Innovative Teaching/Learning in the Palm of Your Hand Updated: Using the PDA in the Classroom

4th Annual IT Conference
John Jay College of Criminal Justice
December 2nd, New York, NY
Introduction

• How did this project start?

• Project development
  – ISOF
  – Perkins Grant
  – Tech Fee

• Implementation in the classroom
Math Application

Developing Practices and Quizzes Using a PDA

• Loreto Porte
• Elkin Urrea
The Software

- Quizzler Pro – Used by Instructor

Create quizzes/practices → Beam quizzes/practices to students → Receive student responses/scores → Analyze results instantly
The Software

• **Quizzler - Used by Students**

  - Receive quizzes / practices from instructor
  - Complete quizzes / practices
  - Beam results back to instructor
<table>
<thead>
<tr>
<th>Question</th>
<th>Code</th>
</tr>
</thead>
</table>
| Write in scientific notation: 2,000,000 | #quizzler  
#name Scientific Notation  
#author John Doe  
#exam  
#limituse 1  
Write in scientific notation: \( \sim 2,000,000 \) |
| A) \( 2 \times 10^5 \) | 2 * 10^5  
*2* 10^6##10  
20 * 10^6  
0.2 * 10^6 |
| B) \( 2 \times 10^6 \) |  
| C) \( 20 \times 10^6 \) |  
| D) \( 0.2 \times 10^5 \) |  

Create a Quiz:

1. Write in scientific notation: 2,000,000
   - A) \( 2 \times 10^5 \)
   - B) \( 2 \times 10^6 \)
   - C) \( 20 \times 10^6 \)
   - D) \( 0.2 \times 10^5 \)
The Students
Student Reaction/Outcome

• “It was addictive!”

• “If someone had told me that I would enjoy doing math problems in the subway, I would have thought he was crazy!”

• “It makes a math assignment like a game!”

• Students completed the assignments

• High scores were achieved
Nursing Application

Training Nursing Students in Drug Applications Using a PDA Drug Reference Guides

Kathleen Donohue
The Software

• Databases for drugs
  – Epocrates Rx
  – Davis’ Drug Guide for Nurses
  – Lippincott's Review for NCLEX-RN
• Quizzler for assessment
Davis’ Drug Guide

- Drugs are listed by generic and trade name
- Drug action
- Pharmacokinetics
- Pharmacodynamics
- Interactions
- Doses
- Side and adverse reactions
NCLEX-RN® Review

• reflects the current NCLEX® test plan.

• contains more than 5,000 total test questions to help students practice taking the exam.

• explains the rationale for correct and incorrect answers.

• Organized by practice area:
  – childbearing family and neonate
  – child health
  – adult medical-surgical
  – psychiatric-mental health

39. Which of the following would be included in the teaching plan for a cancer patient who is experiencing thrombocytopenia? Select all that apply.

Choices
Potential Uses for Nursing Students

- Laboratory data collection
- Nursing care plans
- Nursing data base
- Diagnostic reference for lab or Dx tests
- Diseases and disorders
- Document readers
- Take notes
- Guidelines or protocols
- Patient teaching or education
- Explain procedures
Where Students Can Use PDA’s

- Classroom
- Clinical
- Subway
- Bus
The Students
Student Reaction

• “The PDA is a great help to our learning experience!”

• “It made assessing and finding new information fun, easier and quicker!”

• “I absolutely loved working with our new PDA’s. The ability to quickly look up medications without having to carrying heavy books is great!”

• “My experience using the PDA has been positive! PDA should be available to all student nurses, as the laptops are!”

• I hope that this is just a beginning and that students all around the USA and the world will benefit from it as we are doing now.
Biology Application

Using the PDA to Study a Forest Community.

• John Gillen
• George Rosa
Problem: What’s happening to the forests of the NYC area?

A Field/Classroom Investigation:

Collect data on locations of trees in a New York City park

Develop lines of inquiry to explain the distribution patterns

Plot the distributions on a map

Present findings in poster display and written report
Van Cortland Park – A Forest Ecology Laboratory
Trees Surveyed

**Native**
- Red oak
- Pin oak
- Sweetgum
- Tuliptree
- Witch Hazel
- Sassafras

**Non-Native**
- Ginkgo biloba
- Norway Maple
- Black Locust
Hardware

- Palm Tungsten E2’s
- 1 Garmin eTrex GPS receiver connected to 1 Palm m130 by serial data cable (for data collection)
- 1 Garmin iQue 3600 GPS/Palm OS (for data collection)
Location points logged in are saved in databases

- Point data includes latitude, longitude, and elevation
- Points can be named using preformatted icons
- Data points can be entered with or without the GPS
- Points can be downloaded

Computes distances between points

Plots points on a virtual map

Databases can be “beamed” between Palm Pilots
The Procedure

Data was collected into a single database

USE GPS!
The Procedure

Data was collected into a single database.

The database was sorted into individual tree species databases by students.

Database was beamed to students’ Palm Pilots.

The data was analyzed by the students.
Results

Fast collection of data
240 specimens logged in 4.5 hours (3 course sections, 1 lab period each)

Point data screens can be accessed through the map and database
Results

Map Data

PDA Map Display

Topo USA Desktop Display
Software

Used by the instructor/data collector:

- **PathAway 3 full version**
  - used to collect the data

- **PathAway Icon Manager**
  - freeware
  - upload custom icons

- **PathAway Map Manager**
  - freeware
  - calibrate and upload map images

- **PWDBConvert**
  - freeware
  - converts data files to .txt format

- **Topo USA**
  - create distribution maps of downloaded data on the desktop
  - prepare maps to upload into Pathaway

Used by the students:

- **PathAway 3 Trial version**
  - shareware
  - used to analyze data
The Students
Student Reaction/Outcome

- “It’s like a game!”
- “I feel like I’m playing war strategy!”
- “I want to go into civil engineering, and this work could be useful for that.”
- Increased interaction and teamwork
- Greater motivation to perform complex tasks
- Increased willingness to continue project outside classroom
- Students developed ways to expand and enhance project
- Students developed hypotheses on the distribution of the tree species
What’s Next

Math
• Use of Palm for CUNY mandated competency tests review
• Use of Quizzler into more class sections

Nursing
• All Junior Nursing students provided with a loan Palm loaded with Drug Guide and Quizzler software
• All Senior Nursing students provided with a loan Palm loaded with NCLEX-RN Software and Quizzler software

Biology
• Palm/GPS: Incorporated into the syllabus of more courses
• Anatomy and Physiology: PDA used for visualization of physiological concepts and to aid memorization of anatomical structure
Thank You