

## **Hewlett Packard Technology for Teaching Grant Initiative 2004 Fall Term Report**

**Date:** February 27, 2005

### **Investigator Names:**

Dr. Richard Warner  
Teri C. Dowdy, GISP  
Dr. Steve Workman  
Dr. Robert Fehr  
Dr. Carmen Agouridis  
Douglas Carr, BAE IT Manager

### **Reporting Period:**

August 24, 2004 – December 31, 2004

### **Progress Report:**

Team members have changed over the course of the Fall term. As of July 2004, Lexington Community College is no longer part of the UK university network. However, Ryan Kelly will continue to keep his Tablet PC at LCC and will have access to the grant equipment, but for future reports, he will not be included as a grant team member. Dr. Carmen Agouridis and Doug Carr have been added to the grant team. Dr. Agouridis has taken the lead as instructor for our BAE 599 "Stream Restoration" course and is developing modules for Tablet PC usage in that course. Mr. Carr is the department's IT Manager and is leading the effort to integrate the Tablet PCs into the department IT infrastructure.

During the Fall 2004 term, our Tablet PCs were in great demand! Ms. Dowdy's BAE 599 class "GIS Applications in Water Resources" was successfully taught using only the Tablet PCs rather than the standard computer laboratory classroom. Except for two modules developed and taught at Lexington Community College, the other classes into which modules are being incorporated are courses that are offered in the spring semester. This gave Ms. Dowdy the opportunity to give her students more access to the Tablet PCs outside the classroom. Students not only used the tablets during class time for exercises and labs, but were also allowed to "check-out" equipment for extended periods of time to work on term projects and presentations required by the class. At the end of the semester, the students gave unanimous endorsement of the Tablet PCs – even voicing regrets that they had to return the equipment! The only negative comments involved "inconsistent" wireless network coverage, getting used to the stylus and GIS software glitches.

Ms. Dowdy has taken the lead in grant equipment scheduling, faculty training and maintenance and updates. Drs. Workman and Agouridis worked with Ms. Dowdy while preparing their modules. Dr. Workman will be using his Tablet PC for lecture presentations in his BAE 437 "Land and Water Resources" course. Using Microsoft One Note, Dr. Workman has been preparing his course notes in advance. He will convert them to PDF format as the course progresses and post them online for students to utilize in class and for review. By providing the students with the notes, their attention can be on the class discussion and not on the process of note taking. He also hopes this methodology will be a time savings that can be translated into

field trips. In addition, several in-class exercises will involve the students using the Tablet PCs to solve problems. Dr. Agouridis is also preparing ways to incorporate the Tablet PCs into her "Stream Restoration" course. She plans on several in-class and (depending on weather) an outdoor class module related to the subject. She is also planning on having students work in groups to prepare their mid term project using the Tablets in a collaborative setting.

Ryan Kelly taught a GIS/GPS data collection module where students simulated a field data collection project, utilizing Trimble GPS units and Tablet PCs loaded with ArcGIS software for data analysis. Ms. Dowdy also incorporated the Tablet PCs into her "Advanced GIS" course at Lexington Community College. Students were able to compare and contrast GIS platforms between the standard desktop, the Tablet PCs and HP iPAQs loaded with ArcPAD software. They were also exposed to methods for interfacing the devices together by making use of the integrated Bluetooth Technology in the Tablet PCs and the iPAQs as well as setting up ad-hoc networks to communicate with the desktop units.

From the time the grant equipment was received in the department, the grant team realized the importance of a close working relationship with our IT manager. Doug Carr is now an official team member bringing his technical expertise to the team. He is currently working to improve the department's wireless availability and security and is also making great inroads on imaging and upgrade issues.

The fall has continued to see non-grant team faculty in the department requesting to use Tablet PCs as they are available. Dr. Rich Gates, BAE Department Chair uses one of the grant tablets when he travels to national and international conferences for note-taking and presentations. Tom Priddy, Director of the Ag. Weather Center, has utilized the equipment to preview our EDEN network capabilities at several large conferences around the state. Emergency Management teams have requested demonstrations utilizing the Tablet PCs and many expressed interest in learning more about the equipment and acquiring this technology for their response teams. In addition, other faculty members have used the Tablet equipment for outreach presentation purposes. One excellent example is Dr. Joe Taraba's monthly series of presentations on Air Emissions to various extension groups around the Commonwealth. Using the Tablet lab equipment, he can take the information to the agents and their constituents and have better audience participation than by presenting the same materials on campus where fewer participants can attend. Dr. Don Colliver will be using the grant equipment in an unscheduled, new course this Spring on Residential Housing Energy Design. This small design course uses EPA developed software to analyze building energy efficiency during the design phase. Taught in a non-traditional workshop setting, the Tablet PCs and projector equipment will allow Dr. Colliver to incorporate interaction and flexibility into his course. Another non-grant team faculty member has developed an interactive flash media presentation on a biodiesel research project. The Tablet PCs have allowed Dr. Crofcheck to take this interactive presentation to conferences and educational meetings and effortlessly display the application to her colleagues and other in attendance.

