
Margaret Bearman, Centre of Medical Informatics

Introduction
Currently, medical students at Monash are not significantly exposed to patients, hospitals and clinical practice in the first three years of their studies. The Clinical and Communication Skills programme provides a transitional experience for students moving into the clinical years. Part of this programme's aim is for the students to develop more advanced communication skills, particularly in the psychosocial domain and for patients with special needs (Monash University, 1999).

For many years now, the students have conducted individual interviews with actors, as a part of Clinical and Communication Skills. These interviews are videotaped and then the video is discussed with a tutor. The emphasis is on communication, rather than diagnosis, and the simulated patients have the sorts of common misunderstandings and concerns that appear within a general practice.

In 1998, a computer-based simulated patient was developed to complement this communication skills programme. This program - Heart of the Problem - also forms the basis of a research study comparing two kinds of interface. This research study is still progressing through 1999 and data collection is still to be finalised. However, the evaluation data from 1998 class is available for analysis, and this will form part of today's presentation.

The Design
The design of Heart of the Problem integrates the simulated interview with feedback and reflection. This is in accordance with Laurillard's theoretical model (Laurillard, 1993), where teacher and student adapt their actions upon reflection on the learning process. The interview itself consists of a branching tutorial through an interview with a difficult, aggressive patient wanting a referral to specialist. The students are offered multiple choice questions to guide themselves through the consultation, and there are a variety of possible outcomes, depending on what the student chooses to say to the patient. After the students complete the interview, they answer a series of reflective questions relating to elements of communication skills. They are then given feedback on their choices in the interview and then presented with a final reflective question, followed by a survey.

Much of the students' time was spent in the reflective process. In fact, they spent, on average, 10 1/2 minutes on the interview and 15 minutes on the reflective questions. Their attention to these non-compulsory non-assessable questions was remarkable and speaks well of both the students and the simulation.

Development details
After some initial prototypes, the *Heart of the Problem* was pre-scripted, which took a significant portion of the development time. The video for the patient was shot with a professional actor on SP Betacam by Productions Services, Teaching Services Unit at Caulfield. Due to concerns about speed and size, only a clip of the head and shoulders was used, placed on stills of the body.

The final version was programmed in Multimedia Toolbook Version 6 (Asymetrix. 1998). The original 1998 version could only run on Windows 95, and on slower machines at that. This was due to an incompatibility between Quicktime clips and Toolbook. In 1999, all clips were transferred to the AVI format and the program currently runs on all Windows and NT machines. The Faculty of Education kindly enough allow us access to their computer labs. The students use the resource in compulsory sessions of groups of nine.

**Evaluation**
The evaluation process discussed in this paper is an informal one, based on a questionnaire, observations and data produced by the students in their use of the program. The survey results were in general, highly positive. For example, in response to the statement *Doing the simulation improved my understanding of communication skills* 72% of students responded positively, 11% neutrally and 7% negatively.

It is difficult to adequately summarise the complexity of the qualitative data. Observational data indicates that the students were highly engaged. In general, the students clearly did not like the patient, and this may also have caused some negativity. Certainly most students were extremely aware of the restrictions imposed by the computer format. Overall, there was an enormous variation in enthusiasm for communication skills taught via interactive multimedia. Some students thought it fantastic and others completely inappropriate.

**Conclusion**
Our experiences show that innovative computer-based educational techniques can be used effectively within teaching. This talk will indicate some of the basics of creating effective design, implementation and evaluation - and also point out what can be achieved with higher levels of expertise.

