

# Mobile Devices and Physical Education

Edition 2

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There was a time when there were only a few choices for electronic fitness reporting, record book keeping, and other types of data collection on the field. Today, there are numerous choices, and this white paper will help you select the best device/application for your needs.

## History

On field assistance began with scantron forms. Teachers filled in bubbles corresponding to fitness scores or attendance, and then scanned the sheets when back in the office. Next came Personal Digital Assistants (PDAs), such as the Sharp Wizard and PSION Organizer followed by the short lived Apple Newton. Attendance, grading, and fitness reporting applications were written for these devices.

In 1995 the Palm Pilot was released and thousands of applications were written for this device. Applications specific for physical educators included fitness reporting, sport statistics, assessment, locker systems, and much much more. The Palm Pilot ran the Palm OS (operating system), and over the next ten years the device increased in memory and function. Not to be outdone, Microsoft created Windows CE OS followed by various versions of Windows Mobile OS. Several manufacturers developed pocket computers that used these operating systems.

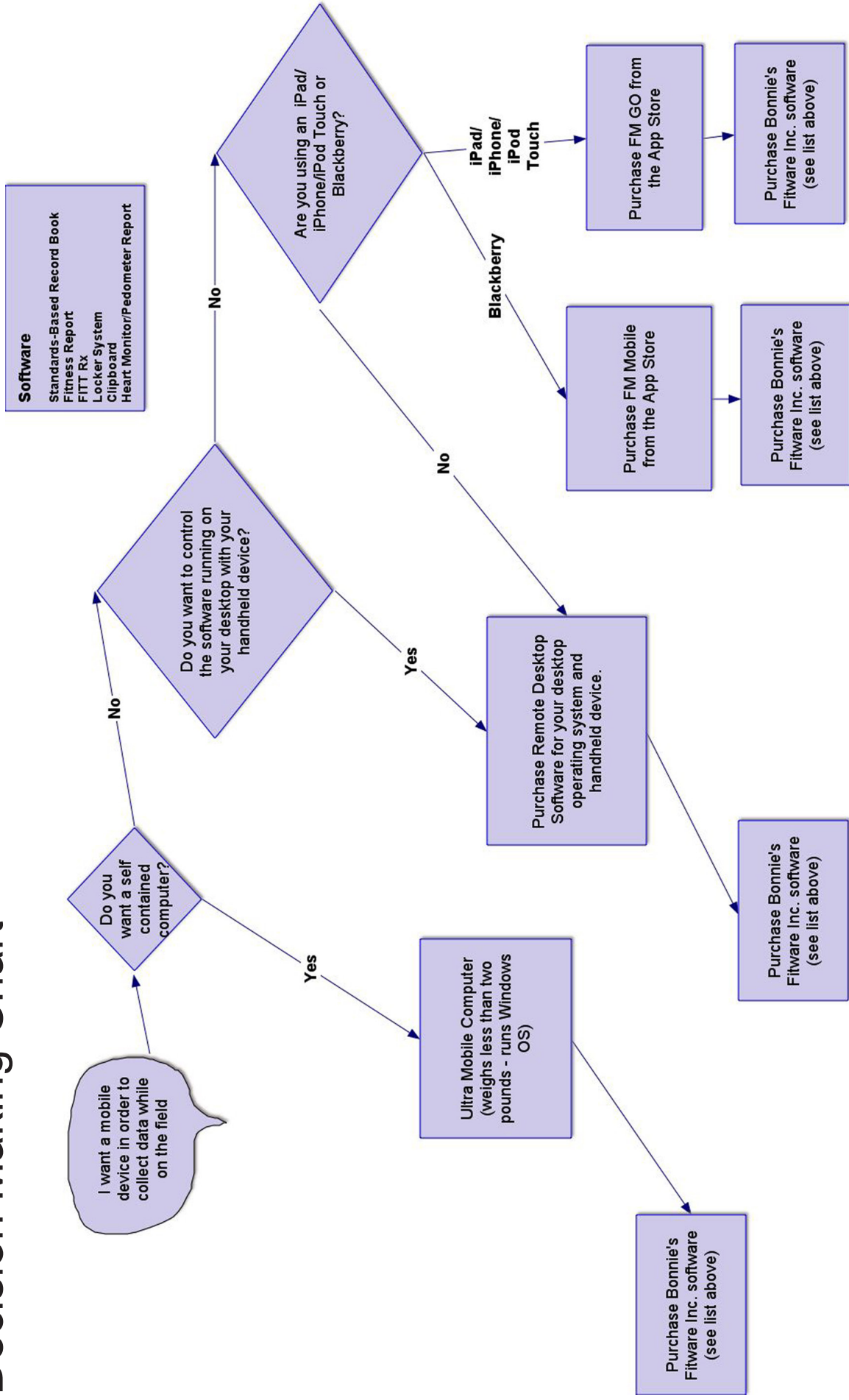
In 2005 smart phones began to appear. Operating systems included Windows Mobile, Blackberry, Symbian, OSX (for iPod Touch and iPhone), Android, and webOS (new operating system from Palm). Today, physical educators use these devices to collect data while on the field.

