

Creating a Professional Development Program to Support a Handheld Computing Initiative

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ABSTRACT

Indiana State University is providing handheld computers to every faculty member in its School of Education. What started as a small pilot program a year ago has grown into a project that is challenging the way faculty are thinking about technology and its application in the teaching and learning process. In addition, a substantial pool of handheld computers has been created for faculty to use with students in the classroom. Recognizing that a strong professional development program was needed to support the handheld computing initiative was instrumental to the initiative's success.

This paper centers on the professional development program that was created to support the initiative's efforts. Initial distribution of the handheld computers took place at departmental meetings. A basic overview of the handheld computer was given at that time. Seven different workshops are continually offered as well as one-on-one training opportunities. Once a month, a brown bag lunch and handheld computer brainstorming and idea exchanging session is held with interested faculty and students. In addition, guest speakers have been brought to campus to speak on issues related to handheld computing.

Categories and Subject Descriptors

K.6.1 [Project and People Management]: Training

General Terms

Management, Documentation, Human Factors, Standardization.

Keywords: Handheld Computing, Faculty Development, Training, Technology Training, Documentation Development.

1. INTRODUCTION

There is a growing acknowledgment that successful professional development programs articulate the needs of the participants. This requirement to attend to the needs of faculty member was at

the forefront in the construction of a professional development plan to support the Indiana State University (ISU) Handheld Computing Initiative.

The ISU Handheld Computing Initiative provided a handheld computer to every faculty member in the School of Education. ISU is a doctoral granting public institution with a student population of 12,000. The School of Education has 3,800 students involved in teacher education or affiliated with its graduate programs. A total of 88 faculty members were invited to participate in which 84 accepted the invitation.

This paper centers on the professional development program that was created to support the initiative's efforts. The professional development program was developed in conjunction with the implementation strategy of the handheld computer initiative.

2. OVERVIEW OF THE INITIATIVE

In creating an implementation strategy for the handheld computing initiative, it was decided to start small and experiment with the new technology. This strategy led to the development and execution of an initial pilot. In developing a coherent implementation strategy to build on this initial pilot, a three phase approach was developed to help facilitate faculty adoption of the handheld computing technology. These phases were labeled as:

- Pilot (initial);
- Wider Adoption; and
- Expanding Value and Importance.

Formal assessment marked transition points between each phase. During the initial Pilot phase, experimentation with a wide variety of hardware and software was encouraged to help define and document hardware and software standards. At the same time, others on the implementation team organized and built a technical support structure and developed a systematic professional development program to support faculty and staff use of the technology later in the wider adoption process. Before the project moved forward to the Wider Adoption phase, the implementation team formally assessed whether the project was ready to progress to the next level. Each phase contains objectives that needed to be met (see Figure 1, for a visual depiction of objectives that align with each phase).

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During the Wider Adoption phase it was important for the implementation team to promote the project to the wider school community, implement and tune the technical support structure, and deploy and adjust the professional development program. As this phase progresses forward some aspects of the project move to the final phase, Expanding Value and Importance. This phase is being used to enhance the overall handheld computing initiative through the exploration of peripheral and application enhancements, publication of project successes, and the institutionalization of project efforts. When potential new peripheral and application enhancements are identified the implementation strategy moves back into the Pilot phase.

As the initiative has developed, conceptualization has moved to testing, testing has moved to implementation, and implementation has moved into integration. This integration, with supportive policies, institutionalizes the initiative's broader goal to enhance teaching, learning, and assessment through the use of handheld computing technology. Figure 1, provides a visual interpretation of the implementation strategy.

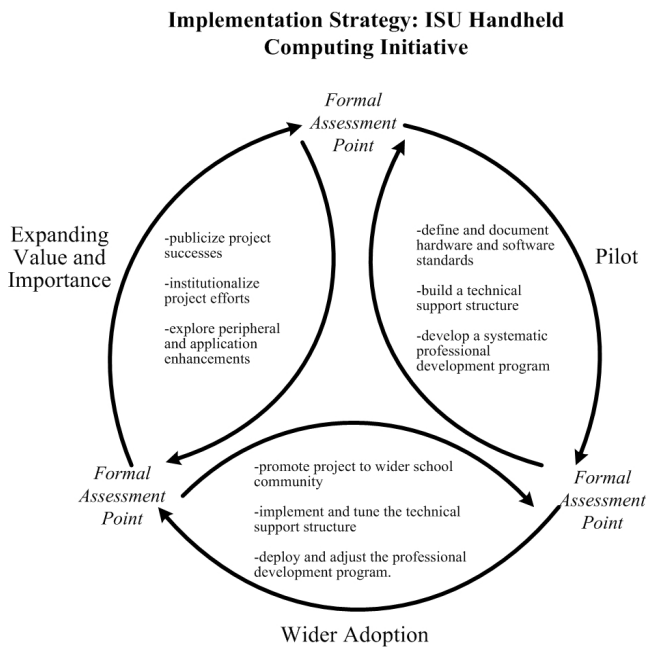


Figure 1. Implementation Strategy: ISU Handheld Computing Initiative [1]

