Establishing research

1.1 Steps in research

Researchers, or experimenters, use a series of orderly and systematic steps to plan, conduct, interpret and report on the research they undertake. Seven steps are used in conducting psychological research. Most of these steps will be covered in further detail later in this workbook.

Step 1: Identify the research problem
The first step in psychological research is to identify an area in which to conduct a study. When a psychological researcher has an idea of their topic of interest, they must conduct a literature search, which involves finding and reading relevant research articles and literature on the topic. Once they have completed the literature search, the researcher must develop a testable research question or problem. For example, a researcher may be interested in investigating the causes of or influences on eating disorders in adolescent females. The researcher would do a literature search on the broad topic, then identify a research question, such as the prevalence of eating disorders in adolescent girls affected by whether they have/had a relative who has suffered from an eating disorder currently or in the past.

Step 2: Formulate a hypothesis
The second step in psychological research is to formulate a testable hypothesis. A hypothesis is a testable prediction about the relationship between two or more variables (events or characteristics). In other words, a hypothesis is an educated guess about the results of the experiment; for example, it’s hypothesised that adolescent girls who have or had a relative who has suffered or is suffering from an eating disorder are more likely to have an eating disorder than those with no relatives who suffer/suffered from an eating disorder.

A hypothesis is based on the information gathered in the literature search; it is not just a guess made without any prior knowledge or investigation. The hypothesis is developed before the research is conducted and is written as a very specific statement.

Step 3: Design the method
The third step is to design the method that will be used to undertake the research. The research method determines how the researcher will test the hypothesis. When designing the method, the researcher must determine which participants will be studied, how many participants will be in the study, what the participants will do and under what conditions, and what will be measured in the study. After choosing the participants that will take part in the study, the researcher must decide how the data will be collected. Data-collection procedures include controlled experiments, naturalistic observations, correlations, surveys, interviews and case studies.

Step 4: Collect the data
The fourth step is to collect the data. Here, the researcher should follow the method developed in Step 3. To measure participants’ responses, a researcher can use any of a variety of data-collection techniques, including questionnaires, direct observation, psychological tests or examination of files and documents. Remember that ‘data’ is the plural form of ‘datum’.

Step 5: Analyse the data
The fifth step of any psychological research is to analyse the data. Data analysis involves organising, summarising and representing the raw data in a coherent and logical manner. Raw data are the actual data collected from a study. A research investigation will often result in large amounts of raw data that are then “broken down” into smaller sets of numbers (for example, an average score in a set of scores). These numbers are known as statistics. Descriptive statistics are used to describe, summarise and organise data. Examples of descriptive statistics include graphs; tables; the mean, median and mode; and frequency distributions.

Step 6: Interpret the results
Once the data have been summarised and organised, they must be interpreted. Interpreting results involves forming conclusions about what the data show. A conclusion is a decision or judgement about the meaningfulness of the results of a study. Inferential statistics are statistics that allow you to make inferences and conclusions about the data, and are often used to interpret results. Such statistics allow us to explain the significance of the data.

Step 7: Report the findings
There is no point in conducting psychological research if you cannot share it with other psychologists and researchers. Therefore, the final step in psychological research is to report the data to others. After conducting a study, the researcher usually prepares a report that is either submitted to a journal or periodical and/or presented to other psychologists at a conference. Once a research report is published, other researchers use it in their literature searches and further investigations. Publication also enables the general public to benefit from research findings.

Check your understanding
1. Fill in the flow chart to identify the seven steps in psychological research. Next to each step, give an example of what may be done or found in each step. The research problem has been identified for you.

Step 1: Does listening to music while studying improve your retention of the material you are studying?

Step 2: It is hypothesised that ...

Step 3: Participants will ...

Step 4: Data will be collected by ...

Step 5: The raw data show that ...

Step 6: The findings suggest that ...

Step 7: