textbook - for example, it takes minutes to record an ECG with the system".

Furthermore, "our assessment data indicates that student learning has increased, no mean feat in our non-majors classroom. Exam scores have increased, particularly on inquiry-based exam questions and students seem more comfortable and happier attending lab".



Instructing the Instructors

As most North American educators are winding down over the summer months, Dr Casotti has opened his curriculum and laboratory to faculty from different institutions as host of this month's Student Laboratory Techniques Workshop.

Now in its second year, the workshop gives educators the chance to find out how other institutions are using PowerLab, LabChart and LabTutor software in their classrooms. The group also works towards developing new experiments that can be used by everyone's students, and there are ADInstruments staff on-hand to answer any questions. Dr Casotti describes the workshops as, "a win-win for all parties".

About ADInstruments

In 2008 ADInstruments is celebrating 20 years as a world-leading provider of computer-based data acquisition and analysis systems for life science research and education. Based on the PowerLab® data acquisition system with LabChart®, Scope™ and LabTutor® software, ADInstruments products record, display and analyze life science data quickly and efficiently, whether it is to speed up research projects, or to advance understanding of scientific concepts in biomedical classrooms. PowerLab systems are used in the world's best academic institutions, pharmaceutical and contract research laboratories, government organizations, and a wide range of private companies. ADInstruments has offices in the United States, Germany, the United Kingdom, Australia, New Zealand, Japan, India, China, Malaysia and Chile and in 2008 is opening offices in Brazil and Malaysia

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