The New Literacy – Using Reference CD-ROMs, and the Internet

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No-one with a real interest in education can have escaped the recent overwhelming focus of target setting in developing our children's literacy skills. Primary schools in particular have been presented with a vast wealth of information about how the skills of literacy are to be taught, and also with high expectations of raising the standards of achievement in literacy as a result. In all of this weight of information, IT or Information and Communication Technology (ICT) as it is now increasingly described, receives a very minimal mention. Yet as other elements of the community clearly identify, the need for our children to use literacy skills to manage the information presented on computer is growing stronger as each year passes.

This article will reflect on some of the additional skills that ICT demands of the literate user, and considers how these relate to the core skills of literacy that the National Literacy Strategy outlines. One of the first issues that needs to be clearly separated out is the use of literacy with ICT. No-one has yet provided a convincing demonstration that reading on a computer screen could ever be comparable with the task of reading that takes place on a sun-soaked beach, or with a torch under the covers. Reading from a computer screen is generally to provide information in some form. Certainly for young children, 'talking books' offer an exciting way of reinforcing and consolidating the tasks of introducing books, and perhaps of learning to read, but once a piece of sustained prose can be managed, reading fiction on a computer is not a serious option.

Non-fiction literacy

The literacy of non-fiction is, for many parents and teachers, a much less clearly defined set of skills, but one which is enjoying increasing interest as a response to the Literacy Strategy, and also to the observation that many boys are more motivated by non-fiction reading than by 'stories'. When reading non-fiction, text is often not sequential – one double page spread on Flight might be followed by a double page spread on Flowers. Text is often spread on the page in paragraphs loosely associated with illustrations or images. You do not always have to start in the top left-hand corner, and you might spend significant time decoding a diagram or chart including the labels, before reading the paragraph of text. Despite these variations, however, there is still 500 years of convention that helps direct use through the book.

The title page is at the front, together with the name of the author and illustrator. This is followed by the content's page, and individual pages through the book have headings, a page number, sometimes chapters. There's usually an index at the back to help you find your way around, and perhaps most understated of all, there is the physical presence of the book – you can see how big and thick it is. It's shape and size enable you to start to make some judgements about how comprehensive it might be in relation to the information you are seeking.

Reference CD-ROMs

CD-ROMs offer few of these clues. Physically they all look the same. One silvered disc might contain 12 animated pages of a talking book, or it might contain 22 volumes of an encyclopaedia – you cannot tell by looking. This has a significant bearing on your expectations. For example, if you are searching for some information on the skeleton should you expect the encyclopaedia to have it or not? Perhaps if a child typed in 'skeliton' and found nothing, you might hope that the child would contemplate trying again, since a failure to find some information on the skeleton in a large encyclopaedia would be unlikely. If the initial question does not seem to be answered, is there another way of asking that question that might be more productive? Should you try 'bones' for example? This requires an understanding of the relationships between words that is of quite a high order. The Literacy Strategy suggests that Year 3 pupils learn to 'scan indexes, directories and IT sources to locate information quickly and accurately'. In fact, a much more sophisticated understanding of the way words link together is required to use IT searches and indices effectively. A book always offers the ultimate 'cheat' of a flick through the pages with a hope of finding something relevant. Computers are not so forgiving. If children do not have other strategies for using alternative words, then they will be constantly frustrated in their search for information in computer based text. This will challenge teachers to see the need to develop skills with synonyms as very significant key to finding electronic information.

Searching

All words do not have the same power either. For example, if you want to find out about African animals, you could look up 'Africa', and there might be a subset in the index of animals. You might look up 'animals', and there find a list of all the animals referenced in the encyclopaedia. With a computer, both words might be entered into a search together, leading to either all the things relating to Africa and all the things relating to animals being found, or alternatively, you might do a search which will only find items that relate to both Africa and Animals, and would then lead to a much shorter list of just African animals. Understanding the distinction between these two searches is vital for good results from a search, and it demands that children have a good knowledge of words, their meanings, and their relationship to each other.

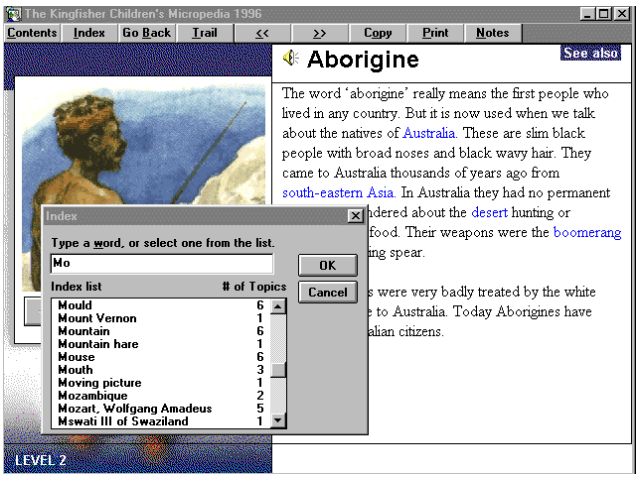
One of the words that is a good test of an electronic encyclopaedia's index is the word 'space'. Children expect it to relate to the area of the universe outside our world. Computer generated indices often link 'space' to text about architecture '… the buildings had significant space around them'. If you then look at these two word lists, you can see how easy it would be for computer generated links to make that mistake. The first set of words might be used in an architectural context, and the second with reference to outer space. It is however, not enough to have thought about the word root. Children need to know how to identify words that might help to mark the distinction clearly.