3. INITIAL DISTRIBUTION AND TRAINING PROGRAM

By June of 2002 enough concrete uses by this initial set of administrators and faculty were found that the handheld initiative was approved by the dean to be extended for adoption by the full faculty. Through an assortment of funding sources (school, departments and grants), 148 Palms were purchased. Eighty-eight handhelds and keyboards were distributed to faculty and sixty were reserved for classroom use.

In addition, licenses for *Documents To Go* and *Intellisync* were purchased for all faculty. This process provided all full-time faculty members and a large portion of the part-time clinical faculty with a handheld computer. Table 1, describes the handheld computer distribution and faculty/staff participation.

Table 1. Participation of Faculty in Handheld Computing Initiative

| Department | Faculty / EAP Staff | Faculty Involved in Initial Training | Percent of Participation Faculty / EAP Staff |
|--|---------------------|--------------------------------------|--|
| Administration (Office of the Dean, IITS, ESS) | 10 | 10 | 100% |
| Communications Disorders and Special Education | 12 | 12 | 100% |
| Counseling | 10 | 10 | 100% |
| Curriculum, Instruction and Media Technology | 15 | 14 | 93% |
| Educational Leadership, Administration and Foundations | 13 | 12 | 92% |
| Educational and School Psychology | 11 | 10 | 91% |
| Elementary and Early Childhood Education | 17 | 16 | 94% |
| Total | 88 | 84 | 95% |

4. PROFESSIONAL DEVELOPMENT PROGRAM

The professional development program was multifaceted attempting to meet the needs of all faculty. Initial distribution of the handheld computers took place at departmental meetings. A basic overview of the handheld computer was given at that time. Seven different workshops are continually offered as well as one-on-one training opportunities. In addition, guest speakers have been brought to campus to speak on issues related to handheld computing. Finally, once a month, a brown bag lunch and handheld computer brainstorming and idea exchanging session is held with interested faculty and students.

4.1 Workshops

A training program for the adoption of handheld computers by faculty began in August of 2002. Currently, seven additional workshops have been created for faculty to attend. The seven workshops are entitled:

- Introduction to Palm Computing
- Productivity Applications for the Palm I
- Productivity Applications for the Palm III

- Introduction to Teaching and Learning with the Palm
- Teaching and Learning with the Palm in the Elementary Classroom
- Teaching and Learning with the Palm in the Secondary Classroom
- Introduction to Assessment using the Palm

A full description of content for each workshop is presented below.

4.1.1 Introduction to Palm Computing

This is a two-hour workshop and covers basic Palm use. The topics covered in this workshop include:

- Four Characteristics of Handheld Computers
- What is a Palm?
- Why Palms?
- Basic Tour of the Palm
- Data Input /Output on the Palm
 - Stylus
 - Graffiti
 - Keyboard
- Classic Features
 - Date Book
 - Address Book
 - To Do List
 - Memo Pad / Note Pad
 - Calculator
 - Find
- Infrared Port and Beaming
 - Beaming Documents
 - Beaming Applications
- Setting Preferences on the Palm
- Palm Desktop
- Installing New Software to the Palm
- The Cradle
- Hot Sync
 - Exploring HotSync Manager
 - Customizing the Conduit
 - Performing a HotSync

4.1.2 Productivity Applications for the Palm (Documents To Go)

As stated previously, the ISU Handheld Computing Initiative standardized on the use of DataViz's *Documents To Go* as the productivity package for faculty and students on the Palm. Additional information on *Documents To Go* can be found at <http://www.dataviz.com/products/documentstogo/index.html>. This was a two-hour workshop and covered the following topics:

- Review of Introductory Concepts
 - Data Input/Output
 - Classic Features
 - Palm Desktop
 - HotSync
- Overview of Documents to Go
- Word To Go
 - Formatting Buttons (Bold, Italic, and Underline)

