UNIT 1 BASIC PROCESS/CONCEPT IN RESEARCH

Structure

1.0 INTRODUCTION

Let us start our journey into the realm of human mind. A scientific quest for understanding will be the foremost in our journey. We want to know why we think, feel and behave as we do. What makes each of us different from all other people? Why we do often behave as alike in some situations. Psychologists, as scientists, answer these questions systematically, develop the principles to explain them and use those principles to solve various problems. They are actively engaged in process of doing research.

Research is a process through which new knowledge is discovered. A theory, such as a theory of motivation, or development, or learning, for example, helps

us to organise this new information into a coherent body, a set of related ideas that explain events that have occurred and predict events that may happen. Conducting research requires to follow a sequence of steps. The exact sequence and steps vary somewhat with the type of research. The steps vary slightly by whether a study involves a quantitative or a qualitative approach and data.

This unit attempts to acquaint you with the nature and relevance of research. This is followed by the qualities of a good research. Further, you will find the process of psychological research within the context of discovery (getting and idea) and context of justification (Testing hypothesis). This unit will provide a quick glance at the whole process of research to acquaint you with the various tasks you faced to undertake to carry out your research. It will give your some idea of what the research journey involved. Finally, this unit will cover the total spectrum of research and endeavor starting from the problem through to writing a research report and its publication.

1.1 OBJECTIVES

After reading this unit, you will be able to:

- Define research;
- Describe the meaning of research;
- Explain the relevance of research;
- Describe the process of conducting research;
- Elucidate how to evaluate a research;
- Analyse how to maintain objectivity and minimize bias in psychological research;
- Explain the role of theory, hypothesis and paradigm in psychological research;
- Enlist the various steps needed for conducting a research;
- Explain how theoretical knowledge can be further applied to undertake a research; and
- Analyse the importance of each steps involved in research process.

1.2 DEFINITION AND MEANING OF RESEARCH

The word research is composed of two syllables, *re* and *search*. The dictionary defines the former as a prefix meaning again, a new or over again and the latter as a verb, meaning to examine closely and carefully, to test and try, or to probe. Together they form a noun describing a careful, systematic, patient study and investigation in some field of knowledge, undertaken to establish facts or principles (Grinnell 1993). The simplest meaning of research is to search for facts, answers to research question and solution for the problem.

Scientific Research is a systematic and objective attempt to provide answers to certain questions. The purpose of scientific research is to discover and develop an organised body of knowledge. Therefore, scientific research may be defined as the systematic and empirical analysis and recording of controlled observation,

which may lead to the development of theories, concepts, generalisations and principles, resulting in prediction and control of those activities that may have some cause-effect relationship. Some of the definitions of research in literature are given below which can help you to understand proper meaning and concept of research.

Encyclopaedia of Social Science defines research as, "the manipulation of generalising to extend, connect or verify knowledge…" Manipulation incorporates experimentation adopted for the purpose of arriving at generalisation.

Kerlinger (1973) defines research as a "systematic, controlled, empirical and critical investigation of hypothetical propositions about the presumed relationship about various phenomena."

Burns (1994) also defines research as 'a systematic investigation to find answers to a problem'.

Thus, the term research refers to the systematic method consisting of enunciating the problem, formulating a hypothesis, collecting the facts or data, analysing the facts and reaching certain conclusions either in the form of solution (s) towards the concerned problem or in certain generalisations for some theoretical formulation.

1.3 CRITERIA OF GOOD RESEARCH

The criteria for good research are as follows:

Purpose of research should be clearly defined and common concepts that are used should be operationally defined.

The research procedure should be precisely planned, focused and appropriately described in order to enable other researcher to do research for further advancement.

Research design should be carefully planned to generate results to maintained objectivity.

The research report should be as much as possible frank enough to gauge effects of the findings.

Data analysis in the research report should be adequate to reveal its significance and the method of analysis employed be appropriate and

Validity and reliability of data should be examined carefully.

1.4 OBJECTIVES OF GOOD RESEARCH

The purpose of research is to discover answers to questions through the application of scientific procedures. The main aim of research is to find out the truth which is hidden and which has not been discovered as yet. Though each research study has its own specific purpose, we may think of research objectives as falling into a number of following broad groupings:

1) To gain familiarity with a phenomenon or to achieve new insights into it (studies with this object in view are termed as exploratory research studies);

2) To portray accurately the characteristics of a particular individual, situation or group (studies with this object in view are known as descriptive research studies);

3) To determine the frequency with which something occurs or with which it is associated with something else (studies with this object in view are known as diagnostic research studies)'

4) To test a hypothesis of a causal relationship between variables (such studies are known as hypothesis- testing research studies/experimental studies).

