

# Personal Computers in Forensic Psychiatry

Peter Ash, MD

Because forensic psychiatry is a relatively small field, there are few computer applications designed particularly for it. Forensic psychiatrists use personal computers in many ways that are similar to other psychiatrists, but certain aspects of forensic practice, such as an emphasis on precise reports, regular interactions with attorneys, use of legal databases and materials, and travel, call for utilizing available programs in different ways. Since forensic psychiatry draws on the knowledge of psychiatry, law, and criminology, the World Wide Web has become a particularly useful resource for information. An array of applications and resources of particular interest to forensic psychiatrists are presented. Computer education, "telemedicine," and teleconferencing are still in their infancy in forensic psychiatry, but are likely to increase in use as these technologies mature.

In less than 20 years, the personal computer has gone from an electronic hobbyist's gizmo to a ubiquitous tool of the work environment. There is a vast literature on using personal computers, including how-to books, an ever-increasing number of periodicals, and an exploding quantity of information on the World Wide Web. There is a still small but growing literature on computer uses in general psychiatry<sup>1,2</sup> and an increasing array of commercial programs that provide computerized patient records and practice management. In many ways, forensic psychiatrists use computers similarly to general psychiatrists and, to some degree, in the same ways that small busi-

nesses use them. This article will not cover all of the applications a psychiatrist might use, but will emphasize applications of particular interest to the forensic psychiatrist.

## Stand-Alone Software

*VisiCalc*, a spreadsheet program that came on the market in 1979, was such a useful program for businesses that they bought computer hardware solely to run that program. It was the first "killer app," an application that is so desirable that people buy a computer just to run it. For forensic psychiatrists, word processing programs were often the application that justified buying a computer. Forensic reports, which will often be studied intensely for flaws by cross-examining attorneys, need to be quite precise. Word processing allows forensic psychiatrists

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Dr. Ash is Assistant Professor, Department of Psychiatry and Behavioral Sciences Emory University, Atlanta, GA. Address correspondence to: Peter Ash, MD, Psychiatry Box 26238, Grady Memorial Hospital, Atlanta, GA 30335-3801. E-mail address: pash01@emory.edu

to revise and re-revise with far less effort than having a report retyped.

Word processing has other advantages. "Boiler plate" documents greatly reduce redundant work. They can simplify invoice preparation. They can be used to develop document structures. For example, the author prefers to send separate reports to the court for pretrial competency to stand trial and criminal responsibility, even though both reports are usually requested in the same court order and much of the material overlaps. A master report is created, which has the report headings, and the evaluator then completes (or dictates and has a secretary complete) the relevant sections. One macro is run at the beginning of the process, which asks for information such as the defendant's name and to whom the report will be sent, as well as filling in certain sections of the report (such as page headers). Then, after the report is revised, running a second macro creates two separate reports. Information changes in the master document will be carried over to both reports, if relevant. This is particularly helpful in correcting trainees' reports, in which numerous revisions and successive drafts are common. (This example is available on the AAPL Website\* for WordPerfect; the master report and macro can be modified to fit the style of a particular author).

Forensic psychiatrists often work on deadlines, and attorneys sometimes want materials in a rush. The usual fax has an output quality that is not very sharp.

\* Go to the Website [www.aapl.org](http://www.aapl.org), and follow links to "Forensic Psychiatry Resources," then "Computer Tips," then "Software Tips."

However, much of the murkiness derives from the sender's original scanning of the document; receiving fax machines usually operate as 200 dpi (dots per inch) printers. Most word processors allow setting up a fax modem as a printer, and one can print directly to the recipient's fax machine, giving high quality output. In sending materials in this manner, there are several considerations to keep in mind. First, letterhead needs to be electronically duplicated by matching fonts and scanning in logos. Second, the material should be previewed before sent: most word processors will make some formatting changes (with a resultant move of page breaks and graphics) because of changing the printer. Third, while one's signature can be scanned in and then used as a graphic to be inserted where needed, such electronic signatures do not carry the legal weight of a signature by hand. There are various proposals being considered for validation of electronic signatures, but no proposal has yet been generally accepted.

