We are pleased to present the following Brief on the use of IT in education, featuring short articles from six teachers who have recently presented at one of our seminars on IT-related issues.

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The Global Campus project envisages a network that links teaching staff and students. Two major models for mode of participation appear to have gained acceptance among teachers who lead the pioneering effort. One is the producer-consumer model where teachers provide materials to be consumed by students. The other is the forum model where a platform for discussion among students and teachers is operated. The appropriateness of these models to a system that has to primarily sustain IT-enhanced teaching.

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We can leverage the use of IT for educational purposes through three main avenues: web-based content, courseware and IT usage. Web-based content typically includes information such as course outlines and schedules, tutorial questions, lecture notes, etc, which students can browse online or download and print. Given the general transition of society to a digital culture, access to this kind of content is increasingly regarded as the norm. Hence, the provision of web-based content is strongly encouraged.

Courseware is another type of content. It encompasses all forms of interactive software which students use to achieve specific learning objectives, with or without elements of assessment built in. Much of this software is delivered in the form of multimedia programs which help make the learning experience more enjoyable and effective. Courseware can be delivered via the Web as an online interactive learning experience. It can be downloaded from the Internet and run on a student’s local machine, or it can come in the form of CD-ROM learning packages. The development of subject-specific courseware is something that is encouraged, but the time and effort entailed is significant.

We often overlook IT usage as an additional avenue for leveraging IT in education. Promoting the use of IT could be as simple as requiring students to submit assignments prepared with a word processor. Alternatively, it might involve less customary tasks such as using mathematics software (e.g., MathLab, Mathematica) for tutorial assignments, working on programming assignments using software compilers installed on notebook PCs, or discussing issues using electronic conferencing. Embracing the latter options will require a change of mind-set and of teaching practice. However, our willingness to make this change would contribute significantly to the widespread use of IT in everyday education practice.
The use of IT for teaching and student learning has come a long way in the last two decades. In 1976, when I first joined the Department of Social Medicine and Public Health (now known as COFM), I knew IT could help make learning biostatistics “painless” for our students. Some of the early IT tools that I had worked with included the key-punch machine and card sorter to help students process health data (1976), and the TRS-80 microcomputer to run statistical analyses and computer-based MCQ tests (1978).

Over the next few years, I worked on mainframe-based activities, facilitating a leased-line link between the SMPH department at Outram Park and the Computer Centre at Kent Ridge and teaching students how to use the SAS statistical package for health data processing and analyses.

One of the teaching resources that arose naturally with the emergence of the World Wide Web was the creation of course Web sites. There are several advantages in setting up such a site, and a few of these will be mentioned here.

A major reason for setting up a course Web site is to place one’s lecture notes in a readily accessible form. If these notes are put on the Internet, they will be accessible anywhere. Hypertext links can be made between one part of one’s course notes to other relevant parts. Quite apart from the course table of contents or schedule, one can establish relevant linkages between one set of lecture notes and another set, so that students will have a more integrated picture of the course. Even more beneficial is the ability to link to relevant sites or pages outside the site itself.

In 1985, when SMPH was relocated to Kent Ridge and became known as COFM, we set up NUH’s first microcomputer-based teaching laboratory comprising some 20 PC-AT machines for biostatistics tutorials. I also began developing electronic lectures in biostatistics using IBM’s PC Storyboard software.

In 1990, with the help of the Computer Centre, we upgraded the COFM teaching laboratory at NUH to a state-of-the-art computer classroom comprising 50 networked PCs and printers, three 33” digital/analog display monitors and other AV facilities.

More recently, under the Medical Informatics Programme, I built an Experimental Distance Learning Server to evaluate various IT tools for online delivery of Continuing Medical Education (CME), including giving remote lectures over the Internet.

These external hyperlinks can be compared to a book or document appearing within the course lecture notes wherever one needs more information. Practically speaking, they can be compared to access to a shelf of books or a whole library that students can consult without walking or even standing up. Thus global resources can be placed at the students’ fingertips.

When compared to a book or printed material, the lecturer will find that lecture notes on the Web can be readily revised, and the revisions are available on an immediate basis. Referring to a book will mean that one has to wait for its next edition before one can read its updated version. Such a situation is certainly not ideal for courses in rapidly developing fields. Setting up a Web site will also help students familiarise themselves with the Web and information technology in general—important prerequisites of education today.