Our Mission: To deliver high quality professional development programs to technology teachers throughout the state of New York.

The New York State Professional Development Collaborative has been delivering professional development workshops and other programs to technology teachers in New York since its inception in 2003. Our leadership teams are comprised of dedicated technology teachers and college faculty from across the state—and our centers are located at Dutchess Community College in Poughkeepsie, Fulton-Montgomery Community College in Johnstown, Mohawk Valley Community College in Utica, and the State University of New York at Oswego. Hofstra University has provided administrative and pedagogical support through its Center for Technological Literacy.

This newsletter is intended to update you on the progress of our project in 2005—and to give you a glimpse of what we are planning for 2006.

~~Peggie Weeks
Principal Investigator
New York State Professional Development Collaborative
peggie.weeks@adelphia.net

This past year was a busy time for all NYSPDC partnering colleges. Workshops were held at Dutchess Community College, Fulton-Montgomery Community College, and SUNY Oswego; while significant development work was taking place at Mohawk Valley Community College in preparation for upcoming workshops. Thanks to all of our leadership teams for their tireless efforts on behalf of the NYSPDC! Read more about their efforts on the pages that follow.
NYSPDC @ Dutchess

Ellena Reda, Leah Akins and Jim O’Brien, the leaders of the Dutchess Community College NYSPDC team, have been busy this past year with professional development (PD) activities. They have connected with their local Teacher Resource Center—the Mid-Hudson Center—and are working with them to publicize workshops and other PD activities. Ellena, Jim and PI Peggie Weeks gave a presentation about NYSPDC in April at the annual national conference of the American Association of Community Colleges in Boston.

The Informed Design Workshops (held on two separate days in May & June) were attended by a small but enthusiastic group of technology teachers. Topics included Introduction to Informed Design & the FOCUS Pedagogy; Drying by Design; and the Robotic Arm activity. In addition to the design portion of each activity, facilitators emphasized the importance of the KSBs and had the participants spend a fair amount of time working through these as they modeled what would normally be expected of their students in working through the informed design process. Ellena Reda said that if they had not emphasized the KSBs as an integral part of these activities, they knew that their participants would have done what their students do—jump into the design phase without sufficient background information! The workshop also included a mini-lesson on Excel, and participants were sent home with handouts that could be duplicated for class use to aid their students with this program.

Another workshop conducted at Dutchess in July focused on Action Research¹. Six technology teachers who had participated in previous NYSPDC workshops were invited to attend this intense two-day workshop facilitated by Leah Akins, and by David Burghardt from Hofstra’s Center for Technological Literacy. Participants spent a significant part of the workshop revising Drying by Design to enhance the mathematics and science concepts presented in this module. They also focused on the methodologies for gathering data about their students’ understanding of these concepts. This fall, participants will be doing classroom research utilizing the DBD module—and in the spring will convene to discuss the outcomes of their efforts and to synthesize their research findings for presentation at a national meeting.

Future activities in the planning stage at Dutchess include a workshop on conducting web research, and a hands-on workshop that will serve as an introduction to circuits. There is also discussion of hosting a regional meeting of the New York State Technology Education Association (NYSTEA).

NYSPDC @ MVCC

Significant development has been the focus at Mohawk Valley Community College, with team leaders Bob Decker, Rick Stacy and Ed Zak busily preparing for future professional development workshops at the Utica campus. Activities in 2005 began with a

¹ Action Research in education is study conducted by colleagues in a school setting of the results of their activities to improve instruction. —Carl Glickman (1992)
Professional Development Mini-Conference in April. The focus of this meeting was on gathering data about teachers’ needs and introducing participants to the vast possibilities for learning and networking at MVCC. The conference was funded by the Mohawk Valley Tech Prep consortium. The leadership team learned from participants that a sustainable professional development program must meet local needs, and PD activities need to more closely match the curriculum. They also determined that the duration and frequency of events is critical—very few teachers are willing and able to attend long single events. The teachers in general appear to prefer one-day activities, with 2-3 workshops spread out over the school year.

Ed Zak has been actively involved in energy related workshops. He attended the NY Leadership in Energy Education Conference, NY Energy Smart Students program in July. In addition, Ed attended the full day Hydrogen Workshop conducted by NEED and NYSERDA and the KidWind workshop sponsored by www.kidwind.org. From these workshops, significant information valuable to the development of two new modules was obtained.