Word processing programs can also provide some document control. Many current word processors can create indexes of all words in a set of documents, which greatly simplifies solving questions such as "Now just where is that letter to Attorney Shark?" Many depositions are now word processed, and electronic copies of depositions ("deps on disk") can generally be obtained from attorneys. These can save considerable time when, for example, several months after an initial review of a deposition and reading another expert's report, one wonders, "Just what did Dr. Defendant say

## Personal Computers in Forensic Psychiatry

about his progress note of March 3?" Using the search function for "March 3" will provide a rapid answer. Another document that is very useful to have in electronic form is the DSM-IV.<sup>3</sup> For those who have not committed all of the criteria to memory, in conducting an evaluation in which the evaluator knows that, say, the diagnosis of depression is in dispute, it is very helpful to have printed out the relevant criteria on a clean sheet on which notes may be taken. Document control may have some unanticipated effects. While the author has not yet been asked in a deposition about computer files, relevant files would arguably be discoverable. This needs to be a consideration when determining how early drafts of reports are retained, even on backup media. The author's standard backup strategy assures that earlier drafts are not retained, in any form, longer than several weeks.

The newest and most promising development in word processing is the development of low cost, computerized dictation programs. Almost everyone, especially many forensic psychiatrists who rarely typed before they got a computer, would love to throw away their keyboards and talk to their computer like spacemen talked to HAL in the movie *2001*. In the mid-1980s, many people expected that computer voice recognition was just around the corner, but such programs proved to be surprisingly difficult to develop. Until last year, to dictate to a computer one either had to spend a great deal of money on both software and hardware and/or you... had... to... talk... like... a... robot. In 1997, two programs (Dragon System's *Natu-*

*rally Speaking* and IBM's *ViaVoice*) were introduced that sell for less than \$200 and allow the user to talk to a computer with regular rate and rhythm. The new programs appear to have about 90 percent accuracy before extensive training. Correcting every tenth word is still a chore, but the computer learns with practice and improves as it learns the speaker's verbal style. These programs require a fairly strong processor (Pentium 166 MHz or better) and are fairly fussy about which sound cards they run with (check hardware compatibility before buying). Significant improvements are likely to occur over the next few years. For those with antique equipment (i.e., more than two years old), these programs are likely to be the "killer app" that leads to purchasing a new computer.

Using a computer to administer and score checklists and psychological tests is a great time saver and has the advantage of reliable administration and scoring as well as low cost. A wide range of tests assessing such constructs as diagnosis,<sup>4</sup> personality (such as the MMPI-2), competency to stand trial,<sup>5</sup> and paraphilias<sup>6</sup> are available, and self-designed checklists are relatively easy to construct.<sup>7</sup> It is important to have a separate computer to interact with subjects, if for no other reason than the fact that a computer-sophisticated antisocial evaluatee can wreak havoc and locate supposedly protected data even on most password-protected systems. However, since most testing programs require relatively little computing capacity, this is an ideal use for that old 386 computer that has just been replaced.

Graphics applications now have considerable sophistication, but in forensic psychiatry their use has been limited primarily to developing charts and slide presentations. The potential for developing impressive multimedia presentations to be used in court is beginning to be explored by attorneys, and such presentations to accompany forensic testimony may increase as courts and attorneys become more familiar with such presentations.

There are many database, accounting, and spreadsheet applications that are useful in running a medical practice, to handle such tasks as patient/insurance billing and scheduling, for example. A simple database of forensic cases, which identifies the case, its nature, dates, and degree of involvement, is quite helpful in responding to requests such as "Identify all cases in which you have given testimony in the last four years" (required of experts in federal civil cases).<sup>8</sup> For those forensic psychiatrists who cite literature, a bibliography management program provides a database for managing references (suggestions for techniques to incorporate legal case citations into *EndNote* are available on the AAPL Website, [www.aapl.org](http://www.aapl.org)).

