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## Advantages and disadvantages of DOS based and Windows programs

### DOS based

#### Advantages

Simple and occupy less disk space than Windows based programs  
Ideal for basic tasks such as letter writing  
Run quickly on older computers  
Text easy to read on standard monitor  
Stable and rarely crash

#### Disadvantages

No consistent look and feel to programs  
Transferring information between programs is more difficult  
Not easy to judge page layout  
Cannot view graphics  
All text looks the same on the screen (no matter what typeface or size)

### Windows based

#### Advantages

Attractive, user friendly interface  
Consistent feel and look to programs  
WYSIWYG screen—what you see is what you get  
View colour pictures and text simultaneously  
Can run several programs simultaneously  
Easy to cut and paste between programs  
Printer, fax modem, fonts, etc available to all programs  
Comprehensive online help is always available

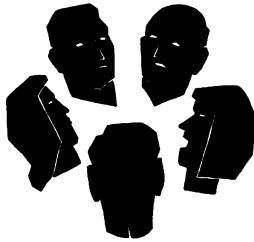
#### Disadvantages

Slow on older computers  
Programs are often very large  
Requires more sophisticated hardware  
More liable to crash

## Qualitative Research

### Observational methods in health care settings

Nicholas Mays, Catherine Pope



This is the third of seven articles describing non-quantitative techniques and showing their value in health research

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Clinicians used to observing individual patients, and epidemiologists trained to observe the course of disease, may be forgiven for misunderstanding the term observational method as used in qualitative research. In contrast to the clinician or epidemiologist, the qualitative researcher systematically watches people and events to find out about behaviours and interactions in natural settings. Observation, in this sense, epitomises the idea of the researcher as the research instrument. It involves "going into the field"—describing and analysing what has been seen. In health care settings this method has been insightful and illuminating, but it is not without pitfalls for the unprepared researcher.

The term "observational methods" seems to be a source of some confusion in medical research circles. Qualitative observational studies are very different from the category of observational studies (non-experimental research designs) used in epidemiology, nor are they like the clinical observation of a patient. Observational methods used in social science involve the systematic, detailed observation of behaviour and talk: watching and recording what people do and say. Goffman neatly captured this distinct research method with his recommendation that, in order to learn about a social group, one should "submit oneself in the company of the members to the daily round of petty contingencies to which they are subject."<sup>1</sup> Thus, observational methods can involve asking questions and analysing documents, but the primary focus on observation makes it distinct from a qualitative

research interview (see the next paper in this series) or history taking during patient consultation. Another crucial point about qualitative observation is that it takes place in natural settings not experimental ones; hence, this type of work is often described as "naturalistic research."