Ed has developed two new modules. The first module is Harnessing Sunlight. In this activity, students investigate how it might be possible to recharge the batteries used in countless electronic devices we rely on daily. First, the student explores what is needed to turn sunlight into electricity, and then, the types of batteries that can be recharged in this way are studied. The devices used to set up and monitor the rate of charge are also explored. The design challenge is to design and construct a device that utilizes sunlight to successfully recharge either nickel cadmium (NiCd) or nickel metal hydride (NiMH) batteries.

KSB titles in this activity include
1) Investigating Solar Cells
2) Investigating Cells and Batteries
3) Testing Solar Cell Output
4) Designing a Solar Battery Charger

The second module is under development and will be completed and pilot tested prior to the January workshop. This activity is based on the KidWind activities from the website, and the design challenge includes construction of a device that uses wind power to produce maximum current, voltage, or power output.

In support of this activity, Bob Decker has been working on some advanced topics that include a design activity to integrate the solar cell and battery knowledge gained in the earlier module to develop a stand-alone photovoltaic system. A second activity is underway that focuses on a system to maximize the output of a solar array through tracking. This system will utilize the commonly found Parallax Basic Stamp microprocessor. The intent of these activities is to allow teachers to extend the photovoltaic module into a longer activity focused on design.

Materials and supplies to support the module will be provided to participants, and example hardware for the advanced topics will also be presented.

Rick Stacy has been involved in the development of an online tutorial in Informed Design. This tutorial, which is to be completed by the workshop participants prior to the workshop itself, explores Informed Design as an approach to historical and contemporary inventions. Rick has gathered considerable engineering and technical detail and insights in this area from his discussions with contemporary inventors that will make this tutorial of interest and relevance to a wide audience. Participants...
will interactively explore the Informed Design process through these examples and will be asked to pursue and participate in an activity. Bob Decker is currently working with Rick and MVCC’s IT department to integrate this online tutorial into their server.

Upcoming workshops at MVCC include Photovoltaics on October 17, Wind Energy on January 11, and GIS/GPS on April 3.

Marty Waffle and Don Martel, the NYSPDC Leaders at Fulton-Montgomery Community College, have been working closely with the local Fulton-Montgomery Technology Education Association to design programs that are meaningful and relevant to the technology teachers in their region. They also found time to co-author a paper about NYSPDC, with PI Weeks, that was presented by Don and Peggie at the national American Society for Engineering Education Conference in Portland in June.

In June, a two-day workshop was conducted entitled “Those Ubiquitous Polymers: A Workshop in Product Design.” PI Peggie Weeks facilitated the workshop, with significant help and support from Marty and Don. The focus was on a design challenge that asked participants to think about the design and manufacture of a line of recreational products for the famous store REI. “Environmental friendliness” was one of the specifications of the design. The products that the design teams had to choose from were: an outer garment for snowboarders; an outer garment for cross-country skiers; and a sleeping bag for ultra-cold environments. In the Knowledge and Skill Builders (KSBs), participants learned about different types of polymers, structure/property relationships, and designing a polymer composite with environmental factors in mind. To prepare for the workshop, PI Weeks “piloted” a number of the KSBs with enthusiastic students from Bradford Central School as part of an after-school workshop.

The FMCC team is working on setting the date for a fall workshop coordinated with their local TEA members. They expect to have the first of three Spatial Information Technology Workshops in November, followed by two more in Spring 2006. Participants will gain not only GIS/GPS knowledge that they can use in their classrooms, but they will be given a GPS unit upon completion of the three workshops. Experts from FMCC’s NASA-funded Spatial Information Technology Center will facilitate the workshop.

We are delighted to welcome our newest partner, the State University of New York at Oswego! Mark Hardy and Rich Bush, faculty members in the Technology Education Department, are the NYSPDC leaders at Oswego.

Mark and Rich, with (more than a little) help from their friends and colleagues AJ Longware, Don Martel, and Don Murphy, are delivering high quality learning experiences for the pre-service technology education students at Oswego as well as professional development opportunities for in-service teachers from across the state. They kicked off the SUNY Oswego
NYSPDC efforts with a workshop for pre-service teachers on the Informed Design process and Drying by Design in April. They also made a presentation at the NYSTEA Conference in Buffalo that same month.

August was a busy month! Mark and colleagues delivered a series of Informed Design Workshops on Drying by Design, Liquid Crystals, Automated Controls, BASIC Microprocessors, and Networking: Getting Wired. Of the sixteen participants at the workshops, ten are opting to complete a graduate course at Oswego that gives them credit for the workshop experience. Additional independent study work will require the students to develop and implement an instructional unit using Informed Design.

Here are some “Golden Nuggets” from the NYSPDC Oswego Workshops:

- The component kits are a big hit. Giving the teachers the materials they need to take back to their laboratories to teach a unit was very well received. Leftover materials from unused kits were distributed to teachers. This is felt to have increased the likelihood that the units are being taught following the workshops. The vendors where materials were purchased were happy because they saw increased sales as a result.
- Rich Bush presented the Automated Controls workshop. He used Lego Mindstorms as the platform instead of the Fisher Technik. The workshop was a great success. Lego provided some basic materials and significant technical support for introductory activities to support the KSBs and curriculum module. Oswego anticipates running this one again. Rich is presenting a workshop at the Oswego Fall Conference on this module.
- Oswego charged a small fee for the summer workshops to help with sustainability and materials. This helped lock in the participants and eliminated the “no shows” experienced the previous year at Alfred.
- Advertising and getting people interested was a continuing problem. Oswego had a total of 16 participants for the summer workshop. One week prior to the workshops we had five people registered. This is a result of mailings, presentations to graduate classes, presentations at conferences, a web site, coverage in the newspapers, and arm-twisting. What works?
- The graduate credit hours had a significant impact on attendance. Ten of the 16 summer participants opted for following up with the graduate class. Their participation in the summer workshops was a result of the graduate credit. There should be a great deal of value gained by having the students go beyond being workshop participants to synthesizing Informed Design instructional units. The team is confident that this will increase feedback and the number of teachers applying the pedagogy in the classroom.
- Having veteran public school teachers as workshop instructors was invaluable. Many of the participants were new teachers. The interaction
was great. Many thanks to AJ Longware, Don Martel and Don Murphy!

Don Murphy is teaching a Creativity and Innovation class in the Rochester City Schools using multiple NYSCATE modules with Informed Design during the 2004-2005 school year.

The Oswego team plans to offer Drying by Design and Networking workshops to pre-service technology teachers during the 2005-06 school year.

...and a final bit of exciting NYSPDC-related news from Chris Tomasi at Alfred State College—a personal account of his time at Pittsburg State University, where he is working on his graduate degree:

August 2005: I have returned from the great state of Kansas, and wow, what an awesome experience! I have been a student for seventeen of the last nineteen years at a host of universities in western New York. During this time I have always pursued my education part-time and as a commuter, which resulted in a lack of any ownership in any academic institution that I attended. Having said that, I could not have guessed what a truly rewarding experience "going away to school" would be, even though it was only for seventeen days. I am certain that being so far from my family only served as a catalyst to imprint what is truly important in one’s life. I have never felt so much pride in a university as I have for Pittsburg State University. They have an incredible campus, superior faculty, and an outstanding technology facility.

The workshop, officially titled Adventures in Robotics I & II, was equally awesome. A total of 85 children ranging in age from 8 to 14 attended. There were several electrical engineering graduate students that assisted Professor Randy Winzer and myself in facilitating the workshop. More importantly were the principles of Informed Design and how well the students took to the concept. After some team building exercises, I facilitated two 30-minute lectures/discussion on how the students should use the principles of Informed Design to accomplish a variety of robotic design challenges they were faced with. It was truly inspiring to see a majority of the students rise to the challenge and work effectively in teams. Some students used the Lab view style "RoboLAB" Software to program the LEGO RCX, while others worked on various chassis, frame, and suspension components.

I look forward to sharing more about the workshop and in the excitement of future work with Pittsburg State University. They certainly are "Kindred Spirits"…

Chris and PI Weeks have submitted an abstract to the American Society for Engineering Education with the intent of publishing and presenting a paper at next year’s ASEE Conference in Chicago.

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