

Editing by E-mail in South Africa

The advent of the Internet and the facility of sending messages, manuscripts, graphic images, and any other electronically stored data over this worldwide network of computers has caused a minor revolution in the scientific-publishing world. The ease by which a scientific paper can be transmitted from author to editor, to reviewer and back again, makes previous methods of communication archaic and almost obsolete.

In South Africa, it is even more appealing because the postal services have deteriorated mightily since the arrival of the New South Africa, which seems at times bent on self-destruction. The main method of transmission of manuscripts has previously been so-called "snail mail" (post) and occasionally fax. It is more usual for galley proofs and corrected page proofs, not initially submitted manuscripts, to be sent by fax.

What Are the Main Concerns When Sending Manuscripts?

In the table, I have compared the 3 transmission methods and identified what I believe to be the significant areas of anxiety.

Post

Reliability and speed (particularly in South Africa) are questionable. It has taken some postal items 3 weeks to travel 5 miles, and others 3 days to travel 1000 miles. Yet others have been sent and never delivered, or been returned to us 3 months later, damaged beyond repair.

Furthermore, postal charges have, in recent months, escalated by 400% in some cases (overseas mail in particular).

Security depends on the integrity of the postal carrier, which currently in South Africa is at best questionable and at worst totally lacking.

Accessibility is ubiquitous. Most people in this field are within reach of a post office.

Technical problems are not an issue.

Fax

This facility has high speed and fairly high

reliability in terms of reaching the intended recipient.

A major drawback is cost. The fax machine, while not being an exorbitantly expensive outlay, uses up vast amounts of paper, the heat-sensitive type being extremely costly. In addition, lengthy faxes (10 pages or more) use up telephone time and, unlike in the USA, long-distance and overseas faxes are dreadfully expensive.

Security depends again on the honesty and integrity of the recipient if he or she is not the person to whom the item is addressed.

Accessibility is reasonably high, because most people involved in authoring, reviewing, or editing scientific papers have access to a fax machine.

Technical problems arise with the clarity and legibility of the received document. This depends to a large extent on the resolution power of both the sending and receiving machines. We have on many occasions received manuscripts that are more than 30 pages long containing figures or graphs that are

useless because one cannot make out detail.

E-Mail

This method, to a relatively isolated medical community like ours, is heaven-sent. Apart from the features in Table 1, it now affords us the opportunity of approaching international experts for peer review and advice. It puts all our associate editors in easy reach, and it supplies an inexpensive, fast, and reliable method of communication.

One drawback, which is not insoluble, is conversion of documents from 1 word-processing package to another, because formatting is often lost. This problem is addressed by a number of software suppliers: Either conversion packages are built into the word processing software, or 3rd-party packages can be easily purchased.

With regard to security, one has to examine the Internet with an objective eye. Millions, maybe even billions of messages are sent over the Internet each day. Of these, many contain confidential information including business reports, financial information, and credit card numbers. One hears

Post, fax, and e-mail transmission of scientific papers: comparison of performance characteristics

Characteristic	Levels of performance		
	Post	Fax	E-mail
Speed	+-	+++	+++
Reliability	—*	+++	+++
Cost	+-	++	-
Security	+	+++	?
Accessibility	+++	+	?
Technical Problems	-	+	++

Level of performance: +++ Highest; -Lowest.

* In South Africa

DIALOGUE

horrific stories of hackers with software which, in order to find credit card numbers, "sniffs" 16-digit numbers out of the streams of data, allowing fraudulent use of the cards. These stories are often apocryphal, and besides, one can understand a hacker wanting a credit card number, but a scientific paper does not carry the same appeal.

In the article by Appel (1) on which this dialogue is based, the issue of security is not mentioned except by implication. One assumes that all details are stored on a networked computer, and that adequate backup procedures are in place, or else this aspect of security may be in doubt. Otherwise, I believe that security is not a contraindication for e-mail editing of scientific papers.

If one is concerned about security of transmission, a system known as Secure Sockets Layer (SSL) is an encryption scheme that seems to be the answer. A random number is generated from the sender's computer and is recognized by the recipient's. This number is used as a key for encoding characters (including spaces) in the transmitted message. A simple example of this is

ROT13, in which every letter is moved 13 letters or characters forward in the alphabet. The letter "A" thus becomes the letter "M," "B" becomes "N," and so on. A space, in SSL, will also be allocated a letter, so anyone "sniffing" at the stream will not be able to tell where a word begins or ends.

The random number is different each time the computer logs on because the number depends on the log-in procedure followed at the sender's computer and the date and the time the message is sent. To make it even more difficult to be cracked, the random number consists of 40 digits. It has been estimated that a mainframe computer, working constantly, will use about \$100 million worth of time to crack the random number.

One other point regarding Appel's article: The programs and procedures he uses are all UNIX-based. While UNIX is an extremely powerful system for certain applications, it is user unfriendly, and time consuming to learn. Furthermore, Appel describes custom-written programs for his manuscript tracking and e-mail. There are

many commercially available efficient, user-friendly programs for e-mail and manuscript tracking. Examples are RMTS (manuscript tracking) and Pegasus Mail, Eudora, or Netscape for e-mail.

Conclusion

Whatever manuscript tracking system is used, wherever authors, editors, and reviewers are located, and whatever type of journal is being published, I am in no doubt that use of electronic communication services is an invaluable method of manuscript transmission and one that is inescapable in the future of publishing. ●

Fred N Sanders

Editor, *Continuing Medical Education Journal*
Medical Association of South Africa
Pinelands, South Africa

Reference

1. Appel AW. How to edit a journal by e-mail. *Journal of Scholarly Publishing* 1996;27(2):82-99.