- Cut, Copy, Paste, Undo and Redo
- Creating New Documents
- Changing Font Style, Size and Format
- Paragraph Alignment and Spacing
- Bulleted and Numbered Lists
- Tables
 - Creating
 - Editing
- Inserting Page Breaks
- Using Find and Replace
- Sheets To Go
 - Data Entry
 - Cut, Copy, Paste, Undo and Redo
 - Creating New Spreadsheets
 - Moving Between Spreadsheets
 - Formatting Cells
 - Sorting Data
 - Functions and Formulas
 - Creating and Inserting
 - Editing
 - Smart Charts
 - Charts and Graphs
 - Creating
 - Modifying
- Slideshow To Go
 - Entering Text
 - Inserting Bullets
 - Cut, Copy, Paste, Undo and Redo
 - Creating New Presentations
 - Slides
 - Inserting New
 - Duplicating Existing
 - Moving Between Views
 - Sorting and Organizing Slides
 - Slide Transitions
- Pics To Go
- Beaming Documents
- Transferring Documents Between the PC and the Palm using Hot Sync (Docsync)

4.1.3 Productivity Applications for the Palm (Intellisync)

With ISU standardizing on Novell *GroupWise* as its email and calendaring software, it was necessary to find a product that would synchronize information to and from the Palm with *GroupWise*. PumaTech's *Intellisync* was a product that fit this need. Additional information on Intellisync can be found at http://www.pumatech.com/is_desktop_main.html. This was a one-hour workshop that included the following topics:

- Review of Introductory Concepts
 - Data Input/Output
 - Classic Features
 - Palm Desktop
 - HotSync
- Setting Configuration Options
 - Address Book
 - Date Book
 - Email
 - To Do List
- Adding Appointments

- In GroupWise
- In Date Book
- Hot Sync (Conflict Resolution)
- Sending and Receiving Email on the Palm

4.1.4 Introduction to Teaching and Learning with the Palm

This workshop centered on curriculum strategies to integrate productivity and Internet based software into the classroom. This was a two-hour workshop and included the following topics:

- Review of Productivity Software
 - *Documents To Go*
 - *Intellisync*
- Using Margi's *Presenter-to-Go*
- Using *AvantGo*
- Using the Palm Web Browser
- Good Web Sites for K-12 Palm Integration
- Examples of Educational Uses for the Palm
 - Teaching and Learning
 - Administrative
 - Communication and Collaboration

4.1.5 Teaching and Learning with the Palm in the Elementary Classroom

This course was created based on the book *Palm Handheld Computers: A Complete Resource for Classroom Teachers*. [2] In fact copies of the book were purchased for all faculty members who attended. This was a two-hour workshop and included the following topics:

- Review of Educational Uses for the Palm
 - Productivity Software
 - Internet
 - *AvantGo*
 - Palm Web Browser
- Introducing the Palm to Younger Students
- Using Hi-CE's Suite of Educational Software in the Classroom
 - Go 'N Tell
 - Handysheets
 - Bubble Blasters
 - PicoMap
 - FlingIt
 - Cooties
 - Sketchy
- Lessons Plans that use Palms
 - Existing Examples
 - Brainstorming New Lesson Plans

4.1.6 Teaching and Learning with the Palm in the Secondary Classroom

This course was more difficult based on the fact that secondary education becomes much more content contextualized. This was a two-hour workshop and included the following topics:

- Review of Educational Uses for the Palm
 - Productivity Software
 - Internet
 - *AvantGo*
 - Palm Web Browser
- Introducing the Palm to Middle School and High School Students
- Good Web Sites for 7-12 Palm Integration
- Content Area Hardware and Software for the Palm
 - Scientific Data Probes for Science
 - Graphing Calculator Software
 - GPS Hardware and Software
 - Veo Video Cameras for the Palm
- Using Hi-CE's Suite of Educational Software in the Classroom
 - Handysheets
 - PicoMap
 - FlingIt
 - Sketchy
- Lessons Plans that use Palms
 - Existing Examples
 - Brainstorming New Lesson Plans

4.1.7 Introduction to Assessment using the Palm

The ISU Handheld Computing Initiative and local school corporations have not standardized on an assessment package for the Palm. This course introduces faculty to numerous assessment packages for the Palm. This course does not go into great detail as to the specifics of any one piece of assessment software but provides a generic overview of the each software's strengths and weaknesses. This was a two-hour workshop and covered the following topics:

- Review of Productivity Software
 - *Documents To Go*
 - *Intellisync*
- Overview of Assessment Techniques Using Existing Productivity Software
 - Word To Go
 - Sheets To Go
- Learner Profiles To Go
http://www.sunburst.com
- Excelsior's Pinnacle System
http://www.gradebook.com
- Quizzler
http://www.allyoucanweb.com
- Making the Grade
http://www.gradebusters.com
- Classroom Wizard
http://www.classroomwizard.com/

Table 2 displays the number of faculty participating in the advanced training opportunities provided by the above workshops.

