

Scanners



A class is preparing an article with a retrospective theme for the school magazine. Using the school's scanner, they import old and recent photographs, artwork and text (student poetry originally written in the 1930s on a typewriter). Using an OCR program they edited some of the poems, as only samples were required for the article.

What is a Scanner?

A scanner is a device that captures images, documents and objects and converts them to digital format with a view to using them as digital resources. Photos, original artwork, drawings and text can all be scanned.

Possible Educational Uses

- Scan in photographs relevant to school projects.
- Scan in pupils' drawings for use in presentations and on school Web sites.
- Young children can scan their hands at the beginning and end of the school year to measure growth.
- Students with special needs can scan in pages from a book or document and use scan/read software to have it read aloud.
- Electronic versions of documents, reports, school administration data and forms can be produced.
- Scanning of images from a variety of sources for slide shows in subject areas.



Technical Considerations

All scanners are designed with the same basic purpose in mind, i.e., to convert images and documents into a digital format. Scanners come in a variety of shapes and sizes, but can loosely be classified into the following four categories:

Hand-held Scanners are hand held devices that scan an image or document by passing over it. They are small, portable and cheap. They are not, however, a very popular option as the accuracy of the end result depends on the skill of the user. Also, if the document being scanned is wider than the scanner, the page has to be scanned in strips. These strips then have to be joined together in an image-editing program. Hand held scanners are generally used with bar code technologies like library systems in schools.

Flatbed Scanners are the most common type of desktop scanners. When a document or object is to be scanned, it is placed face down on the glass surface of the scanner. The scanning head and light source under the glass automatically move down the document at a constant speed. Flatbed scanners are very versatile as they can scan flat originals of various sizes, they can scan three-dimensional objects, and they can be connected to a document feeder to scan multi-page documents speedily.

Feed-in (or sheet-fed) Scanners work differently from flatbed scanners in that the scanning components remain stationary. In this instance, the page being scanned is

moved past the scanning head rather than the other way around. Feed-in or sheet-fed scanners work very well in conjunction with document feeders and are suitable for scanning multiple page documents automatically. As these scanners are designed to handle single sheets of paper only, it is not possible for books or magazines to be scanned using them.

Portable Pen Scanners scan items like newspaper articles and public library items that may be on restricted loan or in reference sections. They usually come with optical character recognition (OCR) software and some with PDF conversion facilities. Most pens scan word by word or by the sentence while others scan the page.

Barcode Scanner scans barcodes on the spines of books to facilitate a large school library. Details of the borrowers and books can be recorded more efficiently especially in a large school. It can be expanded to keep track of school books in a school book rental scheme.

Other types of scanners are available, e.g., business card scanners, film scanners, and pen-sized scanners such as reading pens which can be used to scan individual words or lines of text from a book and then read it aloud. In addition, some multifunction devices (MFDs) also include scanners. A multifunction device allows users to scan, print, copy and fax from the same machine.

Purchasing Considerations

The most important step before purchasing a scanner is to think about how teachers and students intend to use it, in the context of enhancing teaching and learning, and to then decide which type of scanner best fits that purpose. Apart from the cost, scanners should be evaluated in terms of the software and accessories that come bundled with them. These items may make quite a difference to the overall versatility and usefulness of the scanner when installed in the school. Before buying a scanner, it is advisable to check that the computer being used with the scanner meets all of the specifications required to support it.

Generally scanners are designed to cater for specific paper sizes. A4 is the most common size but it is now also available in A3 sizes. Some A3 scanners may be sought for some subjects such as DCG and Art where a digital copy of exam materials may be required. Prices for A3 and A4 range around €500 and €100 respectively.

Bundled Software

Scanners almost always come bundled with scanning software, which usually includes a driver program, colour calibration software, image-editing software and/or an optical character recognition (OCR) program.

Some scanners also come with document management utilities, art and design programs, clip art, etc., but it should be noted that these extras are not usually the full editions of the software. If the letters LE (Limited Edition) appear in their title, it means that the enclosed version is a slimmed-down version in terms of the functions available. It is also good practice to keep the CDs that came with the scanner as if you need to reinstall the scanner software on a new machine or operating system, it may be difficult to find the correct drivers especially if the scanner is a few years old.

Optical Character Recognition (OCR)

When a text document is scanned into a computer the text itself is not editable because the document is scanned as a single image. OCR software, however, expands on the scanning process by 'reading' individual text characters and entering those characters into a word processing application, such as Microsoft Word. Documents scanned using OCR software — such as Textbridge and OmniPage — can be updated and edited after scanning. Many text to speech or 'read aloud' software products now contain integrated scanning and OCR software

Cost

Prices for scanners have dropped considerably in recent years. Flatbed scanners can be purchased from €60 upwards but expect to pay around €400 upwards for a high-end scanner. Sheet-fed scanners retail somewhere from €130 to €350

Related Web sites

Scanning Tips

www.scantips.com

The web site purpose is to offer some scanning tips and to explain the basics for photos and documents. It is about the fundamentals of digital images, about the basics to help you get the most from your scanner.

Scanner reviews

<http://reviews.cnet.com/scanners/>

List of scanners reviewed .

Using Scanners in Art and Design

http://schools.becta.org.uk/index.php?section=cu&catcode=ss_cu_ac_art_03&rid=5773

The use of ICT in art education - computers, scanners, digital cameras, printers and the internet - is challenging us to rethink the ways in which we develop pupils' creativity. In teaching art and design we need to consider how ICT can be used alongside traditional approaches and integrated with them, and how we can develop this new medium to extend visual understanding. A scanner is just one device that offers potential to art education.

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