## Mobile Devices

Physical educators were limited to Windows Mobile OS and Palm OS during the early 21st century; today physical educators have a wide variety of options ranging from ultra mobile devices to iPads to iPod Touches to smart phones. An ultra-mobile computer (UMPC) is a very light weight (less than 1.5 pounds) convertible tablet that runs a full version of Windows with a 4-to-7 inch screen. UMPCs are typically the size of a paperback book (approximately 6" x 4" and 1.5" thick) and fit conveniently in a fanny pack. These devices typically come with Wi-Fi and Bluetooth capability as well as a variety (albeit one of each) of ports.

iPads, iPod Touch, and smart phones use the cell phone network technology and/or WiFi to send and receive data (e.g., Web browsing, file transfers, email). These devices also allow individual users to install, configure, and run applications of their choosing. Popular programs include fitness reporting, record keeping, and fitness applications (see information later in this paper). These devices also typically come with a camera and can play audio and video files. An iPad and an iPod Touch work just like a smart phone (specifically the iPhone) except that you cannot make phone calls with them. Smart phones come in a variety of operating systems. Just like your computer comes in Windows or Macintosh; different smart phones run different mobile operating systems.

# Decision Making Chart



## My Suggestions (in order of recommendation)

- iPad/iPod Touch/iPhone with either FM Go or Remote Access
- Android with Remote Access
- Blackberry with Remote Access
- Windows Mobile 7 - too new to make a recommendation.

# Mobile Operating Systems

Before choosing applications it is important to know which operating system you are using. The options include: Palm OS, Palm webOS, Symbian, Windows Mobile, Android, Blackberry, and OSX. Each operating system requires applications designed specifically for its platform.

## **Palm OS**

**Palm OS** is an operating system initially developed by Palm, Inc. for its line of personal digital assistants (PDAs). Instead of attempting full handwriting recognition, early Palm devices recognized a slightly modified version of English lettering called Graffiti. Palm OS is designed for ease of use with a touchscreen-based graphical user interface. It has a suite of basic applications (e.g., calendar, address book) for personal information management. Devices running this OS have been replaced by Palm webOS (see below).

## **Palm webOS**

**Palm webOS** is a smart phone platform, powered by Linux and developed by Palm. The Palm Pre and Palm Pixi smart phones are the first devices to use webOS. The webOS features online social network and Web 2.0 integration. Its graphical user interface is designed for use on devices with touchscreens. It also includes a suite of applications for personal information management, and uses both cell phone and wi-fi networking. The future of this OS is unknown since it was recently sold to HP.

## **Symbian**

The **Symbian OS**, also called Series 60, is also an open-source operating system. It is used primarily by Nokia Phones and a few other cell phone companies. Since it is open-source, the specifics (e.g., functions, included applications) are left up to the developers. It appears that manufacturers are replacing their Symbian-based phones with the Android Operating System (see below).

