

Penceil Paper 2

Outline proposals for a new basic ICT curriculum

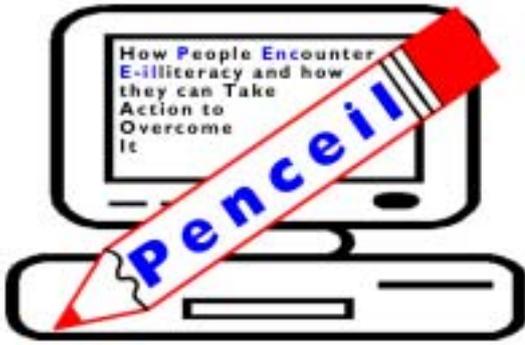
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Outline proposals for a new basic ICT curriculum

These proposals come in seven parts:

1. Skills vs. education
2. Control of technology
3. Assessing trustworthiness and authority
4. Searching skills
5. E-mail
6. How to buy a PC and peripherals
7. Accreditation

1. Skills vs. education

Current ICT curricula are all about skills development not development of the learner as a self-aware person. This is clearly demonstrated not just through the curriculum documentation but also by the dominant mode of teaching: the individual worksheet.

This means that although there is frequently individually initiated co-operation, in pairs or small groups, on problem solving, there is no general discussion on what a learner might do with the technology: how they might align their use with their personal needs and interests.

There is no developing group awareness of all the possible modes of use and potential resources.

2. Control of technology

PCs, and even more so PCs attached to the internet, are highly complex pieces of technology. Non- and beginning users (and also many experienced users) are frightened of the technology, fearful that they 'might break it' and uncertain how they can fix it/get it fixed if it breaks. They do not have a distinction between: how the PC might break down in the fashion a TV or a washing machine might break down; a serious software malfunction; and a temporary glitch. It is a black boxed technology which is unpredictable and which inhabits a world that is separate from 'normal life'.

The tools for controlling the technology are strange to all or most new users. While some may be familiar with a typewriter keyboard, the many additional keys on a computer keyboard may confuse even those with this prior knowledge. The windows interface and the mouse or roller-ball are new, and difficult, for almost all non-users. Many courses only teach one way to perform

an operation, like saving a file or copying some text, for fear of confusing students, rather than showing a variety of ways so students can choose the one(s) that suit their style of working the best.

Fear and risk

It is useful to look at an analogy with a car. Many (most?) drivers have a very hazy idea of how their car works, and few skills to repair it if it breaks down. However, most drivers belong to a break down service (the AA or similar) who they trust to get them back on the road or give them reliable advice if they are not able to effect an immediate repair. There is no equivalent service for PCs. Garages are frequently distrusted, but rules of engagement with garages have become established over time, there is no similar ritualization of expectation and conduct with PC technical support, so it is an arena of fear as well as distrust.

Users are bombarded with advice about safe computing: password policies; updates; firewalls; and virus checkers. The need for these is covered in many courses but the skills to configure these safeguards are rarely or never taught. For instance, users are not given the skills for making sensible decisions when presented with a choice of move, clean or delete by a virus checker.

Consequently people may be simultaneously too scared and not apprehensive enough about the risks of computing. It is a world of ill-understood dangers where despite high anxiety, people fall victim to the most basic 419 or phishing frauds or open poorly concealed virus carrying messages but refuse to use their credit cards even on the most well established and trustworthy sites.

The government and the industry also need to establish trustworthy sources of advice on computer faults and a recognized kite-marking scheme for computer repair and advice services.

Telephone helpdesk staff often have an unenviable task of assisting people who do not fully understand the significance or context of the questions they are being asked, and assistance at best solves the immediate problem without equipping the user to avoid or manage similar problems in the future.

People with wide social networks depend upon free help from friends, neighbours or relations (or, often, their children), more isolated individuals may be inhibited or prevented from using computers at all.

The curriculum needs to cover more about how computers operate; what security tools do; and how to understand and respond to on-line risks. There needs to be a move towards independence in managing the computer and its environment as well as in its use.

3. Assessing trustworthiness and authority

These two streams come together in assisting users to not only locate information, but also assess its authority and reliability, which is more difficult on-line than in the physical world.

