

University of Djilali Bounaama Khemis Miliana

Dep : Human & Social Sciences

Stream :Counseling& Guidance

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Level : Master1

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Specific aims :

- By the end of the lesson students will be able to identify the different types of experiments and their associated strengths and weaknesses.

LESSON ONE : EXPERIMENTS

Types of experiment: laboratory and field experiments;natural and quasi-experiments.

All experiments involve a change in an independent variable, with the researcher recording or measuring the subsequent effects on the dependent variable. How the IV changes, and under what circumstances, varies from one type of experiment to another. There are four different types of experiment used in psychology, each with its own strengths and limitations.

Laboratory experiments

A **Laboratory experiments** are conducted in highly controlled environments. This

is not always a laboratory (**lab**) – it could, for example, be a classroom where conditions can be well controlled and IVs manipulated in order to discover cause and effect. It is probably the method psychologists use most often to conduct research. There is an IV, all extraneous variables are controlled and the DV is measured.

Strengths of laboratory experiments

- The manipulation of one IV while controlling irrelevant variables means that cause and effect are much more likely to be shown.
- They allow for control over many extraneous variables, e.g. temperature and noise levels.

- Standardised procedures mean that replication is possible.
- In a laboratory, participants must have given some degree of consent, but not necessarily informed consent, to take part.

Weaknesses of laboratory experiments

- The results may be biased by sampling, demand characteristics or experimenter bias.
- Some people regard the process as dehumanising, with participants being treated like laboratory rats by having *something done to them*.
- Controlling variables is reductionist as it is unlikely that any behaviour would exist in isolation from other behaviours.
- Artificial conditions (setting and task) can produce unnatural behaviour, which means that the research lacks ecological validity.
- For the IV to be isolated, participants might be deceived about the true nature of the study. There may be other ethical issues.
- It is more likely that the data will be snapshot.

Field experiments

A **field experiment** takes place in a natural or normal environment for the behaviour being studied. For example, to conduct a field experiment about how children learn, the logical place to do this is in a classroom.

Strengths of field experiments

- There is greater ecological validity because the surroundings are natural.
- There is less likelihood of demand characteristics (if people are unaware of the research taking place).
- The features of an experiment (IV, DV etc.) are retained.
- The behaviour is natural and so tells us how people behave in real life.

Weaknesses of field experiments

- There might be difficulties in controlling the situation, and therefore more possibility of influence from extraneous variables.
- The experiment might be difficult to replicate exactly.
- There might be problems of access to where the study is to be done; such as consent from a company.
- There might be ethical issues of consent, deception etc.

Natural experiments

Natural experiments are when the researcher takes advantage of a pre-existing independent variable. This kind of experiment is called 'natural' because the variable would have changed even if the experimenter was not interested. Note

that it is the IV that is natural not necessarily the setting –participants may be tested in a lab. In a field experiment the setting is natural.

Quasi-experiments

Quasi-experiments have an IV that is based on an existing difference between people (for instance, age or gender). No one has manipulated this variable, it simply exists. For instance, if the anxiety levels of phobic and nonphobic patients were compared, the IV of ‘having a phobia’ would not have come about through any experimental manipulation.

Strengths of natural and quasi experiments

- Natural and quasi experiments can often be used when it would be unethical or impractical to manipulate an IV, as in a laboratory or field experiment.
- Natural and quasi experiments are easier to set up, as they don’t require manipulation of an IV or random allocation of participants.
- Natural and quasi experiments allow direct comparison of different groups of naturally occurring people, such as males/females or rich/poor.

Weaknesses of natural and quasi experiments

- Natural experiments can only occur when an IV varies naturally, which isn’t a common or predictable occurrence.
- Demand characteristics exist, as participants are usually aware they are being tested and may therefore alter their behaviour and not act as they normally would, which may confound the results.
- Experimenter bias can occur, where researchers’ expectations and desires affect the interpretation of results and participants’ behaviour, making findings invalid.
- Causality can be difficult to establish, as participants are not randomly allocated to testing groups (the experimental conditions), so they may not be comparable, confounding the results.