Personal Digital Assistants (PDAs): An Introduction
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Conference Abstract: Personal Digital Assistants are everywhere from business meetings to doctors’ offices! Come discover how they work, get some instruction on how to manipulate their programs, and learn about their importance in the health community! Topics will range from basic programs to medical databases. Troubleshooting PDAs will also be discussed.

Personal Digital Assistants (PDAs) have made considerable inroads in the realms of health science libraries and have become important tools for health care providers. They provide quick access to drug information, allowing nurses and physicians to reference differential diagnoses, and allow providers to have in their hands patient tracking programs and electronic medical records, just to name a few of their medical applications. PDAs are devices that allow for organization in terms of schedules and contact information, wireless access to the Internet, and in some cases, the PDA becomes an MP3 player with sound quality as good as an iPod. They have many functions for a myriad of users and while it is impossible to explain them all here, a basic introduction will be offered in the hopes of broadening the readers’ horizons, and possibly spark an interest.

Before a discussion of some PDA functions, a brief explanation of the two main PDA operating systems should be presented. There are two basic PDA types: the Palm OS and Microsoft PocketPC. Devices like Blackberries have neither operating system and are a class by themselves. The Palm OS devices came first, and based on their primacy, many people refer to all PDAs as “Palm Pilots” whether or not the PDA is actually a Palm OS device. Palms first appeared in the 1996 while PocketPC arrived in a few years later. Both operating systems have evolved over the years, but the basic appearance of both has remained the same in that each is an icon-based interface. Both Palms and PocketPCs are still available on the market from a variety of sellers, despite the emergence of “smart phones”, or PDA/cell phone combination devices, which employ either the Palm or PocketPC operating system. Again, devices like Blackberries have their own operating system apart from Palm and PocketPC.
The basic method for accessing information on a PDA, despite operating system, is conducted by taking a stylus and tapping on the PDA screen. The stylus is usually a short pen-like tool with a special tip that allows for the user to tap and write on the PDA screen without damaging it. Much like what is visible on a Windows operated computer, icons that represent programs appear on PDAs. While users point with a mouse and click on an icon on a computer to access a program, users simply tap on an icon on their PDA to achieve the same results. It is a very intuitive and simple process.

What seems more complicated is the actual writing of words on the PDA screen. PDAs do have screens that are touch sensitive and are able to recognize the handwriting of users. Initially, the Palm OS system used a lettering style known as Graffiti and required users to learn specific ways to write letters. Third-party programs were actually created to assist users in mastering this style. However, improvements were made with PocketPCs; they allowed users to write letters in a more natural style that were recognized without learning a special
lettering. Not to be outdone, Palm later improved their Graffiti system to be more user-friendly. Now both Palms and PocketPCs recognize handwriting almost as the user writes. While certain letters still require special stylus strokes, such as “L” and “1”, lettering, for the most part, mirrors the user’s handwriting style.

Figure 4: Palm OS Graffiti

If actually writing letters on the screen does not suit a user, on screen keyboards are included as input methods for PDAs. These require users to tap on individual letters on QWERTY keyboards to spell words. This method seems to be what many novices users do first before graduating to the more complicated writing input systems. With practice, however, the keyboard entry can be quite fast, and with the purchase of an after market keyboard, like Fitally, word entry soars to upwards of 50 words per minute!
PDAs are designed to be synced to computers so that an information exchange system is created. Palm OS devices sync with a program called Palm Desktop and PocketPC devices use Microsoft ActiveSync. Depending on the device type a user has, either one or the other sync program will be on the set-up CD-ROM that is included with the PDA. These sync programs create a conduit by which information moves to and from the PDA. Information like calendar and contact information from Microsoft Outlook, for instance, is downloaded to the PDA if the user so wishes. Also, e-mail messages can be synced with a PDA, but unless the PDA is connected to the Internet continuously, e-mail remains asynchronous and is not updated until the PDA is synced again. I seldom recommend that users employ the e-mail functionality of a PDA unless the device is in a totally wireless environment. If your calendar is in constant flux, it is recommended that you sync your PDA often. However, if information is relatively static, syncing once a week should be plenty.

Documents of various types can be put on PDAs, whether Palm OS or PocketPC. For Palm devices, a program called Documents To Go, usually included on the set up CD-ROM (http://www.dataviz.com/products/documentstogo/premium/index.html), allows users to convert and transfer Microsoft Word, PowerPoint, and Excel files to the device. These files are then viewable and can be edited if need be. Documents To Go is needed to transfer Microsoft Office files, however, as they need to be converted to a format the Palm can read. For PocketPCs, the process requires no conversion as the PocketPC operating system is a Microsoft product. Already preinstalled on PocketPCs are PDA versions of Word, Excel, and PowerPoint. These are not the full programs, but do have many of the features of the PC versions. Also, there are versions of Adobe's Acrobat Reader for both Palm and PocketPC devices. This software is free and makes viewing PDFs on a PDA possible.