#### Research roles

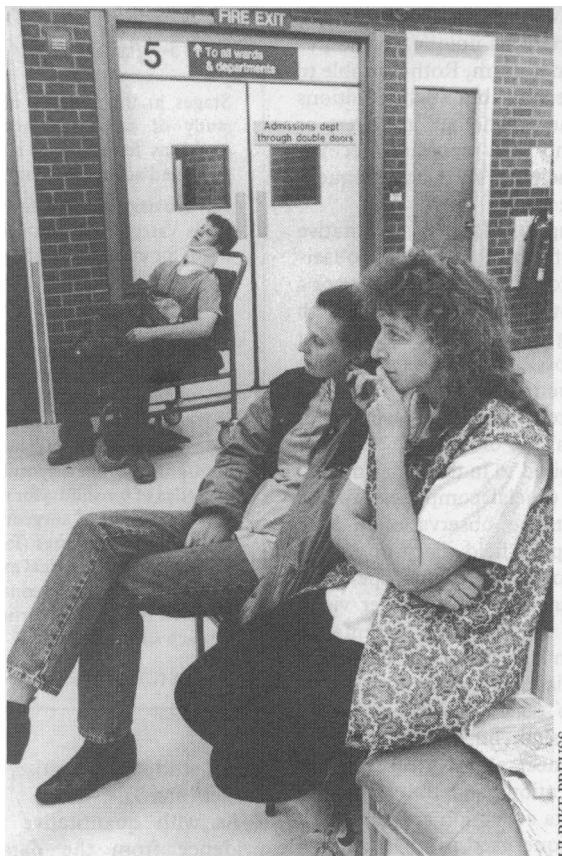
In an attempt to minimise the impact on the environment being studied the researcher sometimes adopts a "participant observer" role, becoming involved in the activities taking place while also observing them. The degree of participation varies according to the nature of the setting and the research questions, but broadly corresponds to the first two research roles described in Gold's typology (box 1).<sup>2</sup> There are obviously important ethical considerations about the decision to conduct covert research, and for this reason examples of this type of observational study are rare. However, its use may be justified in some settings, and it has been used to research sensitive topics such as homosexuality<sup>3</sup> and difficult to access areas such as fascist organisations<sup>4</sup> and football hooliganism.<sup>5</sup> Overt research—Gold's "participant as observer"—may pose fewer ethical dilemmas, but this may be offset by the group or individuals reacting to being observed. At its most basic, having a researcher observing actions may stimulate modifications in behaviour or action—the so-called "Hawthorne effect,"<sup>6</sup> or encourage introspection or self questioning among those being researched. In his classic study of street gangs in the United States, Whyte recounted how a key group member said, "You've slowed me up plenty since you've been down here. Now when I do something I have to think what Bill Whyte would want to know about it and how I can explain it. Before I used to do things by instinct."

In addition to these potential problems for the subjects of observational research, there are important considerations for researchers "entering the field." In essence these involve "getting in and getting out." In the initial phases there may be problems gaining access

#### Box 1—Observational research roles<sup>2</sup>

Complete participant  
Participant as observer  
Observer as participant  
Complete observer

Covert observation  
Overt observation—mutual awareness of the research  
Essentially a one shot interview with no enduring relationship based on lengthy observation  
Experimental design, no participation



patients present themselves at casualty department.<sup>9</sup> It is unlikely that interviews alone would have elicited these different patterns of care. Indeed the labelling of certain cases as "normal rubbish" may have been so embedded in the culture of the casualty setting that only an outsider or newcomer to the scene would have considered it noteworthy.

Another observational study provides an example of how qualitative work can build on existing quantitative research.<sup>10</sup> Against the background of large variations in rates of common surgical procedures such as hysterectomy, cholecystectomy, and tonsillectomy, Bloor observed ear, nose, and throat outpatient clinics to see how decisions to admit children for surgery were made. He systematically analysed how surgeons made their decisions to operate and discovered that individual doctors had different "rules of thumb" for coming to a decision. While one surgeon might take clinical signs as the chief indication for surgery, another might be prepared to operate in the absence of such indications at the time of consultation if there was evidence that repeated episodes of tonsillitis were severely affecting a child's education. Understanding the behaviour of these surgeons, knowing why they made their decisions, provided considerable insight into how the variation in surgical rates occurred.

Similar variation and patterning occurs in the statistics on inpatient waiting lists: some surgeons have long lists, others do not; some specialties have long waits, others do not. An observational study showed that rules and routines akin to those discovered by Bloor could be discerned in the day to day management of waiting lists.<sup>11</sup> Surgical and administrative preferences were important in deciding who came off the list. Different reasons for admitting a patient might range from case mix demands for teaching juniors, through ensuring a balanced list, to the ease with which a patient could be contacted and offered admission. Thus, observing how waiting lists work can indicate which policy and administrative changes are likely to have an impact in reducing lists and which are not: a policy which assumed that waiting lists operated as first come, first served queues would be unlikely to affect the day to day routines described above.

*Observation of transactions with patients presenting to casualty departments found that staff classified patients into "normal rubbish" (the inappropriate attenders) and "good" patients, who were viewed as more deserving.*

to a setting, and then in striking up sufficient rapport and empathy with the group to enable research to be conducted. In medical settings, such as a hospital ward, this may involve negotiating with several different staff groups ranging from consultants and junior doctors, to nurse managers, staff nurses, social workers, and auxiliary professions. Once "inside" there is the problem of avoiding "going native"; that is, becoming so immersed in the group culture that the research agenda is lost, or that it becomes extremely difficult or emotionally draining to exit the field and conclude the data collection.

#### **What can observation tell us that other methods cannot?**

Given these difficulties, observational methods may seem a peculiar choice for studying health and health services. However, an important advantage of observation is that it can help to overcome the discrepancy between what people say and what they actually do. It circumvents the biases inherent in the accounts people give of their actions caused by factors such as the wish to present themselves in a good light, differences in recall, selectivity, and the influences of the roles they occupy. For these reasons, observational methods are particularly well suited to the study of the working of organisations and how the people within them perform their functions. It may also uncover behaviours or routines of which the participants themselves may be unaware. For example, Jeffery's observation of casualty wards in Edinburgh indicated that, because of the conflicting demands and pressures on staff, some patients, who were seen as inappropriate attenders, were labelled as "normal rubbish" and treated differently from "good" patients, who were viewed as more deserving.<sup>8</sup> A similar picture emerges from Hughes's work on the decisions made by reception clerks when

#### **Some rules about observation**

##### **SAMPLING**

Before any recording and analysis can take place, the setting to be observed has to be chosen. As in other qualitative research, this sampling is seldom statistically based. Instead, it is likely to be purposive, whereby the researcher deliberately samples a particular group or setting (see Mays and Pope<sup>12</sup> in this series for more on this). The idea of this type of sampling is not to generalise to the whole population but to indicate common links or categories shared between the setting observed and others like it. At its most powerful, the single case can demonstrate features or provide categories relevant to a wide number of settings. Goffman's observation of mental hospitals in the 1960s generated the valuable concept of the "total institution," of which the asylum was one example alongside others such as prisons and monasteries.<sup>1</sup>

##### **RECORDING**

Qualitative observation involves watching and recording what people say and do. As it is impossible to record everything, this process is inevitably selective and relies heavily on the researcher to act as the research instrument and document the world he or she observes. Therefore it is vital that the observations are systematically recorded and analysed, either through the traditional medium of field notes written during or

immediately after the events occur or by using audio or video recording facilities. From his unique position as a patient in a tuberculosis sanatorium, Roth was able to record events as they happened,<sup>13</sup> but such situations are rare and most researchers, whether in covert or more participative roles, find that recording necessitates the development of memory skills and frequent trips to the lavatory to "write up."

The systematic recording of data in qualitative observation distinguishes it from other types of observation such as a tourist recording with a camcorder or a nosy neighbour peering over the fence. Even with video and sound recording it is impossible to "get everything," but as far as possible the researcher aims to record exactly what happened, including his or her own feelings and responses to the situations witnessed. The subjective nature of this type of research contrasts with the objective stance aspired to in the experimental method, but in fact it is a crucial component of the process of analysing qualitative observational data. The researcher usually keeps a field diary or record of the research process to detail events, personal reactions to events, and changes in his or her views over time. Frequently this is the basis of tentative hypotheses or the evolution of systems of classification. In developing classifications or hypotheses it is particularly important to detail any contradictory or negative cases—the unusual, out of the ordinary things which often reveal most about the setting or situation. Tentative classifications and the search for negative cases during the data collection are important facets of the analytic technique used in observational research.

#### ANALYSIS

The fieldnotes gathered during observational research are likely to be detailed, highly descriptive accounts and are therefore cumbersome. As descriptions alone they cannot provide explanations. The researcher's task is to sift and decode the data to make sense of the situation, events, and interactions observed. Often this analytical process starts during the data collection phase, a quite different model of the research process to that found in quantitative research, where data collection is completed before any analysis begins (box 2).