Even when dealing with printed or broadcast sources, people often find it difficult to assess the reliability of information. However much information comes from a known source and it is practical to teach and learn about the consistent view points and biases of say the Daily Mail and the Guardian. It is also practical to explore whether the BBC or ITN's reputation for impartiality is well-founded. On-line sources are far more numerous and less well known.

For instance many people use the internet for medical information; this information comes from a mixture of prestigious medical journals, manufacturer promoted web-sites and advocacy groups of varying competence and scrupulousness. This was evidenced during the recent MMR panic where poor research published in reputable journals was selectively simplified by newspapers and advocacy groups with a pre-disposition to mistrust public health programmes and to seek a medicalized explanation for the occurrence of autism. In the light of this information it was difficult to establish a rational risk assessment for a parent trying to work out

whether to have their child vaccinated. This is a public example of the private assessments people must make about their course of action on health problems – whether to go for conventional, complementary or no treatment. Internet use is part of a culture where people expect, and are expected to, take a far greater responsibility for deciding on their treatment – celebrated by the Government as part of its choice agenda, particularly in health and education – and a consequent loss of automatic trust in health (and other) professionals. Audit culture makes publication of failure much more common, internet culture results in the speedy transmission, and thus effective magnification, of evidence of failure.

Any ICT course must enable internet users to navigate through this ever increasing ‘information overload’.

4. Searching skills

Most courses teach basic searching skills, how to use Google or similar tools. Few teach the more advanced skills of constructing effective search terms. Effectively we are expecting people to search the largest databases in the world on the basis of haphazardly chosen key words. That these work as well as they do reflects great credit on the designers of Google and Yahoo. However all searches rely on spelling skills, search engines are forgiving of small spelling errors (such as ‘erorr’) and will usually suggest a correct spelling. However if the spelling attempt is seriously awry (e.g. ‘new monia’ for pneumonia) the searching attempt will fail totally and the user will not be able to make any progress – one even partially appropriate search result can be leveraged into a successful search, but a null response is totally defeating. Nationally, spelling skills are far poorer than reading skills (non-native speakers often find spelling particularly problematic) but this is not generally recognised as a serious barrier to internet use.

Searching rests upon a complex set of literacy and information literacy skills and needs to be part of an ICT curriculum.

5. E-mail

For many people e-mail is the use that makes them want to learn to use computers and the internet. Currently this is covered some way into the course. New users are much more likely to want to type a message into e-mail than compile a document in Word, yet they are required to learn many Word features like, indenting and aligning text, before they are shown how to type text into an e-mail form and send it. It makes sense to teach text entry, correcting and editing thorough e-mail rather than word-processing.

However text entry is only one e-mail skill, students need to know how to select an e-mail provider and the reasons for choosing a web-based service or one using an e-mail client, this would need to accompany learning how to choose an ISP. A basic understanding of what the internet is and how it works would contribute to understanding how to make decisions in this area.

6. How to buy a PC and peripherals

IT tutors are frequently asked for advice on what PC to buy. While most tutors and colleges would not want to recommend suppliers or models, an understanding of what to look for as a minimum specification and how to relate student’s intended use to their required specification is needed. Also helping students to decide which of the many peripherals that are advertised to them would represent value for money for them would be very useful.

Because hardware is sold on the basis of large numbers, xx GHz and yy MB, it is necessary to explain the basic make up of a PC, so that students can decide whether to spend their money on a faster chip, more memory, larger storage a printer or a digital camera.

7. Accreditation

Many of these issues map to range statements in the new ICT as a skill for life curriculum guidelines. However they do not easily map to a qualification at a particular level. They will represent an idiosyncratic learning plan, a spiky profile, rather than a qualification at a pre-defined level. Mouse skills may be at entry level, even entry level 1 for older students, while assessing the authority and trustworthiness of information may be at level 2 or 3. However it is necessary to define learning plans that match the learning needs of the students rather than the pre-determined requirements of the QCA and the examining bodies. Thus, accreditation is likely to be through individual learning and attainment records matched to range statements.

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