Since I use a PDA for instructional purposes quite often, I find it advantageous to be able to display the screen of the PDA to an audience so that they can observe what actions are taking place on the device. There are two basic methods to achieve this aim. One method is to connect the PDA to a PC/laptop and then connect the PC/laptop to an LCD projector in order to display the screen. Special software is needed to allow the PDA to be displayed. I use Tapsmart Handshare(http://palmsource.palmgear.com/index.cfm?fuseaction=software.showsoftware&prodID=58230) for this, and it may be purchased for a small fee. Another method is to use a separate piece of hardware that eliminates the need for a PC/laptop. This device is the iGo Pitch Duo (http://www.mobilityelectronics.com/handheld/presentation/pitch-duo.htm). It works by connecting the PDA to the iGo Pitch Duo and the iGo to an LCD projector. The iGo and the PDA are quite small and could fit into a couple of jacket pockets. If a projector is present in the classroom, an instructor need only bring the iGo and PDA--no laptop is required.

Regarding medical software for PDAs, I install a variety of programs on both Palm OS and PocketPC devices for medical and nursing students, clinical and teaching faculty, and health care providers in the community. Many of the programs contain professional medical terminology that would not be needed on a lay user’s device. However, there is one particular program that I recommend all PDA users have installed on their device: ePocrates (http://www.epocrates.com), a drug information database that is free for PDA users. While much of the information is pharmacological in nature, the section on side effects and adverse reactions is useful for everyone. Built into ePocrates is a tool that allows for up to thirty drugs to be checked against each other for potential interactions. The importance of this tool for health care providers is clear, but it also is value to the lay user that may be prescribed several different drugs. Also, ePocrates provides the insurance formularies for many major insurance plans across the nation, Tennessee included, and users may choose to have their insurance formulary installed with ePocrates. This free resource is a tremendously valuable program to have on a PDA. All that is required is a brief registration and installation process.
I am always asked about troubleshooting PDA problems. While many are too difficult to explain in an introduction of this nature, let me offer a few brief suggestions that may help if you ever have any basic problems. Syncing with a computer is often the most common problem I see. Regarding this problem, and many others for that matter, simply reset the PDA. All PDAs have a reset button on them somewhere, usually on the back of the device. If you don’t see it right away, consult the manual and it will explain where it is. It is often small and unnoticeable buttons so that they are not pressed by accident. Simply take the stylus and press this button once and it will reset the PDA. It will not erase any data in the memory; it is like rebooting a computer.

This simple solution has solved many PDA problems that have come before me. Try it first and see what happens. If syncing is still a problem after resetting the PDA, the problem usually is with the syncing software on the computer. To correct this, first completely stop and restart the software. I have discovered that the communication protocols sometimes get confused and simply need to be reset. This is particularly true of Palm Desktop and HotSync Manager. Once the software is restarted, syncing is usually no problem. If none of the above works, I restart the entire computer system. In worst case scenarios, I have totally re-installed the sync program and started from scratch. However, I rarely have to do this. Some excellent resources for PDA support are the Palm Support Forums (http://forums.palm.com) and Axim Site (http://www.aximsite.com). PDA users answer each others’ questions and give assistance regarding various PDA issues. I have found invaluable advice and insight from these sites.

PDAs are not complicated devices to learn how to use, but it takes practice to become proficient with them. They have many features that would take far too long to fully explain in this introduction, and the best way to learn how to use a PDA is to pick one up and begin using it. I am still learning about mine, and I have been a PDA user for many years now. If you are interesting purchasing a PDA, it may be worthwhile to read over some reviews of various devices to determine what fits you best. You can find reviews on web sites like C-Net (http://www.cnet.com) and in Smartphone and PocketPC Magazine (http://www.pocketpcmag.com). In addition, seek out PDA users and ask what they like and dislike. This way you can get a PDA in your hands and try it for yourself and learn from those that may have had the same questions as you have. Do not be intimidated by what appears to be a complex device; they are fun, user friendly, and have a multitude of uses. I am always hearing of new ways they are used, many of which I had not heard before. Give a PDA a try – you will find yourself wondering just how you got by without one.

Please send questions, comments, and suggestions to Kanneese Woods.