Thus, research is the fountain of knowledge for the sake of knowledge and an important source of providing guidelines for solving different business, personal, profession governmental and social problems. It is a sort of formal training which enables one to understand the new developments in one's field in a better way.

1.5 QUALITIES OF A GOOD RESEARCH

Good research possesses certain qualities which are as follows:

Good research is systematic: it means that research is structured according to set of rules to follow certain steps in specified sequence. Systematic research also invites creative thinking, and certainly avoids use of guessing and intuition for arriving at the conclusion.

Good research is empirical: it implies that any conclusion drawn is based upon hardcore evidence gathered from information collected from real life experiences and observations. This provides a basis for external ability to research results.

Good research is valid and verifiable: Research involves precise observation and accurate description. The researcher selects reliable and valid instruments to be used in the collection of data and uses some statistical measures for accurate description of the results obtained. Whatever you conclude on the basis of finding is correct and can be verified by yourself and others.

Good Research is logical: it suggests that research is guided by the rules of reasoning and logical process of induction (general to specific) and deduction (specific to general) that plays an important role in carrying out research. In fact, logical reasoning makes research feasible and more meaningful in the context of decision making.

Good research develops theories and principles: which are very helpful in accurate prediction regarding the variables under study. On the basis of the sample observed and studied, the researcher makes sound generalisations regarding the whole populations. Thus, research goes beyond immediate situations, objects or groups being investigated by formulating a generalisation or theory about these factors.

Research is replicable: the designs, procedures and results of scientific research should be replicable so that any person other than the researcher himself may assess their validity. Thus, one researcher may use or transit the results obtained by another researcher. Thus, the procedures and results of the research are replicable as well as transmittable.

1.6 RESEARCH PROCESS: BASIC CONSIDERATIONS

Before we examine what researchers have found in the major areas of psychology, we need to identify the ways psychologists gather data about behaviour and mental processes. Recall that psychology is the scientific study of behaviour and mental functioning of individuals. It is scientific because it uses the principles and practices of the scientific method.

Let us turn now how psychologists know *what* they know.

Empirical investigation in any field requires the use of the scientific method to observe, measure, and experiment. Even if you never do any scientific research in your life, mastering information on psychological research will be useful. You can improve your critical thinking skills by learning how to ask the right questions about behaviour and how to evaluate the answers you find.

Psychological research process can be divided into two major categories that usually occur in sequence that is (i) getting an idea [context of discovery] and then (ii) testing it (context of justification).

1.6.1 Context of Discovery

This is the initial phase of research during which observations, belief, information, and general knowledge etc., lead someone to come up with a new idea or a different way of thinking about phenomena.

1.6.1.1 Role of Theories, Hypotheses and Paradigms in Psychological Researches

Researchers begin with the assumption of determinism, the idea that all events (physical, mental and behavioural) result from specific causal factors. Researchers also assume that behaviour and mental processes follow set patterns of relationships that can be discovered and revealed through research.

Psychological theories, in general, attempt to understand how brain, mind, behaviour, and environment function and how they may be related. Any particular theory focuses on a more specific aspect of this broad conception, using a body of interrelated principles to explain or predict some psychological phenomenon.

The value of a theory is often measured in terms of the new ideas, or hypotheses, that can be derived from it and tested. A hypothesis is a tentative and testable explanation of the relationship between two or more events or variables. A **variable** is any factor that changes, or varies, in size or quality. To illustrate this mood may be a variable, since people's moods may vary from one situation to another. Test performance is another variable, since a person's score may vary from one test to the next.

Finally, our understanding of a complex process is also aided by using the correct paradigm. A *paradigm* is a model of the functions and interrelationships of a process, a "way of thinking" about the world and how to study it. Entire field of knowledge, including psychology, can change directions when new paradigm challenges existing ones. When paradigms shift, revolutions of knowledge usually

follow (Kuhn, 1970).Before a new theory, hypothesis, or paradigm makes a difference in science, it has to undergo an "ordeal of proof." Most often this happens when researchers publish (i.e. make public) their findings, and other scholars investigate whether they find the same patterns in their own data. This process of publication and communication moves scientific research into the public eye, where ideas are tested and proven.