### The Internet

Now that Websites are often given in television commercials, it is hard to remember that Mosaic, the first graphical browser, was developed as recently as 1993. AAPL developed its Website, [www.aapl.org](http://www.aapl.org), in 1995. The essence of the Web is the hypertext link, a place on the screen where the user can click to

move to a different location, which may be a different place in the same file or may be a file running on a different machine running a different operating system 9,000 miles away. The more links and sites there are, the more information is available. On early Websites, or so-called first generation sites, these links were primarily underlined text. The Web has grown fast: in Web design, a generation lasts about 18 months. Second generation sites were characterized by buttons and image maps; third generation sites provided more graphic design, frames, and menus, and now (mid-1998), interactivity, Java applets, and multimedia sound and video are coming to the fore. The pace of change has been so rapid, both in growth and in functionality, that even the short term future of the Web, say next year, is unclear.

With this plethora of information, it is understandable that a great deal of information relevant to forensic psychiatrists has become available. The federal government has done an especially good job of putting public data and reports on the Web. While court opinions are not as readily accessible on the Web as through a dedicated legal database service such as Lexis or Westlaw, appellate opinions are increasingly available. The enormous amount of available information is a boon to researchers. The amount is so vast, however, that users need to develop fairly refined search strategies. An Alta Vista search done on "forensic psychiatry" as this is being written returned over 350,000 documents! There is no quality control on the Web, and poor or misleading information can pose a serious prob-

**Table 1**  
**Example Links Available on the AAPL**  
**Website, www.aapl.org**

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AAPL material
About AAPL
Member Web pages
Directory of forensic psychiatry residency training programs
Search the abstracts and table of contents of the <i>Journal of the American Academy of Psychiatry and the Law</i>
Other organizations
Psychiatric organizations
Sites with forensic materials
Government data
Hear arguments of the Supreme Court
Full text of Supreme Court decisions
Much state law and appellate cases
Library of Congress card catalog
FBI's <i>Uniform Crime Reports</i>
Medline
Interactive
Ask a question of a forensic psychiatrist
Software tips for forensic psychiatrists

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lem. While there are rating instruments that attempt to evaluate health information on the Web, their usefulness is questionable.<sup>9</sup> The AAPL Website attempts to provide links to information of interest to forensic psychiatrists, a sampling of which is listed in Table 1.

While much of the Web provides useful information, the Web is rapidly developing into an interactive medium. The burgeoning of electronic commerce is the most obvious manifestation of this trend. Huang and Alessi<sup>10</sup> note that the Internet has possible uses for psychiatry in the areas of education, clinical care, research, and administration. Computer-based instructional modules have been available in many medical schools for over 20 years, and the Web provides the technological basis for providing interactive ed-

ucation to a much wider audience. There are many possibilities for interactional computerized instruction in psychiatry.<sup>11</sup> The relatively small total number of forensic psychiatrists, however, suggests that it will be some time before the considerable effort needed to produce such programs in forensic psychiatry is expended. The AAPL has taken the step of encouraging members of the general public to ask questions about forensic psychiatry through its Website, and it is notable that about two-thirds of all questions come from high school and college students inquiring about training in forensic psychiatry.

The Web gives forensic psychiatrists a forum in which to publish their own pages. AAPL members can request that their Web pages be listed on the AAPL site. It is unclear how effective these individual sites are as subtle or not so subtle advertising, although the author has received several forensic self-referrals from persons searching the Web.

Electronic mail (E-mail) was the first widely used Internet service, and many busy people who are seldom readily available by telephone find it a preferred method for rapidly reaching other busy people. It has given rise to a whole communication style, a blend of the immediacy of the telephone with the formality of a letter, coupled with its own idiosyncratic ideography (such as the sideways faces of (-: and ): to convey positive and negative affects). E-mailers should realize, however, that they have limited privacy. There may be an electronic footprint (especially if one is employed by a corporate or government entity), and E-

mail messages are often forwarded on with considerably less thought than one would give to photocopying a letter and forwarding it. Highly confidential material, as a general rule, should not go by E-mail unless the privacy issues have been thoughtfully considered.

Many psychiatrists are not aware that they can establish their own domain (the domain is the part of the E-mail address after the "@" symbol) by buying their name or any other term that is still unowned.<sup>†</sup> This makes it relatively easy for others to remember one's E-mail address. For example, E-mail sent to anything@aapl.org will be delivered to the AAPL central office.

