Computers in psychiatry

The portable computer in psychiatry: experience with a Z88

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The portable computer

Managerial and administrative personnel are increasingly to be seen using desk-top computers. With medical staff, however, it seems to be commoner to find their computers sitting at home. This is likely to be because clinicians are essentially mobile in their working, and although the career structure dictates that publications are essential, there is no time-slot during the clinical day for such activity.

It is comparatively recently that the power of the desk-top computer has been transferred to a portable package. One particular brand of computer, made by IBM, has the market share, and most people tend to select either an IBM personal computer, or other makes designed to work with the same programs, the so-called IBM-PC clone, often referred to simply as a PC. In order to run the same programs, the portable computers need the same components as their larger brothers but to be built in a more compact and sturdy fashion. In addition, the quality of computer displays have improved dramatically over recent years, and duplicating the highly developed TV-type screen in a portable format has been very difficult. All this has led to portable computers that are expensive, heavy, and with a battery life of a few hours at best. Most of them are indeed used as transportable desk top machines rather than for portable computing.

My home computer is an Amstrad PCW 8512. This is a computer commonly purchased by doctors, and employed principally as a wordprocessor, that has demonstrated itself as being an adequate and economical alternative to a PC. With this experience, I was encouraged to look around at the non-PC portable computers with a view to allowing me to work on the move, given that throughout the day, several small 'windows' of time arise – such as waiting for meetings to start, or perhaps a new patient fails to attend, or a return telephone call is waited for. Also computer literacy in the mental health unit is increasingly causing competition for the statistical, graphical and database packages available. While the packages will only run on a PC with a large memory store, they all will accept raw data as a file of text. Time with these packages is more efficiently used if the data are already in computer file form, and most computers will produce this internationally standardised output known as ASCII (pronounced 'ass-key').

Requirements of a portable computer

After consideration, the following were my requirements:

    portability – sensible size and weight
    self-contained – no waiting for programs to load
    capacity – enough memory for several items simultaneously
    independent – internal batteries, and an external power socket
    screen – legible, with sufficient size to demonstrate context
    keyboard – quiet, of a good size, and in a QWERTY layout
    output – for transfer to a printer or other computer
    communications – for bulletin board access (see below).

The range of choice

Exhaustive computer reviews are highly subjective and rapidly outdated. There is no substitute for hands-on experience. Good dealers will cooperate with this, but always ask for the demonstration to start from 'switch-on'. The "here is something set-up earlier" demonstration can be misleading. I will list my own observations on some of the increasingly large range of portable computers in the context of the above comments.

The *Sharp IQ-7000* is well constructed, smaller than a paper-based organiser and good for mainly diary-type short notes but needs additional gadgets to communicate with other computers. It is not really a text processor. It will run other functions (such as a dictionary/thesaurus) from 'plug-in' cards, however. Tandy have had A4 pad-sized laptop wordprocessing computers on the market for some years. They have excellent keyboards but little memory (once

very costly) and, though flexible, I find them expensive for what they do. Recently, however, the same company has developed a new text processing computer, the *Tandy WP-2* with a built-in wordprocessor with a dictionary and thesaurus. The wordprocessor is reputedly powerful and there is also a built-in communication facility for transferring information to other computers. I have not seen one yet, but it would appear to be a wordprocessor rather than a computer that can run wordprocessing or other programs.

Another truly portable computer is the *Psion Organiser*. This machine (the size of a couple of cigarette packets) is often seen in department stores assisting in stock control, and is carried by community psychiatric nurses in Clwyd to monitor their patient contacts. The screen, recently doubled in capacity, has four lines of characters, and an alphabetic layout.

The *AgendA* electronic organiser by Microwriter Systems has an interesting solution to the tiny keyboard on the tiny computer problem. The company had some success with its *Microwriter* previously, which uses five keys to enter any text, one-handedly and with some rapidity. The AgendA is an 'organiser' with this efficient text input facility included. My experience of the Microwriter in meetings was that it rattled disconcertingly, but I have never noticed an AgendA in the same circumstances, so they may have improved on that. The AgendA has some powerful text editing features but can display only four rows of 20 characters at a time.

The *Atari Portfolio* is a hand portable model that is PC compatible. The keyboard is rather small and the accessories expensive, but the base machine has recently been reduced to £200.00 and is well worth further inspection. Obviously, it will only run the smaller PC applications, and nothing that requires a screen layout for use.

The Cambridge Z88

The Cambridge Z88 is also an A4 notepad-sized brick, and has a full-size, rubber covered keyboard which is silent, but feels odd at first. It has an eight line, 80 character display using liquid crystal (digital watch) technology which prefers bright light. The battery life (four pencil cells) is adequate, and a series of integrated programs with a full range of wordprocessing and data manipulating features are available from permanent internal memory, reached from a list or 'menu' displayed on screen. The built-in diary facility and a means of writing your own programs in BBC BASIC (ask any child!) are similarly available in a couple of seconds.

On the 'down' side, I quickly filled up the 32k of internal memory (equivalent to approximately 32,000 characters, but mostly used by the wordprocessor when operating), and quickly needed an external memory cartridge adding another 128k (approximately 128,000 characters) to one of the three expansion slots, all of which are available for text if required.

Using the Z88

Word processing

When 'woken' the Z88 displays the last thing it was doing when it dozed off (after two minutes of inactivity), ideal for stop/start working. On leaving the wordprocessor you can save the document to memory (when it takes less space) or suspend it – in the latter case the cursor remains in the place you left it. Several documents can be 'suspended' at any time and you can jump from one to the other to consult notes, keep a reference list up to date, or even examine the diary while writing. Having easy access to a wordprocessor allows a different style of thinking, where you can concentrate on the main points of an item, rather than layout in the first instance. Being able to take notes directly to a wordprocessor document saves time in rewriting later, and increases accuracy on the number of occasions when I take notes at all, the on-board filing system being considerably more reliable than the backs of envelopes that I always found stuffed at the bottom of my pockets.

Programming

The BASIC programming language will run programs in other popular versions of BASIC with little modification, lending itself to questionnaire administration (the ubiquitous depression rating scale in my case), statistical evaluation and programs with limited purposes (such as suggesting drug equivalent dosages of neuroleptics). The SPREADSHEET allows text and numerical information to be entered in a tabular form from where it can be directly processed by the on-board functions, or copied to desktop based spreadsheets or statistical packages. I have recently employed the Z88 to enter Present State Examination data for the CATEGO program, remotely from the PC, and used it to prepare audit data on Section 5(2) of the Mental Health Act for both statistical and graphics packages on a PC. It is currently compiling Hamilton and Beck depression scores in an ECT study.

Time management

A built-in diary simplifies expenses claims, as printout can be limited only to items to do with expenses at the end of any month. The built-in calculator is useful at this time too. The calendar is perpetual, so there is no copying over of next year's appointments when the new diary arrives. It is simple – I have set the computer to sort diary entries in order of time, and there is a clock and an alarm facility which can also copy unattended diary items over to the next day.

Communications

Copying data to other computers requires only a suitable connecting cable and a communication program on the other machine to simplify the various options. Apart from providing a means of 'backing-up' data for the time when someone sits on the Z88 on a train, this arrangement has also been very useful as a means of moving data between desk-based machines that have incompatible disk systems.

I have referred to the use of a modem before (Littlejohns, 1990), and the Z88 has allowed me to connect with the psychiatric computerised bulletin board (BB) that I co-host, and to receive messages posted from as far afield as America while I was away from home. The BB system, in allowing me to leave a text file available for anyone, anywhere in the world to call in and 'download' at their convenience, also provides a temporary backup of my work while I am away from my main computer.

Need for caution

I should point out two areas of concern to note. The data on a portable computer can easily come under the terms of the Data Protection Act, even the address headings on letters are 'personal' data, and potentially sensitive, especially in psychiatry. Find out exactly which computers are covered for business use by your employers, and where. Secondly, losing a computer involves losing more than the replacement cost, which is insurable. A considerable amount of easily manipulated data goes with it. Imagine how you (or your patients) would feel if the general public were allowed open access to your office. It is an unfortunate omission that a business machine like the Z88 does not have a password facility, despite the largely false sense of security such a trick provides.

Conclusion

Producing the Z88 from my brief-case has provoked a few smirks when a notepad was expected (but so did the now defunct personal organiser); however as many onlookers were impressed as were suspicious, and when I used it for taking minutes in meetings the reaction seemed largely one of awe. It certainly feels that I am more able to use my time efficiently, and previously wasted time can be productive. Whether the facility of a word processor saves time is unproven as yet. I suspect the new style of working is more efficient, but in terms of quality, rather than speed. The functions mentioned, all in one easily portable package, have made the Z88 a useful addition to my briefcase and extended the usefulness of the desk based systems to which I have access.

Further information

Interested parties may find out about suppliers and software for the Z88 from the Z88 Computer User Group. They can be contacted at: Z88 Users Club, 86 Wellington Street, Long Eaton, Nottingham NG10 4NG.

Reference

LITTLEJOHNS, C. S. (1990) Computer communications in psychiatry: literature searching and bulletin boards. *Psychiatric Bulletin*, **14**, 413–415.