

Palming Around in Ohio Higher Education: A State Implementation Plan

Dr. Colleen Sexton, Assoc. Professor, Teacher Education, Ohio University
College of Education, sextonc@ohio.edu

Dr. Teresa Franklin, Assoc. Professor, Educational Studies, Ohio University
College of Education, franklit@ohio.edu

Abstract

The preparation of future teachers is no longer a reflection of just the Colleges of Education. All faculty members within a university must model effective teaching practices, including appropriate uses of technology, so that future teachers will value its use in the K-12 classroom. Ohio has embarked on a statewide initiative to support Colleges of Arts and Sciences as well as Education faculty in the use of handheld technology. Data was collected through field observations, faculty journals, and emails; analyzed for recurring themes; and categorized into four areas: management, instruction, research, and transferability. Faculty experiences using the Palm M130 within those four categories are examined in this paper.

Introduction

In the past, Colleges of Education have assumed sole responsibility for preparing future teachers. The quality of courses taken in the Colleges of Arts and Sciences or the Humanities never came into question when teachers were ill prepared to handle the daily routines of running a K-12 classroom or when children were not meeting state expectations for achievement in the various content areas. With current federal and state accountability issues, a larger lens is being used to scrutinize the preparation of teachers. Colleges of Education are looking toward their colleagues in the Arts & Sciences, Humanities, etc... to share the responsibility of teacher preparation through the modeling of effective instruction. The research shows that teachers will model the way they were taught at the college level, regardless of the practices shared through education courses. Preparing a future cadre of teachers that will implement standards-based, inquiry rich, technology enhanced lessons will require experiences with these types of lessons throughout their college career.

The State of Ohio Board of Regents (OBR) believes that the preparation of future K-12 teachers is the responsibility of *ALL* faculties within a university. To that end the OBR has embarked on a variety of initiatives designed to improve the quality of teaching at the college level, predominantly in the areas of mathematics and science. This paper will provide the research findings of one such initiative, *The Ohio Palms[®] in Higher Education Project*, designed to support the integration of handheld technology into higher education. This initiative, a partnership among Colleges of Education, Arts and Sciences, and the Ohio Board of Regents in universities throughout Ohio, form the basis of the data collection.

The research seeks to determine ways in which faculty in higher education communities can use handheld technology (Palm[®]) to integrate technology into teacher education programs. The following research questions were established using the common overview of higher education as having a mission of teaching, research and service. A fourth question was added to the list to determine if faculty were able to transfer what they know about desktop computers to the use of their handhelds.

1. *Management:* Can the Palm[®] help faculty better organize and plan their coursework and time?
2. *Instruction:* What sites do faculty download to the Palm[®] and what is the application of the site to the presentation of classroom instruction? How does the use of class sets of Palms[®] impact classroom instruction? How do faculty use the Palm[®] to prepare for their classroom instruction?
3. *Research:* What tools and other software do faculty use with the Palm[®] to gather and analyze student performance? Does the Palm[®] provide opportunities to faculty for self-improvement through the assessment of student work?

4. *Technology Integration and Transfer:* Are skills from the Palm[®] transferable to the desktop and vice versa. Are faculty able to develop lesson plans and implement the use of Palms[®] in their classrooms? Are faculty able to use class sets of Palms[®] to promote the use of emerging technologies with the students in their classrooms?

Methodology

Participants. Two hundred faculty members from Colleges of Education and Colleges of Arts and Sciences in Ohio participated in this study. The faculty are from departments such as Educational Studies, Teacher Education, Counseling, Science, Mathematics, English and Humanities and teach a wide range of subjects.

Procedures. All faculty participating in *The Ohio Palms[®] in Higher Education Project* attended a two day training face-to-face session where they received a Palm[®] m130 handheld device, a keyboard, carrying case, a Veo[®] Camera for the Palms[®], and all pertinent software such as Documents to Go[®] – which includes an Excel Lite (a version of Excel), Microsoft Word and Presentations to Go (compatible with PowerPoint). During the first day of the training the faculty learned to use: the hard buttons – date book, address book, to do list, and memo pad; the soft buttons – launcher, menu, calculator and find; five ways to enter text; the basics involved in each of the buttons, e.g. how to enter an event into the date book; beaming; digitizing; hot syncing; and troubleshooting e.g., battery life issues. A third session was held virtually in some regions of the state and as a face-to-face meeting in others, to discuss the results of faculty use of the Palm[®].

Faculty were encouraged to bring their own laptops to the training sessions so they could be guided through the steps of loading the corresponding software onto their personal computers, and on how to load the Documents to Go[®] and keyboard software. Between sessions one and

two, faculty were encouraged to try as many features as possible and keep a journal of their experiences. Individuals were encouraged to email presenters any questions or problems they had between the two meetings so that problems could be addressed immediately.