In addition to the development and presentation of course modules by team members Teri Dowdy, Steve Workman, Ryan Kelly, Carmen Agouridis and Richard Warner, presentations and off-site workshops were conducted during the fall semester. Ms. Dowdy presented a well attended session at the Annual Kentucky GIS Conference held in Lexington September 29<sup>th</sup>-30<sup>th</sup>, 2004. She used a wireless connection to the conference's AV equipment with her Tablet and delivered her PowerPoint slides and live demo completely with the Tablet PC's wireless capabilities. The presentation was so well received, that extra time had to be added to the

session to accommodate the questions she received! At this same conference, she also prepared and lead a ½ day workshop on GIS and hydrologic modeling, using the Tablet PC equipment for the participants. A BAE department seminar was presented where Ms. Dowdy and Dr. Fehr discussed the equipment's capabilities, their use in departmental courses and how they can integrate with the department's wireless network.

### **Impact:**

Team members are finding the grant equipment a necessity on a daily basis, not only for proposal related tasks. During the fall semester, all 19 BAE faculty members have had the opportunity to use and evaluate a Tablet PC for use in their classrooms and research projects. As team members (and other faculty) have attended meetings (university and professional) outside the department, they take their Tablets along. The Tablets always draw attention and intense interest. Faculty are taking full advantage of the Tablets' versatility and extreme portability as they travel, replacing larger, bulkier laptops. Our IT manager has worked hard to assist with software installation, network issues, and security issues – insuring that the Tablets are successfully integrating into our department's IT infrastructure. BAE's 80+ undergraduate and graduate students have the opportunity to use the Tablets in the various course offerings, seminars and workshops that have taken place over the semester. At LCC, approximately 50 students have been exposed to the equipment through the GIS courses taught by Mr. Kelly and Ms. Dowdy. Ms. Dowdy's GIS course had 12 students enrolled for the fall semester. She has also taught several GIS workshops utilizing the Tablet equipment. Her presentations and workshops have impacted another 100 people. Dr. Taraba's presentations have reached an estimated 175 people; Dr. Fehr's extension efforts – another 150 people; Dr. Crofcheck's demos – 100 people; Mr. Priddy's EDEN network demos – approximately 200 people. Informal meetings and casual contacts discussed at our team meetings include exposure of the grant equipment to another 200-300 people!

During the upcoming Spring term, we anticipate approximately 15 students in "Land and Water Resources", another 17 students in "Stream Restoration" and approximately 5-10 students in "Residential Energy". Presentations and workshops are anticipated to reach an additional 300 people.

### **Presentations and Publications:**

Dowdy, T., 2004, "Tablet PC Technology in the GIS Classroom" – KY GIS Conference, Lexington, KY, September 28-30, 2004.

Dowdy, T., 2004, "GIS and ArcHydro Workshop" – KY GIS Conference, Lexington, KY, September 30<sup>th</sup>, 2004.

Kelly, R. "Tablet PC Technology in the Classroom at LCC" – LCC Faculty Workshop, Lexington, KY, October 1, 2004.

Fehr, R. and Dowdy, T., 2004, "Introducing the Tablet PC in BAE", BAE Departmental Seminar Series – Fall 2004.

### **Scheduled:**

Dowdy, T., "Mobile Potential - Tablet PCs in the Classroom at UK" – Presentation to the UK Teaching and Academic Support Center (TASC) – April 2005 (date to be arranged).

Fehr, R. and Dowdy, T., "Integrating Mobile Technology in the Classroom at UK – a Hands-on Workshop for Faculty", College of Agriculture Seminar – May 2005 (date to be arranged).

Dowdy, T. "Take the Class with You – Mobile Technology in the Classroom", ESRI Educational User Conference, San Diego, CA, July 26-27, 2005.