

Personal Digital Assistants

Handheld Computers



Students on a field trip to the Grand Canal in Dublin are documenting the different kinds of flora and fauna encountered during their excursion. Relevant information is being recorded on a personal digital assistant and will be integrated into their project work, which they will compile later on the desktop computers in their classroom.

What is a Personal Digital Assistant?

A personal digital assistant (PDA), or handheld computer, is a small, mobile, handheld device that provides computing and information storage/retrieval capabilities.

The vast majority of PDAs have five basic functions:

- Contact management (names and addresses)
- Scheduling (calendar)Mobile phone functionality
- Mobile phone functionality
- To do list
- Note-taking

Many PDA manufacturers now include additional functionality in their products, such as:

- Access to the Internet
- The ability to play MP3 files
- Bluetooth connectivity
- The ability to read electronic books
- The ability to play games

A PDA can also be linked to a PC and data can be transferred readily between the two. Furthermore, information can be synchronised so that changes made on one are reflected on the other.

Possible Educational Uses

PDAs are not new to the realm of primary and post primary Irish education, but the general consensus is that they will play a niche role in our schools for both teachers and students in the future. Their winning attribute is their portability – this allows them to be used outside of the classroom (e.g., at home or on field trips). All the data collected during these times can be transferred to a personal computer in the school at a later stage. Other educational uses for PDAs include the following:

- Students are enabled to continually reflect, edit and develop individualised learning resources
- Teachers and students can exchange information by beaming it to each other
- Teachers can track and analyse student progress using appropriate software
- They cater for students with learning difficulties in areas such as note-taking, following schedules, keeping track of homework and assignments
- Make class presentations using appropriate mobile presentation software, resolution capable PDA with VGA cable adaptor for data projector.
- Collection of field trip data and use of GPS for field trip work.

Technical and Purchasing Considerations

The future of the PDA product as we know it is under pressure from small laptops, Ultra Mobile PC (UMPC), portable media players and increasingly capable mobile phones. The future of PDAs as a technology lie in evolving and merging with existing devices such as the UMPC and mobile phone to provide an “all in one” device. However you can still purchase a basic electronic organiser for under €100. More expensive models range from €300 to €600. However, it is important to choose a PDA model that suits individual teaching and/or learning needs. It is also worth noting that the greater the PDA functionality, the higher the price. There are a number of issues to consider when purchasing a PDA, some of which are outlined below.

Size and Weight

The size and weight of PDAs can vary enormously – some are the size of a credit card, some fit in the palm of the hand and some are like UMPCs. Basic PDAs are confined to basic information organisation, while the latest PDAs have many additional functions and capabilities such as Bluetooth, Wi-Fi, GPS and extra memory storage options. Additional options one should consider purchasing include an external Bluetooth keyboard, an extra battery, docking cradle, travel synchronisation cable, extra stylus, case, USB/VGA cable for use with a data projector..

Broadly speaking, there are two types of PDA:

- **Clamshell** PDAs have a small keyboard and they open out rather like a miniature laptop. They may also feature touch-sensitive screens and a stylus
- **Tablet-type** PDAs do not have an integrated keyboard. Input occurs using a stylus or fold-away/portable keyboard and they tend to be palm-sized

Data Entry Methods

Information can be entered and manipulated in a PDA in three ways:

- **Keyboard** – Some PDAs have built in keyboards, which vary in size depending on the model. Some use external Bluetooth keyboards.
- **Touch Screen/Stylus Pen** – Data is inputted by selecting icons on a touch-sensitive screen with a pen or stylus
- **Handwriting recognition** – Used in addition to a stylus, special handwriting recognition software allows handwriting to be converted into text

Operating Systems

There are two, widely used handheld operating systems:

- **Palm OS** – Used with tablet-type PDAs (those without integrated keyboards). Many applications have been developed for this operating system
- **Microsoft's Windows Mobile** – A miniature version of the full Windows product

Cut-down (pocket) versions of MS Word, Excel, Access, PowerPoint and Internet Explorer are supported on both of these operating systems.

Memory

The memory of a PDA determines its information storage capabilities and typically ranges from 64MB upwards. The following points should be considered prior to purchase:

- 96MB is sufficient to support a scheduler, address book, note-taking, e-mail and video.
- Extra memory is required to support the storage of multimedia applications such as video.
- Most PDAs allow for significant memory expansion via different types of storage cards.

Synchronisation

Synchronisation is useful for backing-up files and transferring information, documents and e-mails. There are a number of ways in which a PDA can be linked to a PC in order to transfer information:

- **USB cable** – A specific type of cable that connects a PDA and a PC, which facilitates speedier transfer of data between both devices
- **Docking cradle** (USB connection) – A PDA is placed in a docking cradle in order to transfer data to/from the PC or to recharge a PDA's battery
- **Infrared port** (wireless) – information is 'beamed' from one unit to another without the use of wires
- **Bluetooth** – Data is synchronised with the desktop PC via Bluetooth.

Screen Display

PDA's come with colour displays of varying resolution. The higher the resolution the greater the price.

Batteries

PDA's use one of the following battery types:

- Permanent rechargeable batteries fixed into the PDA
- Rechargeable batteries that can be replaced
- Standard alkaline batteries that need to be replaced regularly

Related Web Links

Becta – Handhelds in Schools

http://partners.becta.org.uk/page_documents/research/handheld_comps_sum.pdf

Handheld Computers (PDA's) in Schools,

This pilot project investigated the use of small, handheld computing devices for both teachers and pupils in English schools. This report, compiled in March 2003, sets out some insights into the progress made so far, and identifies potential avenues for further investigation and ways in which to ensure that these are worthwhile.

Wikipedia

http://en.wikipedia.org/wiki/Personal_digital_assistant

Overview of PDA's including introduction, history, typical features such as touch screen, connectivity, memory, synchronisation, customisation, uses, technical details, links etc

PDA Blast

<http://www.pdablast.com>

Details and product latest news and information on the main PDA vendors and products.

Handhelds in the Classroom

www.education-world.com/a_tech/tech083.shtml

School technologists share their views on the uses of handhelds in schools plus links to other resources.

Note: While the advice sheets aim to act as a guide, the inclusion of any products and company names does not imply approval by the NCTE, nor does the exclusion imply the reverse. The NCTE does not accept responsibility for any opinions, advice or recommendations on external web sites linked to the NCTE site.

This Advice Sheet and other relevant information are available at:

www.ncte.ie/ICTAdviceSupport/AdviceSheets