The second day of training focused primarily on the use of probeware with the handheld technology. The Vernier scientific probes were used, but both the Vernier and ImagiWorks interfaces with corresponding software were demonstrated in the training session. The participants explored the differences between the two interfaces and their corresponding software during the second training session. On the second day of training, the participants received and learned to use the Veo[®] camera. At the end of the second session, the participants were charged with keeping a journal on the ways in which they used their Palm[®] and to develop a lesson for their particular content area that would require their college students to use the Palm[®] in their class. A class set of Palms[®] with the interface and probeware was made available for loan to the college faculty. Either a virtual or face-to-face third session was held with project participants to share the results of their Palm[®] integration efforts.

The major data collection methods adopted in this study were a participant demographics survey and direct observations. The researchers observed the faculty when they used Palms[®] within their classroom and outside of the classroom (often in committee meetings). Data collected included journals from the participants, field notes, e-mail messages, lesson plans, syllabi and other classroom documents. The faculty participants wrote a weekly journal to reflect on their use of Palms[®] for professional and personal purposes. They also reported on the difficulties they found in their Palm[®] use. The faculty emailed their questions and plans to the researchers, and exchanged ideas with one another about Palm[®] features, purchase, and

integration possibilities. Interviews obtained through a random selection of the participants, were conducted to examine the continued use of the Palm[®] over time.

Data Analysis. This study adopts qualitative methods of grounded theory to examine the phenomenon of bringing an emerging technology into the higher education classroom. Themes emerging from the data were compared with the three themes identified as the focus of higher education. Journals, field notes, and e-mail messages were coded and synthesized to determine if the themes that emerged could be matched to the model. Quotations of the data serve as the basis of the emerging themes, and also add to the richness of the context for the observations.

Results and Expectations

Data coding and synthesis yielded interesting results concerning faculty use of the Palm[®] for the purposes of management, instruction, and research. Though reported to a lesser extent, glitches/barriers to Palm[®] use were also included in the results. Some preliminary findings on the fourth question about *Technology Integration and Transfer* are included in the results below as participants are to date, still sending examples of lessons implemented using the Palms[®].

Management. The faculty participants reported that they used their Palms[®] primarily for management purposes. Faculty used their Palms[®] to arrange appointments, develop yearly calendars, to-do lists, schedules for meetings, due dates, plans, and also special occasions such as birthdays.

Another common use of the Palm[®] for management was note taking. Faculty reported that the Palm[®] was very useful when attending professional conferences and meetings such as annual conferences of American Educational Research Association, International Reading Association, etc. One faculty described her experience of using the Palm[®] for arranging information:

I find more and more that all the information I may need for any given meeting, event, or other need is now stored in my Palm. The convenience is certainly worth it alone. I do, however, still feel the need to go to meetings with a pen and paper, although this morning I found that I did not use my pen even once. I have never been a purist when it comes to theory or adaptation, so I suppose I should not be surprised that this situation is any different.

Faculty reported using the Palm[®] when traveling to conferences to save driving directions, and some used the Palm[®] to store the Excel file of travel reimbursement so that expenses can be added to the reimbursement report immediately after the money was spent for a professional event or travel. One faculty member, while reflecting on the Palm[®] as a management tool stated:

The palm continues to be a tremendous part of my personal and professional management. I have downloaded driving directions for internship site visits, stored information about students and current projects, and most recently cleaned up and organized my to do list functions. I spread out my palm and keyboard last week while my car was having work done, and realized how portable all of my work really is. The down side to the portability is that I constantly feel connected to work, as though there is little break from personal and professional functions.

Some faculties reported the remarkable use of the Palm[®] for storing personal information in the form of a business card. One faculty talked about meeting people at a conference and beaming each other business cards to exchange personal information. Table 1 below represents a summary of the multiple uses faculty throughout Ohio found when using the Palm[®] as a

management tool. The occurrences represent data from faculty participating in the training offered through the authors of this article.

Table 1: Management

Use	Occurrence
Appointments or calendar	16
Taking notes	13
Document students' performance	7
Sending and receiving emails	5
Record students' personal info	3
Store driving directions or travel reimbursement	3
Personal contact info (business cards)	2
Total	49

Instruction. Quite a few faculties reported using the Palm[®] for documenting students' performance, students' grades, student attendance rates, submission of homework, and to send and receive student email. One faculty wrote about his use of the Palms[®]:

I have produced an Excel sheet on my desktop and synched it to the Palm[®]. My intent is to use this as a form for evaluating student work during the next three weeks as science demonstration lessons are taught. I wish to test the approach for enhanced productivity and have designed a simple format to automatically calculate student scores on specific criteria and to permit me to enter word processed notations for purposes of coaching students toward a higher level of performance.