"Newsgroups" are an Internet resource that tends to be underutilized by professionals. There is no generally available forensic newsgroup, and the psychiatry newsgroups are not very active, but newsgroups provide one of the best ways of getting questions answered about how to use your computer or software. Suppose you have just bought the latest PC Zinger program, loaded it in, but cannot figure out how to use it to rotate a Visteron into a zilpatch. You could go to the vendor Website, but such an arcane question may not be answered there; or you could telephone technical support and probably wait and possibly pay for an answer; or you could go to the newsgroup and post a message. Someone out there probably knows the answer and will respond. Software and hardware vendors frequently

<sup>†</sup> Check the master domain database at <http://www.internic.net> for name availability. Details on purchasing a domain name are on the AAPL Website under "Software Tips."

check the newsgroups and answer the more complex questions. Newsgroup servers are available from most Internet service providers, and major Web browsers have built-in newsreader support. Information on accessing newsgroups is available on the AAPL Website.

### **Nonpublic Networks**

There are many networks that are private or do not rely on the Internet. For example, a local area network (LAN) may link together all the computers in a company or a work group. Telemedicine or teleconferencing activities may use Internet computers to transmit data point-to-point. These techniques are not specific to forensic psychiatry, but it is reasonable to expect that as these technologies mature, forensic psychiatrists will increasingly make use of them.

### **Hardware**

George Moore, cofounder of Intel, formulated what has come to be known as Moore's Law: that the number of transistors one can put on a chip (and hence the power of the computer) doubles every 18 months. Today's cutting edge machine is next year's has-been workhorse. Fortunately, prices drop as quickly as power increases. As Bill Gates said in his recent testimony before the Senate Judiciary Committee, "The statistics show that the cost of computing has decreased 10 million-fold since 1971. That's the equivalent of getting a Boeing 747 for the price of a pizza."<sup>12</sup> Since one always pays a premium for the newest gizmo, for most people, the maximum performance/price ratio is to buy the machine that was on the

## Personal Computers in Forensic Psychiatry

cutting edge six months ago. For about the preceding 15 years, an entry level desktop machine cost about \$2,000, and the one you really wanted was about \$4,000. However, this may be changing. Most business applications do not benefit significantly as the speed exceeds 200 MHz, a speed that is now "low end," and by mid-1998 one could buy a well-equipped 200 MHz machine for less than \$1,000. Rather than get the latest high speed processor, today's purchaser needs to consider putting more money into other components, such as a larger hard disk, more memory, or a larger monitor; or into the "bells and whistles" (a scanner, digital camera, color printer, 3-D video card, etc.).

The second trend in computer hardware is miniaturization. Laptop computers with desktop functionality are now the rule, and these are a boon to those who travel extensively. The mobile hacker is now the Road Warrior. With a fast laptop, modem, software to connect to one's desktop machine, and the hotel's business center, one can do almost any computing on the road that one could do at one's desk, including faxing, checking E-mail, accessing desktop files, and running programs on the desktop computer.

Smaller than laptops are the hand-held machines, which are also rapidly increasing in power. Some hand-held models can be slipped into a coat pocket and used to take notes or communicate over modems—and then one can use the airplane tray table for holding the documents on which one is taking notes. Hardware down-sizing will no doubt continue. Dick

Tracy's wristwatch was a great communication device, but had little capability to process the data it received. Future "watches" will likely also be able to key into crime databases, allow statistical processing of the data there, and send results to presentation devices at conferences.

## Conclusions

Because forensic psychiatry is a relatively small field, there are few computer applications designed particularly for forensic psychiatrists. However, many of today's programs are sufficiently powerful and flexible that they can be very helpful to forensic psychiatrists. Because the field of forensic psychiatry spans the content areas of general psychiatry, criminology, and much of law, the World Wide Web has become a particularly useful resource for information. Applications that support interactive computing over large scale networks, such as forensic education, telemedicine, and teleconferencing, are still in their infancy in relation to forensic psychiatry, but their use is likely to increase as these technologies mature.

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