Table 2. Faculty Participating in Advanced Training Opportunities in the Handheld Computing Initiative

| Department | Faculty Involved in Palms Distribution and Basic Training | Faculty Participating in Advanced Training / Pilot Program Participants | Percent of Active Faculty / EAP Staff |
|--|---|---|---------------------------------------|
| Administration (Office of the Dean, IITS, ESS) | 10 | 8 | 80% |
| Communications Disorders and Special Education | 12 | 7 | 58% |
| Counseling | 10 | 5 | 50% |
| Curriculum, Instruction and Media Technology | 14 | 5 | 36% |
| Educational Leadership, Administration and Foundations | 12 | 2 | 17% |
| Educational and School Psychology | 10 | 4 | 40% |
| Elementary and Early Childhood Education | 16 | 7 | 44% |
| Total | 84 | 38 | 45% |

4.2 One-On-One Training

One-on-one training opportunities are also available to faculty. Resources including two full-time staff members, two graduate assistants, and two student workers make this kind of training possible. This service was primarily used as follow-up to workshop training.

4.3 Brown Bag Lunch

Once a month, a brown bag lunch and handheld computer brainstorming and idea exchanging session is held with interested faculty. This has been successful with the highly engaged faculty members. This has not only worked as a professional development activity but has been a method of process improvement for the entire handheld computing initiative.

4.4 Speakers

Finally, guest speakers have been brought to campus to speak on issues related to Palm computing. Three such speakers were Ken Kay, Mike Holen and Margaret Honey. Ken Kay, Executive Director of the CEO Forum, talked about the need for digital literacy and the impact handheld computing can have on that effort. Mike Holen, Dean of the College of Education at Kansas State University, presented on a handheld computing initiative at his institution. Finally, Margaret Honey, Co-Director of Educational Development Center's Center for Children and Technology, provided insights into using handheld computers to improve student achievement in reading through better assessment. All of the presentations by guest speakers were well

attended and spoken highly of by faculty in attendance. This activity allows faculty to get an outsider's perspective on handheld computer use.

5. TEACHING TOOLS

There are two must have tools in providing professional development activities for the handheld workshops. One is Margi's *Presenter-to-Go*, a hardware/software package that allows the screen of the Palm to be displayed on a traditional LCD overhead projector as well as the ability to display Microsoft *PowerPoint* presentations from the Palm. The second is Link Soft's *ScreenShot*. *Screen Shot* allows you to capture screens in any application on the Palm. This is a must have tool for creating custom documentation for the Palm.

5.1 Presenter-to-Go

Margi's *Presenter-to-Go* uses the SD card slot on a Palm handheld to display images on a LCD projector. The product provides notebook quality 1024x768 (XGA) color output resolution. In addition, it has an infrared remote control for advancing slides in a Microsoft *PowerPoint* presentation. Additional information about the product can be found at: http://www.margi.com/products/prod_ptg.htm.

5.2 ScreenShot

ScreenShot is the easy way to capture Palm screens and convert them to standard bitmap files. After loading the utility onto your Palm it is easy to copy screen images of the active Palm screen with either a Graffiti stroke or keyboard command. When Hot Syncing to your PC the *ScreenShot* conduit converts the images to an easy to use bitmap file format. Figure 2 shows an example of screen shot used in documentation. Additional information on this product can be found on the Linke Soft website at <http://www.linkesoft.com/screenshot/screenshot5.html>.



Figure 2: Example of a Screen Shot Image of the ISU Library Page found at <http://mobile.indstate.edu>

6. CONCLUSION

Recognizing that a strong professional development program was needed to support the handheld computing initiative was instrumental to the initiative's success. The professional development program was created with the diverse needs of faculty in mind. This required multiple delivery methods to meet the needs of participants. Training, which included an overview of

the handheld computer, took place during the initial distribution of the handheld computers to the faculty. Seven different workshops were created to provide a wide-array of experiences for interested faculty members. One-on-one training opportunities were also provided to support individual faculty member's needs. Once a month, a brown bag lunch and handheld computer brainstorming and idea exchanging sessions were held with selected faculty and students. Finally, guest speakers were brought to campus to speak on issues related to handheld computing. All of these delivery methods were needed to make the professional development program and the handheld computing initiative a success. Without this support the initiative itself could not have hoped to make the impact it did on the teaching and learning process.

7. ACKNOWLEDGEMENTS

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8. REFERENCES

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