Another faculty member, when talking about his use of the Palm[®] while observing student teachers stated:

Also, for the most part, the only briefcase I carry to do student teacher observations is the palm-plus-keyboard. No more messing with a briefcase, paper folders, note

pads, etc. My hands are free as I walk through a school: palm pilot in one pocket and keyboard in another. I sit at a desk, set up the palm and keyboard and away I go. (Kids were very much interested in this technology.)

Faculty also reported plans of using the Palm[®] to store and arrange students' personal information such as name, sex, phone number, email address, and so on. The students' personal information included for some faculty a student's general academic and behavior information.

One approach of using the Palm[®] for instruction was reported to be that of documenting students' experiences. Some faculty gave their students Palms[®] to use in the classroom, and the students or the instructor could store findings, data, and plans on the Palm[®]. One faculty discovered that *"The students seem to be able to document reactions to their group experiences in a more timely and accurate manner with these instruments."*

Another faculty member borrowed the class set for use with students in her experimental design class. She expected the students to use a piece of software she downloaded from the Internet for the Palm[®] called PiCoMap. She teamed her students, giving them the charge of creating a concept map to include all aspects of their particular experimental design. She expected them to use the Palms[®] in many of the ways she did while they were in class. What that professor discovered by the end of the course was:

The students have completed their use of the Palms[®] in the experimental design. Their use over the last few assignments dwindled. I have asked that each provide a written reaction to their use of the palm for your research needs, which may provide insight into why they stopped using them. The Palms[®] can facilitate their out of classroom use, although I am not sure they are convinced of their utility.

The faculty reported that students were asked to write journals in class by using Word-to-Go function. Some reported having students writing journals after class to reflect on their learning experiences. One faculty made a plan for the classroom of educational counseling by arranging activities of using Palms[®] for writing journals in class and sharing understandings. The following is part of the plan for a project of theoretical application tracking:

1. Key concepts and identifiers of the theory can be shared via Palms[®] (i.e., beaming) during class time each week.
2. Students will observe and participate in groups as usual.
3. Immediately following the group, students will take 10-15 minutes to use their Palms to “journal” observations regarding theoretical application.
4. Students will return to the following class and share observations with one another.

Beaming may be utilized once again to help students see the different applications of theories in their respective groups.

The Palms[®] were also reported to be used for field trips. Faculty asked the students to use the Palms[®] to collect data and record findings while they are on a field trip. One faculty wrote in an email:

Okay, here's what I want to do - let me know if this can fly. I am teaching a class on campus environments this quarter and I have 16 students in the class. We are doing field trips to 3 other colleges and taking a fresh look at OU. Our first trip was this week to Marietta College. For the Hocking trip or the OU trip (May 7th and May 14th respectively), I would like for volunteers from the class to take the field notes using the Palms. Would this work? Can the volunteer students get the Palms a couple days in advance so that they can get comfortable using them? I

have one student who's already asked me about this since I announced the possibility of it at the start of the quarter.

Another way of using the Palm for instruction was reported to be recording class observations by the instructor for student assessment. One faculty described some possibilities of using the Palms[®] for instructional application. One possibility he suggested was to “*Use the Palms[®] with tutoring observation, having tutoring mentors record observations as they go from student to student*”. Another faculty reported using the spreadsheet for higher-level experiments:

My goal is to load files onto the Palm that will permit me to record class observations about student performance and generate more rapid qualitative and quantitative feedback for students. I may also experiment with my own spreadsheet used for recording student grades and seek Palm support teacher grade book software, but I would rather find some utilities that are more specific to science teaching or statistics.

Other uses for instruction reported by the faculty include storing files for assignments. Faculty expressed their appreciation of the portability of the Palms[®] and reported their exciting discovery of using the Palm[®] to store the assignment file, instead of carrying heavy stacks of paper around.

Calculators were used in classrooms of educational statistics, mathematical education, and so on. Students used the Palm for exercises, and the instructor found it easy to use to verify students' counting results.

Other instructional uses reported are included in Table 2. Again, the categories are from analysis of trends from project participants across Ohio. The count reflects the actual responses from the participants in the authors' training sessions.

Table 2: Instruction

Use	Occurrence
Document Students' Experiences	7
In-class or after-class journals	7
Field trip	4
Record class observation	4
Store files for assignment	3
Calculator for class activity or assessment	3
Conceptual mapping	2
Spreadsheet for magic squares	1
Clinical practice and internship	1
PowerPoint presentation	1
Peer editing	1
Beaming for assessment	1
Collect and record data	1
Total	36

Research. Faculty members reported using the Palms[®] for the purpose of research. One major use was to edit presentation files for conferences. The faculty appreciated the portable feature of the Palm[®] and liked using the Palm[®] to store journal submissions for editing anywhere and anytime. Quote from a professor's journal:

I am finding more ways to use this Palm[®] because of it's added features. As an example, I recently traveled to California for a conference. I downloaded several documents, including 2 presentations to Slideshow to Go and 2 manuscripts to Word to Go. This enabled me to have the documents on hand when working with colleagues from other institutions so that we could make edits on the spot.