## **Windows Mobile**

**Windows Mobile** is a compact version of Windows OS. It includes a suite of basic applications (e.g., word processing, spreadsheet) and is designed for devices ranging from Pocket PCs to smart phones, to portable media centers. The most current version is Windows Mobile 7. Most devices using Windows Mobile use both cell phone and wi-fi networking. Although Windows Mobile 7 is new, it appears to be one of the four front runners along with Blackberry, OSX, and Android.

## **Android**

**Android** is a mobile operating system based on Linux. It was initially developed by Google to create a system that could work on phones built by different manufacturers. It is known as an open-source application, since developers can use or adapt it for their specific needs. Currently, there are numerous phones using Android OS. Most of these phones can use WiFi hot spots or cell phone networks.

## **Blackberry**

The **Blackberry OS** was specifically designed for cell phone use. It is one of the simplest systems for setting up and receiving email. Additionally, it is designed for sending text messages via Short Message Service (SMS), instant messaging, and two-way paging. Blackberry OS devices can use WiFi hot spots or cell phone networks.

## **OSX**

**OSX** is the operating system used for the iPhone and iPod Touch. It is a mobile version of the Macintosh OS. This is what allows the iPhone to interact with its finger driven touch-screen. It comes with a Safari browser, calendar, mail, contacts, notes, and other applications. It accesses the Internet via cell phone networks and WiFi hot spots. OSX OS appears to be the easiest of the systems to use and more educational options are available for OSX. Selecting a smart phone is a personal choice, but if you don't know which to choose the OSX is a great place to start.

# Bonnie's Fitware Applications for Mobile Devices

In order to run Bonnie's Fitware Inc applications on iPads/iPod Touchs/smart phones, you need FM Go (currently available for the iPad, iPod Touch/iPhone), FM Touch (currently available for the iPad/iPod Touch/iPhone), FM Touch - beta (currently available for the Blackberry with a Windows OS connection) or Remote Desktop Applications (see below). FM Touch and FM Go are available through the Apple App Store and FM Touch is also available through the Blackberry store. Be sure to read the requirements for each of these programs to ensure compatibility with your mobile device.

## Remote Desktop Applications

Virtual Network Computing (VNC) is a graphical desktop sharing system that allows a remote device to control another computer. It transmits the keyboard and mouse events from the mobile device (e.g., iPod Touch, Smart phone) to the desktop computer. The system provides graphical screen updates back to the mobile device over a network. Your desktop computer must remain turned on in order to access the applications running on it. Data collection is very fast since the speed of the desktop computer is used and there is no need to transfer data from the mobile device to the desktop after class.

A VNC viewer on one operating system may connect to a VNC server on the same or any other operating system. A VNC system consists of a client, a server, and a communication protocol. The VNC server is the application on the computer that shares its screen. The VNC client (viewer) is the application (also known as the remote desktop application) on the mobile device.

The iPad/iPod Touch/smart phone is taken out to class and turned on. Then, via the remote access application, applications on your desktop are run and controlled using the mobile device. Bonnie's Fitware Inc. designed applications for four common mobile screen sizes:

240 x 320                      320 x 375 (iPod Touch/iPhone)                      360x480                      480 x 360

so that the entire screen fits on the mobile device.

## Which Remote Desktop Application

Review the options (see highlight box on this page) and discuss the best solution for your situation with your technology folks. Points to consider include:

- Server (desktop computer) operating system.
- Client (mobile device) operating system.
- Level of security/encryption required.
- Type of network at your school.

Many of the remote desktop applications have trial versions, so it is a good idea to try them before purchasing.

## Remote Desktop Applications

Comparison of Remote Desktop Applications

[http://en.wikipedia.org/wiki/Remote\\_desktop\\_software](http://en.wikipedia.org/wiki/Remote_desktop_software)

[http://en.wikipedia.org/wiki/Comparison\\_of\\_remote\\_desktop](http://en.wikipedia.org/wiki/Comparison_of_remote_desktop)

<http://downloads.zdnet.com/search.aspx?&kw=vnc&x=40>

# Applications for Physical Educators

Available from Bonnie's Fitware Inc.: <http://shop.pesoftware.com>

## Standards-Based Record Book

This software provides for the collection of attendance, behavior, and standards-based grading for use on a Windows or Macintosh computer (desktop, notebook/laptop, ultra-mobile, etc.). Additional screens have been specifically designed for use with an ultra-mobile computer.

