1.1 Introduction

In the UK the computer has been used in the GP consultation since the early 1970’s and as 2010 approaches it has become a routine part of the visit to the GP in the UK. In this document we will explore its use and abuse in the GP consultation setting by analysing a set of scenarios produced by a GP trainer (now a professor of medical education at Newcastle University) and a professional actor who has spend many years playing the patient role for generations of medical students. The scenarios move from what is a totally unacceptable consultation to one which hopefully most of you will consider to be appropriate.

1.2 The five scenarios

The five scenarios in total last 54 minutes, where the fourth consultation is in two halves. The same medical condition (oesophageal reflux) is presented each time to facilitate comparability. The length of time each of these takes is given below.

The scenarios can loosely be considered to represent a gradual improvement in the consultation style from the first (the worst) through to the last (the most satisfactory). These scenarios deliberately do not attempt to demonstrate advanced use of the computer in the consultation. Their aim is to demonstrate the level of proficiency to which an average GP might aspire to in contrast to that of a power user. The main good and bad points which are (hopefully?) demonstrated in each scenario are described below. The list should not be considered to be exhaustive in any way

Exercise 1.

View the first scenario and write below the main problems it demonstrates:

Some of the problems I found with it are given below:
Exercise 2.

View the second scenario and write below the main problems it demonstrates:

<table>
<thead>
<tr>
<th>Scenario 2</th>
</tr>
</thead>
</table>
| Patient leaves in a state of bewilderment.
| Trouble over the printer.
| Reassure from the CE. |

When the patient completes the computer system, you can send messages to the doctor. It fills in Blanks Any ...

Exercise 3.

View the third scenario and write below the main problems it demonstrates:

<table>
<thead>
<tr>
<th>Scenario 3</th>
</tr>
</thead>
</table>
| Patient - Please the enquiry about letter at end of the consultation.
| It is clear that the consultation begins.
| Executive consultation - The computer is the focus of interest rather than...
| Adequate for the need of the patient.
| More any number of the patient has been completed.
| Implies no propriety. Doctor computers when asked; can look around the world holder. The subject area may...
| Screen in a better position.

Robin Beaumont 12/01/2009 13:51 C:\web_sites_mine\Hicourseweb new\comms\computer\consultation_computer.docx
**Exercise 4.**

View the fourth scenario (the first part of the consultation) and write below the main GOOD and BAD problems it demonstrates:

Scenario 4

**Exercise 5.**

View the last scenario (the end of the fourth consultation) and write below the main GOOD and BAD problems it demonstrates:

We will discuss this one on the course electronic discussion board.
2. Reflections

I hope that using the video will provide a more user friendly method of demonstrating the main issues concerned with using a computer during the consultation in contrast to other more traditional methods of teaching the topic such as a review of the literature or a formal lecture. Obviously such knowledge gained from use of the video should be backed up by presenting results from sound empirical research. Hopefully the following information does that.

Because computers are much more widely used in the GP consultation (55% of all consultations according to Sullivan & Mitchell 1995) compared to those that take place in the hospital I have concentrated on the GP consultation.

A short review of the effects computers are claimed to have upon the GP consultation is provided in an appendix to this handout. In this workshop we will cover that material using a more interactive learning style.

One important caveat when considering the measurement of patient doctor computer interaction is the difficulty of separating the measurement of factors such as basic communication and clinical skills (diagnostic competence etc.) apart from those being directly related to the computer. It could reasonably be argued that most of these factors are affected by the presence of a computer and therefore should be measured as well.

The discipline related to analysing the interaction between computers and humans is officially termed HCI (Human Computer Interaction). Needless to say there are many journals devoted to this fascinating area which draws on sociology, psychology and pure computer science.

2.1 Fitter and Cruickshanks' 1982 three way model

Fitter and Cruickshank’s 1982 triadic model is useful to consider when devising a framework for analysis of the video consultations involving a computer.

In recent years the patient’s perspective or agenda, if you prefer to call it, has come to the fore. This has resulted in a large number of scales being developed to measure various aspects of the patient response to computers. In fact it would now appear that there are more scales measuring the patients, rather than the doctors, viewpoint!

Exercise 6.

Please list below some of the factors that you think are important from the patient or doctors (delete one) agenda in a consultation. Only consider those factors which you feel may be affected by the presence of a computer.

Patient  Doctor

Exercise 7.

View scenario 2 and make notes from either the Doctors or patients agenda (delete one).
2.2 Introduction to scoring methods

Before one can develop a scoring method it is necessary to decide which technique is going to be used for data collection.