The professors reported using the Palm[®] to keep track of the literature for their research project and to list search topics as they thought of them. Other uses for research included accessing the Internet, conducting interviews, downloading manuscripts for editing and sharing with co-authors. Professors from one of the Colleges of Education reported using the Palm[®] to

keep track of the literature for their research project. Some used the Palm[®] to list search topics, and others used it to begin a reference list for the literature review. One faculty reflected his use of the Palm[®] for research by stating, “Search topics are listed so that I may discuss or do literature searches at home or when interacting with other educators.” Another faculty wrote:

My most recent encounter with the research function was a brainstorm that occurred while I was reading an article away from my home or office. I was able to whip out the Palm[®] and quickly enter in ideas for current and future research projects. Without the Palm[®] I might have used a piece of paper to jot down ideas, and I am tempted to say I would be less likely to look for it later. The Palm[®] allowed me to save the thoughts and transfer them to my electronic research files and to begin a reference list for the literature review.

Table 3 identifies the common *research* uses the faculty throughout the state discovered for the Palm[®] hand held technology. The numbers represent the frequency upon which faculty participating in the authors’ training sessions identified these common uses.

Table 3: Research

Use	Occurrence
Edit presentation files for conference	6
Keep track of literature	4
Record class observation	4
Access Internet	2
Conduct interview by using PiCoMap	1
Download manuscripts for editing or sharing	1
Jot down thoughts for papers	1
Total	19

Barriers. Faculty reported that it took some time for them to start using the Palms[®] and then felt fascinated by its versatile functions. Synching problems with the desktop computer were the

most common problem or when working cross platforms. One professor shared his experience of the synching glitch with the researchers in an email:

As you may recall, as a Mac user I had difficulty getting the Palm[®] to synch to my computer. The problem seemed to be an original user already entered into the Palm[®] and synched during class use, and my Palm[®] and computer would only synch to an OUED user rather than me. After several steps, the Palm[®] was "wiped clear" and the applications were reinstalled. Normally this would be a rather simple process, but the directions for a Mac user vary from those of a PC user and the variations had to be sorted through. The Palm[®] does now synch with my Mac.

Other glitches include losing data due to running out of memory, or the act of resetting. Keyboards sometimes refused to work, and changing human habits to remember to charge the Palm[®] in the same way we now charge our phones. Small screen for “old eyes” was also mentioned as a barrier. Table 4 summarizes the problems participants encountered throughout the state. As with the other tables, the number of occurrences simply reflects those that participated in the training sessions offered by the authors.

Table 4: Glitches/barriers

Type	Occurrence
Synching glitches	6
Used to old ways of paper and pen	4
Screen is too small	2
Losing data	2
Need time and patience	2
Good software cost money	1
Keyboard does not work	1
Charging glitches	1
Not friendly to Mac	1
Total	20

Faculties reflected that one major barrier to their use of the Palms[®] was the tendency to go back to the comfortable old ways of using the paper and pen. One faculty wrote about her use of the Palm[®] in the beginning:

I now need to start using it (the Palm[®]) on a regular basis rather than writing everything down on paper. I think that's the hardest transition because you just don't remember.

Implications for Practice

While faculty indicated some common barriers found in the adoption of new technologies, no faculty were willing to give up their Palms[®]. Indeed, the question about the transferability of skills from desktop to Palm[®] and vice versa was clearly answered as, “Yes, they are!” The convenience of use and portability of the device made it very applicable to their classroom practice. Several faculty members suggested that students should be required to come to college with such a device and a keyboard. The use of the Palm[®] to take field notes and classroom observation was noted to be tremendous. Faculty suggested that a future practical application of the Palm[®] would be in the assessment of student teachers in the field. Teacher Education faculty were most impressed with the portability and could see the Palm[®] as a device that could be easily adapted to their clinical work in the university. Science faculty are still in the process of implementing lessons using the scientific probes with the Vernier interface in their classes. Current questions arising from science integration typically deal with the calibration and accuracy of the instruments. However, some have actually developed lessons to compare multiple ways of collecting scientific data to determine which tools provide more accurate data; and as one participant stated, “*perhaps what some may claim these probes lack in accuracy they more than compensate for in their ability to immediately create a visual representation of the*

data collected, making it easier for the student to gain a conceptual understanding of the content.”

Perhaps the most interesting result of this research was that the faculty did embrace the change of using a handheld device over paper and pen in many cases. The excitement generated by this small handheld device was surprising and in reality refreshing! Faculty became excited and in some cases empowered by the technology – a worthy goal for technology!

Keywords: Palm, handheld computers, higher education, teacher education