Supporting University Faculty in Exploring and Adopting Handheld Technologies: A Study on Use and Impact

**Objectives**
The purpose of this study was to discover what, if any, impact a statewide university faculty professional development initiative (ASCD, 2002) had on the participants’ subsequent activities. Specific questions addressed included 1) Will university faculty, from various disciplines, find effective uses for handheld computers, when resources are provided for this technology? 2) What types of uses will be adopted? (personal, classroom, discipline-specific, etc.) 3) Is student learning impacted as a result of such use? In what ways? 4) What key elements in the professional development design and implementation supported these changes?

**Perspective**
Various interest groups, including state and national accreditation bodies, continue to expect that students (K-16) learn to effectively use computer technologies (ISTE, 2004; Swain & Pearson, 2002). Tremendous resources have been dedicated to equip teachers, as they attempt to integrate a variety of digital technologies into their classrooms. The recent outcry for ubiquitous computing has led to a focus on handheld devices in schools (Alexander, 2004; Garthwait & Weller, 2005; Rose, 2001; Van 'T Hooft & Swan, 2004; Zucker, 2004). While small camps of users have demonstrated effective integration strategies with these units, adoption on a larger scale has not yet materialized. For K-12 teachers to embrace handheld computers for teaching and learning, they must experience this phenomenon firsthand.

One of the venues where this type of awareness could occur would be the university campuses where teacher candidates acquire their undergraduate and graduate degrees. If university faculty are provided with handheld computers and given basic instruction on how the devices can be used, will they find the instruments to be of value in their personal and professional lives? How will these discoveries, if they occur, impact the students in their college classrooms? The inquiry presented herein addresses these concerns.

**Modes of Inquiry**
This study involved a case study of one phase of professional development offered in a statewide initiative on handheld computers. The “trainer” and a sampling of her “trainees” were interviewed concerning their experiences as a part of the XXXX PDA Project. The interview protocols were determined by a select panel; this panel was comprised of members of an external educational agency, faculty regional trainers, and the project director. Each individual interview session lasted approximately one hour. These sessions were audio and video taped. Summary transcripts and video excerpts were created and sent back to the interviewees for review. Transcripts were also forwarded to the
external educational agency facilitating the statewide inquiry. In addition to the interview data, artifacts were collected from interviewees, including samples of their work with the handheld devices and documents developed from their experiences with the Palms. Finally, the research became a participant observer for one workshop series and collected data during those sessions.

Interview and observation transcripts and media were analyzed, using qualitative software to code elements that related to the questions of the study. Additional coding was done, as other themes emerged. Researchers shared the coding web and developing themes with participants, and incorporated this feedback into the researcher’s final report.

Data Sources
This particular case represented one of six regional initiatives in which a trainer worked with faculty groups across various institutions of higher education. Each trainer conducted workshops and provided faculty support for a different cohort of faculty members each semester. Over a two-year period, three cohorts, with ten participants in each, participated in the Palm Project. The regional trainer for these cohorts was the trainer interviewed for this study. A purposeful sampling of six participants from the thirty regional participants also was interviewed. The participants interviewed represented all three training sessions, spanning a two-year period. In addition to the interviewees, various documents and digital files were collected that were related to the training sessions or faculty uses of the Palms after the training.

Results and Conclusion
Through this inquiry it was determined that faculty can and do learn to use handheld computers within a relatively short time frame (one semester), when given a support system. Most begin with personal/organizational use (i.e. address book, calendar), but many expand their use to more discipline-specific and classroom-related enterprises. For example, the biology and physics professors began using their Palms for onsite data collection; they taught students to do this, as well. One visual arts professor had her students use the Palm digital camera to capture specific processes in the art room in order to create guides for future reference. Perhaps because the handheld computer is such a versatile and portable technology, faculty members were able to adapt the devices to their particular areas of expertise.

Faculty members also expressed the belief that student learning was impacted as a result of integrating the handheld computers into their classroom environments. First, they have evidence that students are impacted through the modeling of technology use by faculty. Students paid keen attention to the foreign language instructor that presented a PowerPoint presentation using only the Palm and a small connection device. They asked many questions about this process and expressed a desire to learn how to use the handheld computers for language study. Additionally, faculty found students to respond to incorporating
the Palms in their coursework, seeing student learning gains as a result. The handhelds were seen as a way to increase productivity in accomplishing learning tasks.

Finally, participants expressed very positive sentiments regarding the trainer and the training they received as a result of the project. The overview of hardware and software, the opportunities to experiment, the availability of the trainer to make “house calls”, the ability to borrow a set of handhelds for classroom use, and the sharing of projects within their professional development group combined to give the participants comfortable and powerful experiences in learning about handheld technologies.

Over the two-year period, the faculty members interviewed continued to use their handhelds for personal, professional, and classroom needs. Several were ready to upgrade to newer models, willing to use their own funds to purchase this next device.

**Educational Importance of the Study**

In fitting with the AERA 2006 theme, this study impacts the public good on several levels. First, a tension exists between the desire to equip students and teachers with the latest computer technologies and the lack of financial resources available on many school campuses. Handheld technologies are a relatively inexpensive solution for providing computational power to all teachers and students. If, in fact, these devices can effectively be used to support various learning activities and a wide range of subject areas, then investment in them may well be warranted. In addition, this study provides a detailed look at an approach to professional development that yielded dynamic classroom results. If these types of experiences help to ensure that faculty members are tech savvy and modeling effective uses in the classroom, then society’s interest in preparing students to use these technologies in the future is being satisfied. Both are powerful possibilities.

**References**


