

4-3 Psychology research process

4-3a Evidence in psychology

What distinguishes psychological research from common sense is that psychologists approach information and knowledge in a systematic and *consciously articulated* way. They use rules and procedures about how to build and apply theories, how to design studies to test hypotheses, how to collect data and use them as evidence, and how to evaluate all forms of knowledge. (See Figure 1, ‘The cycle of enquiry’ in Box 1.)

Box 1: Using evidence: the cycle of enquiry

What do we mean when we say that psychology is an evidence-based discipline? The basic principle is that it is necessary to have some means of evaluating the answers to psychological research questions. Sherratt and her colleagues (Sherratt et al., 2000) devised a ‘circuit of knowledge’ as a way to help students examine evidence and move away from common-sense reactions to psychological questions. We have used a version of this that we call the cycle of enquiry (see Figure 1).

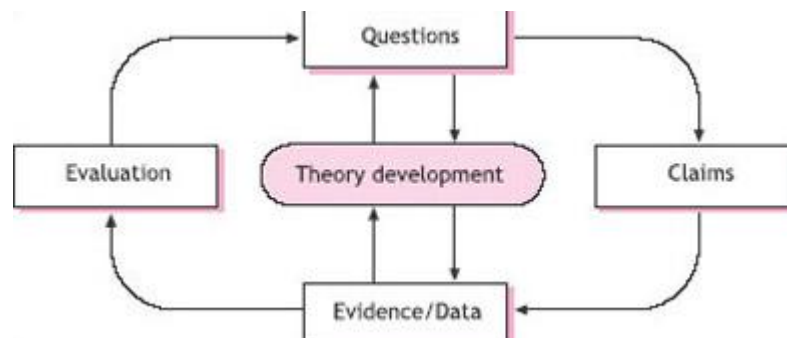


Figure 1 The cycle of enquiry (Source: based on Sherratt et al., 2000, pp. 17–18)

There are four elements in the cycle of enquiry:

1. Psychological research starts with the framing of appropriate, answerable *questions*.
2. The answers to these questions are *claims*. These claims have to be clearly identified so that they can be thoroughly assessed.
3. Assessing claims requires the amassing of information called *data*. The word ‘data’ is a plural word for the building blocks that make up the *evidence* that is presented in support of a claim.
4. The evidence then has to be interpreted and evaluated. The process of *evaluation* often generates new questions to be addressed as well as providing support for, or disconfirmation of, the original claims.

4-3b The research process

The start of the research process requires a gradual narrowing of the field. A topic has to be chosen, concepts have to be defined and the aims of the research have to be clearly specified. The process of choosing a topic or area to research will be influenced by one of several factors that usually interrelate. In practice, researchers come to a field of study already constrained by many factors. They bring with them their personal concerns. They may be part of a research group where the topic is already defined and the project is under way. They are likely to be working with a particular set of theoretical assumptions by virtue of their location – in time and in a culture, a society, a particular university, and a particular interest group. Certain types of research question are fashionable; some attract funding, some don't. Researchers generally already have ideas about what would be an 'appropriate' theory. In other words, they have preconceptions about 'the nature of people', what would be a suitable question, and what would be acceptable evidence. What all this means is that research is done within a context that is made up of assumptions about the subject matter and the ways in which it should be studied. This kind of context is called a *paradigm*.

Researchers have to ensure that research is relevant and establish what research has already been done on the topic by examining the existing literature. This helps to ensure that they do not unintentionally repeat what has previously been done or found to be a dead end.

The research question itself has to be answerable; many questions about human psychology that might seem to make good sense could not usefully be researched. For example, the question 'Why do we remember?' is potentially interesting but it is not sufficiently precise to be the basis of a research project. It does not, for example, distinguish whether we should look for parts of the brain that are associated with memory, or consider the mental strategies that facilitate memory, or investigate the social and emotional motivations that make it more likely that we will remember some things rather than others.

Once the research question has been devised and the problem operationalised, researchers then need to decide on the people they are going to include in their research – the *participants*. For the 'memory for faces' question mentioned above, the possible population for the research could be everyone in the country and it is obviously impossible to study them all. It is, therefore, necessary to work out what the *sample* should be. The researcher may, for example, have negotiated permission to ask for volunteers from a particular company. She may then define the sample as 'one volunteer in every 20', chosen at random. Since the volunteers will be undergoing brain imaging, each participant would be brought into the specialist hospital for access to the imaging technology. For this study, it is clear that brain imaging will be the method used to collect data and the data will be the actual images produced, although these images have to be 'read' and interpreted and converted into evidence.

Experiments, the most common psychological method, are used to try to discover if there are causal relationships between *variables* (so called because their values can vary). If, for

example, the variable we are interested in is the time taken for drivers to react to an emergency, we may devise an experiment where we *manipulate* the noise levels in their cars to see whether this has any impact. In this case, the noise level in the car will be the *independent variable* and the driver's response time (a behaviour which we hypothesise is dependent on in-car noise levels) will be the *dependent variable*. This sort of experiment may take place in a driving simulator in a laboratory or on private roads. In an experiment, there are often two groups of participants: a *control group* that is not subjected to the manipulation of the independent variable and an *experimental group* that is subjected to the manipulation. In the example here, the control group may not be subjected to any in-car noise at all. Findings from experiments are analysed statistically. Psychologists using experimental methods have a number of techniques at their disposal to ensure that they do not simply find what they expect or what they want to find. These include *random allocation* to groups where the researcher does not choose whether a participant goes into the experimental or control group, and '*blind scoring*', where those who score a participant's behaviour do not know which group the participant belongs to.