

Problems with Applying the Experimental Method to the Study of Human Behaviour

1) Dehumanisation

Under laboratory conditions people are put in strange unfamiliar environments and asked to perform unfamiliar tasks. This can depersonalise and dehumanise people and may lead to;

2) Distortion of Behaviour

Just as animal behaviour in zoos can be very unnatural; it can be argued that a controlled and contrived situation gives a false impression of how people behave in real life. To try and avoid such problems, social scientists have made increasing use of **Field Experiments**, which take place in natural settings, to try to ensure their findings have **Ecological Validity**.

People may act in ways they think the experimenter wants them to act. Orne (1962) investigated **Demand Characteristics** and found that people wanted to be good participants, perform well and please the experimenter. In his study Orne asked people to add up 224 pairs of random numbers given to them on sheets of paper. On completion, they were required to tear up their sheets into at least 32 pieces and then start again with a fresh sheet of figures (there were 2,000 sheets of these random numbers). Orne found that people carried on with the task for five and a half hours before he called a halt to the experiment. It seems that people are prepared to go to great lengths in order to satisfy the demands of an experiment. They will apply themselves diligently to a senseless task for many hours – not really a true reflection of natural behaviour as it occurs in “real world settings” outside of the laboratory.

Every experiment involving human participants takes place within a social setting and so, as Rosenthal (1966) points out;

“...the humanness of both the experimenter and the subject interact in numerous ways which are likely to have a profound effect on experimental outcomes.”
(Rosenthal 1966 cited in Gross 1995: 244)

As a result, Rosenthal argues that the experimenter will unavoidably contaminate the very behaviour s/he wishes to observe.

3) Expectancy Effects

Another problem is **Experimenter Bias** – researchers can often introduce subconscious bias into their studies, simply because they are aware of what behaviours they are expecting to find. Rosenthal’s (1966) study is a case in point; one group of students were given a number of rats, which were described as “maze-bright” and another group were given an equivalent number described as “maze-dull”. In fact all of the rats used in the study had similar potential. When asked to observe their performance in running mazes, the experimenters reported that the “bright group” had performed better.

When working with humans rather than animals the problems can get even worse as an experimenter may feed back their expectancies to participants and so exaggerate the effect still further. (E.g. see Rosenthal & Jacobson (1968) and the classroom study with the self-fulfilling prophecy, cited in Gross 2010: 45).

Medawar (1963) suggests that there is no such thing as unprejudiced observation – we all see and interpret differently, largely as a result of past experience.

4) The External Validity of Experiments

The term ‘demand characteristics’ implies that people will try to perform in such a way as to please the experimenter. Obviously such an approach can lead to gross distortions of behaviour.

Is it possible to apply the scientific method to research with humans then? The scientific method has clearly worked very well when applied to inanimate objects – one only has to consider the great advances made in the physical sciences, such as physics and chemistry for example. However, given that people never behave passively in an experimental situation but, instead, try to work out the purpose of the experiment, they will invariably be influenced according to their perceptions of its true purpose. Is it realistic, therefore, to approach the study of human behaviour using the scientific method?

In his book “Themes, Issues and Debates in Psychology”, Gross (1995) sums up the argument which can be put forward when arguing against the case for a scientific psychology;

“... the experimental set-up is so far removed from what people are likely to encounter in real life, everyday situations, that their behaviour inside the laboratory is a very poor indicator of how they will behave outside, in the real world, and since it is the real world that we are interested in, experiments can tell us very little that is of any value. This relates to the external validity of experiments”.

(Gross 1995: 242)

5) Biased Sampling

Volunteers have been shown not to act typically. They often tend to be University students. Do they reflect the wider population? Furthermore, Ora (1965) claimed that volunteers are more likely to be insecure, dependent upon and influenced by others, neurotic and introverted (cited in Dobson et al. 1981: 4).

Krupat & Garonzik (1994) comment on the nature of the typical American participant being;

“a psychology undergraduate who’s obliged to take part in a certain number of studies as a course requirement, and who receives ‘course credits’ for doing so.”

(Cited in Gross & Kinnison 2013: 18)

6) Statistical Inference

Statistical analysis is used to determine whether the outcome of an experiment is significant or not. Statistics, however, simply tell us the probability of a result being due to chance. If it is very unlikely that the difference between data sets is due to random fluctuation, then the difference is assumed to be due to an experimental effect and the result is assumed to be significant. However small the odds, it goes without saying that we can never be totally sure that the result was due to a real experimental effect rather than chance. In fact, this is not the great problem it might be since an essential feature of a good experiment is that it is replicable and an experiment can be replicated many times to see whether similar results are obtained on subsequent occasions. Obviously, the more times an experiment is successfully replicated, then the more faith we can have in its findings.

7) Ethical Issues

Ethical issues are extremely important when designing and running research, and also need to be given careful thought and consideration when carrying out research with non-human animals. There are many issues to be mindful of here, such as **informed consent**, **deception** and preservation of self-esteem. We will consider ethical issues in greater depth as we discuss particular studies throughout the module.

How Can The Above Objections Be Remedied?

By careful experimental design most of these objections can be overcome. In many situations the use of field studies can overcome the first two objections. Also, for research into topics such as reaction times or memory, for example, the dangers of distorted behaviour may pose less of a problem.

Expectancy effects can largely be overcome by careful planning in the experimental design stage. Demand characteristics and experimenter bias can be countered in two ways.

See if you can think of ways by which demand characteristics and experimenter bias can be controlled for in the following activity;

Imagine you are running an experiment to determine whether caffeine can act as a stimulant by improving reaction times.

- How would you design an experiment to test out this assumption?
- Try and give an example of how demand characteristics might cause problems.
- How could you get around the problem of demand characteristics described in your example?
- Give an example of how experimenter bias might occur.
- How could you counteract the problem of experimenter bias?

References

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