Just as the data are systematically recorded, so they are also systematically analysed. Various ways of dealing with observational data have been described, including "analytic induction" and "constant comparison."<sup>14</sup> Stripped of their theoretical trappings, these methods are all variants of content analysis and involve an iterative process of developing categories from the transcripts or fieldnotes, testing them against hypotheses, and refining them. This analytical process is described in detail by Bloor, based on the observa-

#### Box 3—Analysis

Stages in the analysis of field notes in a qualitative study of ear, nose, and throat surgeons' disposal decisions for children referred for possible tonsillectomy and adenoidectomy (T&A)<sup>11</sup>

- (1) Provisional classification—For each surgeon all cases categorised according to the disposal category used (for example, T&A or tonsillectomy alone)
- (2) Identification of provisional case features—Common features of cases in each disposal category identified (for example, most T&A cases found to have three main clinical signs present)
- (3) Scrutiny of deviant cases—Include in (2) or modify (1) to accommodate deviant cases (for example, T&A performed when only two of three signs present)
- (4) Identification of shared case features—Features common to other disposal categories (history of several episodes of tonsillitis, for example)
- (5) Derivation of surgeons' decision rules—From the common case features (for example, case history more important than physical examination)
- (6) Derivation of surgeons' search procedures (for each decision rule)—The particular clinical signs looked for by each surgeon

Repeat (2) to (6) for each disposal category

tional study of ear, nose, and throat clinics described earlier (box 3).<sup>15</sup>

As with quantitative work, it is important that evidence from the data is presented to support the conclusions reached. This can take the form of examples of specific cases, descriptions of events, or quotations. The validity of observational accounts relies on the truthful and systematic representation of the research; in many ways it is honesty which separates the observational account from a novel. Hughes says that observational studies should communicate the culture and rules of the setting well enough to allow another researcher to learn them and "pass" as a member of the group.<sup>16</sup> This is not an easy task, and observational research is therefore particularly demanding of the individual researcher.

This brief review has indicated how observational methods can be used to "reach the parts that other methods cannot." Done well, there is no reason why observation should not be as systematic, rigorous, or valid as other research styles and deserve its place in the health researcher's methodological tool box.

#### Further reading:

Fielding N. *Researching social life*. London: Sage, 1993.

- 1 Goffman E. *Asylums*. Harmondsworth: Penguin, 1961.
- 2 Gold R. Roles in sociological field investigation. *Social Forces* 1958; 36:217-23.
- 3 Humphreys L. *Tearoom trade: impersonal sex in public places*. Chicago: Aldine, 1970.
- 4 Fielding N. *The National Front*. London: Routledge and Kegan Paul, 1981.
- 5 Pearson G. *Hooligan: a history of respectable fears*. London: Macmillan, 1983.
- 6 Roethlisberger FJ, Dickson WJ. *Management and the worker*. Cambridge, MA: Harvard University Press, 1939.
- 7 Whyte WF. *Street corner society: the social structure of an Italian slum*. Chicago: Chicago University Press, 1955.
- 8 Jeffery R. Normal rubbish: deviant patients in casualty departments. *Sociology of Health and Illness* 1979; 1:90-108.
- 9 Hughes D. Paper and people: the work of the casualty reception clerk. *Sociology of Health and Illness* 1990; 11:382-408.
- 10 Bloor M. Bishop Berkeley and the adenotonsillectomy enigma: an exploration of the social construction of medical disposals. *Sociology* 1976; 10:43-61.
- 11 Pope C. Trouble in store: some thoughts on the management of waiting lists. *Sociology of Health and Illness* 1991; 13:193-212.
- 12 Mays N, Pope C. Rigour in qualitative research. *BMJ* 1995; 311:109-12.
- 13 Roth J. *Timetables: structuring the passage of time in hospital treatment and other careers*. New York: Bobbs Merrill, 1963.
- 14 Bryman A, Burgess R, eds. *Analysing qualitative data*. London: Routledge, 1993.
- 15 Bloor M. On the analysis of observational data: a discussion of the worth and uses of inductive techniques and respondent validation. *Sociology* 1978; 12:545-52.
- 16 Hughes J. *Sociological analysis: methods of discovery*. London: Nelson, 1976.

#### Box 2—Models of the research process

