

EXPERIMENTAL PSYCHOLOGY

INTRODUCTION

Experimental psychology emerged as a modern academic discipline in the 19th century when Wilhelm Wundt introduced a mathematical and experimental approach to the field. Wundt founded the first psychology laboratory in Leipzig, Germany. Experimental psychology utilizes scientific methods to research the mind and behavior.

Psychologists use a variety of methods like Experimental, Psychological Test, Observation, Survey, and Case Study and Correlational study to collect data.

EXPERIMENTS

In some cases, psychologists can perform experiments to determine if there is a cause and effect relationship between different variables. The basis of conducting a psychological experiment involves randomly assigning participants to groups, operationally defining variables, developing a hypothesis, manipulating the independent variable and measuring the dependent variable.

For example, researcher could perform a study to look at whether sleep deprivation impairs performance on a driving test. The experimenter could control for other variables that might influence the outcome, but then vary the amount of sleep that participants get the night before a driving test.

All of the participants would then take the same driving test via a simulator or a controlled course. By analyzing the results, researchers can then determine if it was the change in the independent variable (amount of sleep) that led to difference in the dependent variable (performance on a driving test) that led to differences in the dependent variable (performance on a driving test).

Hypothesis: A possible explanation for a behavior being studied can be answered by an experiment or a series of observation. It can also be defined as tentative answer to a problem.

Variables: Factors that can vary and can assume more than one value.

(a) Independent Variable: A variable which is manipulated or altered or its strength is varied by the researcher in the experiment. It is the effect of this change in the variable which researcher wants to study.

(b) Dependent Variable: A measurable behavior that is exhibited by a participant and is affected by the independent variable. Dependent variable represents the phenomenon the researcher desires to explain. It is expected that change in the dependent variable will ensure from changes in the independent variable.

(c) Extraneous Variables: When we conduct experiments there are other variables that can affect our results, if we do not control them. Extraneous Variables need to be controlled in an experiment so that the researcher is able to pin- point the cause and effect relationship between independent and dependent variable.

Control Group & Experimental Group

Control Group: The group in which participants are treated identically to participate in the experimental condition, except that the independent variable is not applied to them.

Experimental Group: The group in which independent variable is introduced.

Field Experiment And Quasi Experiments

Field Experiment: In field experiment the researcher may go to the natural setting where the particular phenomenon actually exists. For example teaching one group by demonstration method and other group by lecture method and then comparing their performance. It is more time consuming and expensive.

Quasi Experiments: In quasi experiment the independent variable is selected rather than varied or manipulated by the experimenter for example in the experimental group we can have children who have lost their parents in the earthquake and in the control group who experience the earthquake but did not lose their parents.

Advantages Of Experimental Method

- It helps in discovering the causes of behavior.

- It also helps in understanding cause and effect relationship.

Disadvantages Of Experimental Method

- It cannot be used to study all kinds of behavior.
- The experiments may produce results that do not apply in real life situations.
- They have low external validity.
- It is difficult to know and control all the relevant variables.

PSYCHOLOGICAL TEST

A psychological test is a standardized instrument designed to measure objectively, one or more aspects of total personality by means of verbal or non-verbal responses.

Standardization means the test is objective, reliable and valid.

Characteristics Of Psychological Test Standardization

The procedures are specified precisely, so that different testers will follow the same procedures when they administer the same test to different subjects this means that test performance of different people or the same persons at different times or occasions can be compared directly.

Objectivity: Objectivity refers to the fact that if two or more researchers administer a psychological test on the same group of people, both of them would come up with more or less the same values for each person in the group. The items convey the same meaning to everyone. Specific instructions and the procedure for administering the test are specified. The impact of personal bias is kept under control.

Reliability: It refers to the consistency of the scores obtained by an individual on the same test on two different occasions.

Types of Reliability

Test Retest reliability: It is computed by finding co-efficient of correlation between the two sets of scores on the same set of persons. It indicates the temporal stability or stability of the test scores over time.

Split Half Reliability:It gives an indication about the degree of internal consistency of the test. The test is divided into two equal halves employing odd even method.

Validity:It refers to the extent to which the test measures what it is suppose to measure.

Norms: It is an average score on a particular test made by a specific population. Reference to a test table of norms enables us to rank an individual's performance relative to his own age group.

Standardized Instructions:Standardized instructions are given in the manual. The tester gives these instructions only to maintain the uniformity.

Uniformity In Conduction: The tester conducts the test in a uniform way irrespective of their culture.

Types Of Psychological Tests

Psychological tests are classified on the basis of their language, mode of administration and difficulty level.

Language: Depending on the language we have Verbal, Non-Verbal and Performance tests.

Mode Of Administration:Depending on the mode of administration divided into Individual and Group test.

Difficulty Level: Depending on the difficulty level are classified into Speed and Power Test.

Uses Of Psychological Tests

- These are used primarily for analysis and determination of individual differences in general intelligence, aptitude, personality traits etc.
- Psychological tests are also used for a variety of psychological, educational, cultural studies of groups as well as study of particular individuals.
- Test provides very useful information for educational and vocational guidance.
- In schools, tests can be used to identify students with low as well high intelligence.
- It helps in knowing the causes of behavioral problems.

- In clinics, psychological tests are used for individual diagnosis of factors associated with personal problems of learning, behavior or specific interpersonal relations.
- In business and industry, tests are helpful in selecting and classifying personnel for placement in jobs.

OBSERVATION

It is an effective method of describing behavior. Witnessing an event and recording.

Steps Of Observation

Selection:Psychologists select a particular behavior for observation e.g. One may be interested to know how children behavior behave on their first day in school.

Recording:The researcher records the selected behavior using different means such as marking tallies for a behavior, taking notes describing each activity in detail.

Analysis of data:Psychologists analyzes whatever they have recorded to derive meaning out of it.

Types Of Observation

Naturalistic Observation:This refers to observations done in natural and real life settings. The observer makes no effort to control or manipulate the situation. This type of observation is conducted in schools and hospitals.

Controlled Observation:This is the observation carried out in a laboratory experiment.

Participant Observation:In this type of observation the observer becomes a part of the group being observed.

Non-Participant Observation:In this type of observation, groups or people are observed from a distance or through a camera.

Advantages Of Observation Method

- Researcher obtains a data about a truly natural behavior rather than a behavior that is reaction to experimental situation.

Disadvantages Of Observation Method

- It can be difficult and time consuming
- Controls are lacking
- Difficult to generalize results
- Scientific objectivity is lost if experimenter interacts with the participants.

SURVEY METHOD

It is a technique for sampling a wide variety of behavior and attitude e.g. finding out the attitude of people towards family planning. The survey research uses different techniques like interviews, questionnaires and observations etc. It can also be used to predict behavior. Researcher must be careful in choosing the sample.

Interview: It refers to a face to face conversation with a purpose to derive factual information, opinions and attitudes etc. there can be two broad types of interviews- structured or standardized and unstructured or non-standardized.

Types Of Interview

Structured Interview: A structured interview is the one in which the questions in the schedule are written clearly in a sequence.

Unstructured Interview: In an unstructured interview the interviewer has the flexibility to take decisions about the questions to be asked; the wordings of the questions and the sequence in which the questions are to be asked. Questions can be either open ended or closed ended. Closed ended questions have specified responses. Open ended questions can be answered the way respondent wants to.

Questionnaire: It consists of a predetermined set of questions. The respondent has to read the questions and mark the answers on the paper. Both open ended and closed ended questions can be used in the questionnaire. The questionnaire is mainly used for collecting background and demographic information, attitudes and opinions, knowledge about a particular topic. It is the most common, simple and low cost self-report method of collecting information.

Advantage Of Survey Method

It enables researcher to describe the characteristics of relatively small sample and generalize that information to a larger population.

CASE STUDY

It refers to in-depth study of a particular case. The case can be an individual with distinguishing characteristics or a small group of individuals having some commonality among them, institutions and specific events. A case study employs multiple methods for collecting information such as interview, observation and psychological tests. It provides in depth information about a person's life but at the same time validity in single case is quite challenging.

CORRELATION STUDIES

Correlation studies are done to find relationships between variables for prediction purposes. The strength and direction of the relationship is determined by correlation coefficient and its value can range from +1.0 to -1.0. The coefficient of correlation is of three types- positive, negative and zero. A positive correlation indicates that as the value of one variable increases, the value of other variable also increases. Negative correlation indicates as the value of one variable increases, the value of other variable decreases. Zero correlation indicates that there is no relationship between two variables.

Difference Between Test And Experiment

| <u>TEST</u> | <u>EXPERIMENT</u> |
|--|---|
| It is standardized instrument used to measure intellectual and nonintellectual characteristics of an individual through verbal or nonverbal measures | The researcher tries to manipulate the situation and tries to prove or disapprove a hypothesis. |
| It evaluates certain attributes of an individual. | It determines cause and effect relationship between variables. |
| It does not have an hypothesis | It has a hypothesis. |

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| It is standardized and has norms | It does not have norms and is meant for verification of various principles. |
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ETHICAL ISSUES

Psychological research is concerned with human behavior the research is expected to follow certain ethics while conducting the studies. The guidelines are as follows:

Voluntary Participation: This principle states that the persons on whom study is to be conducted should have the choice to participate or not to participate in the study.

Informed Consent: It is essential that the participant in a study should understand what will happen to them during the study.

Debriefing: Once the study is over, the participants are provided with necessary information to complete their understanding of research.

SharingThe Results Of The Study: In a psychological research, after collecting information from the participants, we come back to our place of work, analyze the data and draw conclusions. It is obligatory for the researcher to go back to the participants and share the results of the study with them.

Confidentiality Of Data Source: The participants in a study have the right to privacy. The researcher must safeguard their privacy by keeping the information provided by them in strict confidence.