Three sensible techniques of data collection in this situation are; Questionnaires (fadministered either to the doctor or patient), videos and computer logs. Computer logs are particularly valuable for providing a method of checking the reliability of certain responses to questions in the associated questionnaires such as 'how often did you use the system'.

One of the most important aspects of HCI is the position of the various 'players' i.e. in this instance the doctor, patient and computer screen (VDU = Video display Unit). This is the territory of ergonomics. Kent & Dalgleish provide an introductory description of some of the important factors in the consultation (p293 - 307) including the positioning of furniture.

Using Fitter and Cruickshanks' 1982 three way model we can think about developing scoring systems from both the patients and doctors perspective, although there is a large degree of overlap as would be expected considering that the area of interest is the actual interaction or lack of it!

The patients perspective:

- Some of the most common scores are:
  - 'Satisfaction' (for a useful review of the problems associated with this concept see Williams, 1994)
  - Patients Intentions / expectations met scores (Williams 1995)
  - Anxiety / Arousal (Pringle et al 1984)
  - Illness perception (Duke) Anxiety - Depression - Pain - Disability (Parkerson et al 1991)
  - Attitudes to computing (Cruickshank 1984 , patient perspective. Detmer & Friedman 1994, doctors perspective)
  - Attitudes to doctor - real versus actual (Cruickshank 1985)
  - Eye gaze analysis
  - Non verbal communication analysis (body posture)

The Doctors perspective:

The traditional perspective of analysing the situation from the doctors perspective has associated with it a plethora of computer satisfaction scales some of which where provided in the background reading to the course. Other measures which may be relevant include:

- Illness scores (GCS, APACHE, TRISS, ISS\(^1\) etc)?
- Attitudes to computing (Cruickshank 1984 , patient perspective. Detmer & Friedman 1994, doctors perspective)
- Patient Centredness (Henbest & Stewart 1989)
- Performance (Cox & Mulholland 1993) (both perspectives + peer review)
- Eye gaze analysis
- Non verbal communication analysis (body posture)
- Computer anxiety score (Scott 1995)

\(^1\) GCS = Glasgow Coma Score; TRISS = Trauma & Injury Severity Score, ISS = Injury Severity Score. Details of the last two scores can be found in Zoltie & de Dombel 1993.
2.3 Consultation ‘computer use’ styles

Various writers have suggested that GPs possess different styles of computer use during the consultation. Two such writers are Pringle (1985) and Fitter & Cruickshank (1983). Pringle (1985) analysed videos from three GPs in one practice after computers had recently been introduced. He came to the conclusion that there were two styles of computer use:

**Discrete use** - The doctor initiates a discrete stage in the consultation which Pringle calls the 'computer initiated preventative medicine stage' (CIPMS).

**Continuous use** - In this style of consultation the doctor uses the computer in a more subtle way. Including; viewing the screen with patient, discussing information with the patient and carrying out any necessary procedures suggested. Interestingly Pringle discovered that the system he was investigating raised the level of screening drastically, which was part of the system, but reduced the incidence of GP discussions of health promotion measures, which were not on the system.

Fitter and Cruickshank (1983) identified three different styles of computer use during the consultation:

**Minimise use** - inputting data before the patient arrived; inputting symptoms etc. when patient doing something else (e.g. dressing). Problem increases stress on GP as cognitive load increased having to remember details from patient.

**Conversational** - Frequent alterations of attention. Demands the system to be designed in such a way to follow flow of consultation. Also requires the GP to be a competent operator.

**Compromise strategy** - ‘block’ data entry while patient sits inactive. Fitter suggests that this is the most successful alternating between the 'computer' and 'person' centred activity. The GP often apologies to the patient as if talking to another person when using the computer.

More recent systems have facilitated the 'conversational' consultation use of computers. Two interesting articles are 'Computers and shared decision making for patients' by Dawn McLellan & Richard Norman and Patient on-line access to medical records in general practice by Ray Jones.
2.4 References


Cruickshank P J. 1984 Computers in medicine: patients' attitudes. Journal of the royal college of general practitioners 34 77 - 80

Cruickshank P J. 1985 Patent rating of doctors using computers. Social science and medicine 21 615 - 622 [ideal versus real doctor scale]


Scott Derek 1996 Computer anxiety: A longitudinal study and discourse analysis investigation. The Irish journal of psychology 16(1) 83 - 87