## Fitness Report

This software allows for the collection of fitness scores including curl ups, push ups, pull-ups, modified pull ups, flexed arm hang, walk/thr, mile run, pacer, shoulder stretch, back saver, sit and reach, trunk lift, skinfold, and body mass index. Produces a variety of reports and charts.

## Locker System

The purpose of this software to provide a complete locker system for both built-in locks and padlocks.

## Heart Rate/Steps

This software allows for the collection of heart rate and pedometer data using Windows or Macintosh (desktop, notebook, ultra-mobile, etc.). Produces reports and charts for students.

## Clipboard

This software allows for the collection and organization of lockers, lesson plans, video inventory, music inventory, equipment inventory, and teachers.

## FITT Rx™

FITT Rx™ provides a quick reference tool for teacher/student use in the same way a medical doctor uses a drug prescription pad. Thus, the FITT Rx™ software program is designed to be a quick and simple method of providing a quality exercise prescription. It helps make prescription quick by providing the typical data for all of the basic exercise prescription variables: frequency, intensity, time, and type of exercise.

The concept behind FITT Rx™ :

- \* To store exercise prescription data with the intent to help guide a student during a workout.
- \* To store exercise prescription data with the intent of using this information as a reference tool for students.
- \* To teach students about the basic variables used for exercise prescription (FITT).
- \* To present the four primary exercise prescription variables (FITT) in one quick and easy to read page.
- \* To provide an exercise prescription model to guide the development of exercise prescription by summarizing typical formula(s) and data used for each of the four variables (FITT).

## EXER Rx

EXER Rx provides a quick reference tool for professional use in the same way a medical doctor uses a drug prescription pad. Thus, the EXER Rx software program is designed to be a quick and simple method of providing a quality exercise prescription. It helps make prescription quick by providing the typical data for all of the basic exercise prescription variables: frequency, intensity, time, and type of exercise.

## Teacher Observation Program

Teacher Observation Program (TOP) is a software application used for conducting teacher observations. It is used to measure, record, and report the duration and frequency of events that occur during the observation. Data collected includes type of feedback (8 choices), develop of skill, use of time (7 choices), trial opportunities for 3-5 students, number of students on-task (5 recordings), and 1-3 user defined fields.

## Application Features

- Easy entry through drop down menus.
- Editable drop down menus (you choose the values).
- Fitness reports for President's Challenge, Virginia State, California State, Connecticut State, Missouri State, as well as for sit and reach, shoulder stretch, pacer, mile run, walk test, trunk lift, curl ups, push ups, modified pull ups, pulls ups, flexed arm hang, percent body fat, skinfolds, and BMI.
- Standards-based grading program.
- Options for all smart phones via remote desktop application.
- Option for ultra mobile.
- Option for FM Mobile.
- Option for FM Go.
- Screens designed for: desktop use, ultra mobile use, iPad use, and four sizes of smart phones:
  - 240x320
  - 320x375 (iPod Touch/iPhone screen)
  - 360 x 480
  - 480 x 360

## Technical Specifications

Mac OS X v10.6

Intel-based Mac; 1GB of RAM

Mac OS X v10.5

PowerPC G4 (867MHz+), Power PC G5, Intel-based Mac; 512MB of RAM

Mac OS X v10.4.11

PowerPC G4, G5 or Intel-based Mac; 256 MB of RAM

Windows 7

1 GHz or faster; 1 GB RAM

DirectX 9 graphics device with WDDM 1.0 or higher driver

1024 x 768 or higher-resolution video adapter and display

Windows Vista Ultimate, Business, Home (Service Pack 1) \*

800 MHz or faster; 512 MB of RAM

SVGA (1024x768) or higher resolution video adapter and display

Windows XP Professional, Home Edition (Service Pack 3) \*

Pentium III 700MHz or faster; 256MB of RAM

SVGA (1024 x 768) or higher resolution video adapter and display