

The Computer and the Consultation

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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 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:

Scenario 1
 Position of screen incorrect
 Dr pre-occupied by computer
 Gaze and body posture inappropriate
 Questioning terse and responses clipped
 Dr appears stressed
 Inadequate keyboard skills
 Computer bleeping
 Patient unhappy
 Appears happier when turned away from computer - asking patient what he thinks is the problem.
 No empathy
 Hides screen from patient
 Talks to the screen confusing patient who thinks response is directed to them.
 Provides important information while printer in use
 Does not warn patient about printer noise
 Confusion about data held on the computer
 Inappropriate consultation flow

Exercise 2.

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

Scenario 2

Dr pre-occupied by computer (see details given for scenario 1 above)
Information overload - Paper and computer details both conflicting 'misinformation'
Position of computer
Inappropriate consultation flow
Uses computer while patient talking
Avoids patient seeing screen
Talks to the computer
Fails to listen to patient doctor; 'have you got any reflux'. Patient; 'yes'. Doctor; 'good'. Referring to correct response for data entry into computer system.
Inappropriate consultation flow
Misunderstanding by patient what a tetanus injection is for possibly believes in the end that it will help the reflux.
When the patient enquires about the computer system, 'You can send messages to the desk', it fails to gain any response from the GP.
Talks over the printer
Patient leaves in a state of bewilderment!

Exercise 3.

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

Scenario 3

Screen in a better position
Breaks flow of consultation to bring information up onto the screen or enter data
Apologises for the computer
Dr talks inappropriately about computers when asked; 'can book around the world holiday'. The subject area may enhance any anxiety the patient has about confidentiality.
Apologises for the noise of the printer
Dr clearly anxious when using the computer - excessive concentration. The computer is the focus of interest rather than patient - misses the enquiry about ulcer at end of the consultation.

Exercise 4.

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

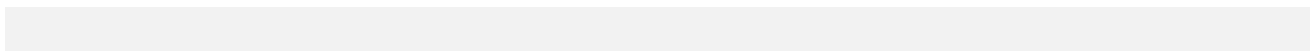
Scenario 4

- Shares the screen with the patient
- Introduces computer in an enthusiastic light
- Explains reason for health screening separates it partly from the rest of the consultation
- Enters data with the patient, checks details. Explains units and reason for doing so.
- Inappropriate consultation flow (drs rather than patients agenda) - returns to patients problem after health screening intermission.
- Using the computer to facilitate explanation (second part of the scenario):
- Uses computer to reinforce advice
- Uses computer to encourage compliance and behavioural change which may traditionally be low on the patients agenda
- Possible information overload for patient due to doctor demonstrating two sets of data on the system (one an illness compendium, designed primarily for the doctor and the other a patient advice leaflet).

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.

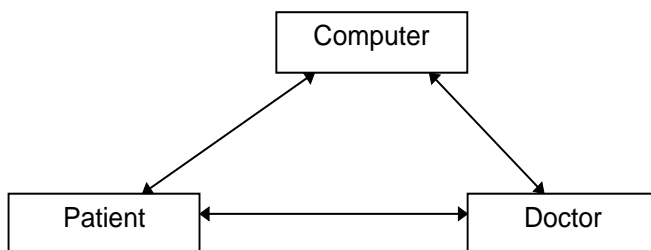
A short review of the effects computers are claimed to have upon the GP consultation is provided in an appendix to this handout. In this workshop we will cover that material using a more interactive learning style.

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 (administered 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 & Dalglish 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 were provided in the background reading to the course. Other measures which may be relevant include:

- Illness scores (GCS, APACHE, TRISS, ISS¹ 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 apologises 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

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