space, area, openness, light, airy, atmospheric, cosmopolitan

space, universe, light, air, atmosphere, cosmos

Similarly, using indices on CD-ROMs requires children to identify the sort of help that the computer can offer. For example, you may not have to type the whole word into a

search box, for the computer to start to find words with that letter pattern. Typing 'Mo' might offer a list of words starting with those letters from which the child can find the name 'Mozart', even though they thought it was spelt 'Motsart.' Strategies such as this which use the power of the technology to assist the child who is developing reading skills should be seen positively, as aids to motivation for further exploration. There is nothing more frustrating that not being able to find out information simply because you cannot correctly spell the word in question and understanding how to use the tools the computer provides is an important aid to success.



Choosing relevant information

Many CD-ROMs present vast amounts of information. Children need to be given clear guidance about the need to skim and scan the information presented, and to be empowered to 'ignore' lots of it. Electronic indexing usually links to whole articles, within which the information that the child is looking for might be deeply embedded. Learning how to use section headings, to scan down text to find names, dates, places – all text that stands out and highlights information – is a crucial skill for children to master. Scanning text must have a purpose; the children need to have a clear idea of what they are actually looking for, the questions they need to answer, before they begin to scan through information. With a computer, movement through substantial amounts of text is only too easy. Children need to be given a focus to use the materials well.

It is also important to make clear to children what type of information they are required to find. One child I worked with was uncomfortable about using a diagram of a skeleton as evidence of her assertion that a leg bone was the longest in the human body. Sometimes a map, a picture, a date, or an animation might be a more appropriate source of information than the text, and children need positive encouragement to use this type of information as evidence. Schools are very word based places, and children quickly learn that the words are more important than the pictures, even though our culture owns the view that 'a picture speaks a thousand words'. This is to extend the view of literacy from that directly presented by the National Literacy Strategy, but in practical terms it is a crucial adjunct to verbal decoding.

Most CD-ROM encyclopaedias offer instant cross-referencing to other areas. This is both a powerful way of linking to other material, almost exclusively through word

links. The wider vocabulary children have and the development of the power to understand the distinctions between words and the way they relate to each other, the more effective will be their use of cross-referenced material.

The Internet presents an even greater imperative for these skills. With the potential to link to a vast library of resources, using words to search intelligently, and also carefully reading synopses or entry headings to find out what a site might offer, are both really important and complementary skills.

Towards a framework for information skills

Decide – Look – Select – Retrieve – Process – Record – Review – Present – Evaluate

This sequence of activities is really a cycle – the final evaluation might lead you to start the process again refining your choice of information, and so on. So far this article has focused on the steps up to Retrieve. What children **do** with the information they access is central to their learning, and that is the focus of the rest of the steps in the cycle. As a process, its purpose it to enable children to choose appropriate information and make it their own. Once teachers complained that children were just copying information out, now the computer's printer will do that for them with even less effort! I have observed a child grasping 17 pages of printout on Uganda and claim that 'I've got lots of information about Uganda'. My suspicion is that **he** did not in fact have **any** information about Uganda – it would not really become his until he had reviewed it and presented it in some way showing his own understanding. This highlights and focuses on the difference between information and knowledge. There is no lack of information in a computerised form, but it is only after intelligent use of that information that we can describe the child as having knowledge.

Process

Giving children mechanisms for deciding which pieces of text are relevant to the subject on which they are searching, and being critical about the text they are searching is essential in a situation in which there is far too much information. I watched a child in a school in Birmingham collect information from a CD-ROM about Birmingham. Unfortunately it was Birmingham, Alabama not West Midlands. It was fairly clear that

in this context he was not reviewing the information presented to him critically, as there were many clues that he had missed. Children need to learn and practise to summarise both verbally and in written form the information they have gained.

Record

Children need help to re-present and format the information they have found, especially from the new media of video, sound and animation which are often included in CD-ROMs and on the Internet. They are often very informative, but children need help in identifying ways of capturing that information on paper so they can internalise it. This may be done through the creation of a series of cartoons, or sequence of diagrams, or perhaps a spider diagram to explain the sequence of events.

Capturing information in tables or creating diagrams to represent the information, or labelling provided diagrams are all ways of demonstrating understanding, and need to match the report writing of the later stages of the Literacy Strategy. The purpose of these activities is to record the information from the source, and then to be able to use the table to present the information in another way which is personal to themselves.

This might be to write a narrative piece of text, or to discuss whether one view is correct or not. It might be in the form of a cartoon, a diagram or a drawing. The purpose of recording the information is to be able to find and use it later and in doing so to be able to show understanding of the work they have read and reproduced.

Without a doubt these skills are going to be critical for the children who are currently in Primary School. It has been true for more than a century or two that there has been more information in the world than any one individual could possibly hope to master, so choosing what to read is not a new problem. But what is new, is the general availability of this material – it can be accessed by all those with the computer equipment, even from their own homes. As a result, critical, selective reading, and sophisticated information processing skills are entitlements that all our children share, so that they can move from consumers of data and information into processors of knowledge, and who knows, even into adults blessed with wisdom!

First Published in *4-11 Magazine*