1.6.1.2 Research Biases

One of the challenges, while doing research is to remain objective and free from biases. Most of your ideas and beliefs are probably linked with certain bias because they are influenced by your opinions or values. A variety of biases have been found to distort people's impressions of collected data. *External influences* such as one's culture or the media can influence people to accept a particular world view. *Personal bias* distorts estimating or evaluating processes as a result of personal beliefs, attributes, or past experiences. *Observer bias* operates when some events are taken as meaningful by some and not taken meaningful by others. It must be kept in mind that researchers themselves were raised in certain cultures and societies. They also might have been exposed to certain gender role expectations. These background factors can all affect the way that researchers observe and interpret events in their lives. *Expectancy bias* can affect observations of behaviour by encouraging reactions to the events being observed. Researchers sometimes expect to find specific outcomes, they may see what they expect to see rather than remain objective. Unfortunately, if one is not alert to the possibility of expectancy bias, it may seem as though the observed events are being "discovered" instead of created by the observer's expectations.

Finally, *placebo biases* operate when people strongly want to believe a treatment is successful. For example, many people may claim to feel better after taking a placebo such as a sugar pill. In those cases where the outcome involves a subjective judgment about results, that is, how well a person feels well or whether the pain has been reduced or relieved, the desire for a drug or therapeutic method to work may be enough to achieve the desired result.

1.6.2 Context of Justification

The context of justification is the second phase of research in which results are prepared for useful communication with other scientists. Psychologists face a difficult challenge when they try to get accurate data and reliable evidence that will generate valid conclusions. They rely on one ally to succeed: the scientific method. Scientific method is a general set of procedures for gathering and interpreting evidence in ways that limit errors and yield dependable conclusions. The scientific method also demands special attitudes and values on the part of research scientists.

1.6.2.1 Scientific Attitudes and Values Associated with Research Process

Scientists are motivated by a curiosity about the unknown and the uncertain. Since the truth may be disguised, the scientific method demands a critical and skeptical attitude toward any conclusion until it has been duplicated repeatedly by independent investigations. Secrecy is banned from the research procedure because all data and methods must eventually be open for public verifiability and domain. Other researchers must have the opportunity to review the data and

conclusions and then attempt to replicate the results. Thus, science is not a set of rules but rather a process of asking, observing, explaining, testing, and retesting explanations of reality.

1.6.2.2 Objectivity Safeguards in Research Process

This consists of (i) procedural safeguards (ii) standardisation (iii) operationalisation (iv) avoiding of bias. Let us take each of these and discuss.

Since subjectivity must be minimized in the data collection and analysis phases of scientific research, **procedural safeguards** are used to increase objectivity. These safeguards begin with keeping complete records of observations and data analyses in a form that other researchers can understand and evaluate. As a result, most scientific reports are written in a similar form and published by organisations of scientists. These reports communicate ideas to the entire scientific community and open those ideas to criticism. A second safeguard is standardisation. **Standardisation** means using uniform, consistent procedures in all phases of data collection. All subjects should receive the same instructions and be treated in the same way. By applying a standard treatment for all participants in the course of study, researchers ensure they will have the same basic experience.A third safeguard involves standardising the meaning of concepts, known as **operationalisation**. An operational definition of a concept defines that concept in terms of how it is measured or what operations produce it. Researchers must also safeguard objectivity by avoiding bias. As explained earlier, bias from external influences, personal beliefs, observers' perspectives, and human expectations can all distort data. Researchers use various control procedures to avoid such biases and test hypotheses in ways that are fair and error-free.

Self Assessment Questions

1) An investigator comes up with a new idea or a different way of thinking is known as context of discovery (True/False)
2) Use of uniform consistent procedure in all faces of data collection is known as standardisation. (True/False)
3) Scientific knowledge is not based on empirical evidences. (True/False)
4) Psychologists should not maintain objectivity by avoiding biases. (True/False)
5) Psychological researches should be replicable (True/False)
6) Operational definition of a concept is not necessary in scientific research. (True/False)

Answers: (1) T, (2) T, (3) F, (4) F, (5) T, (6) F

1.7 STEPS IN RESEARCH PROCESS

Research process consists of series of actions and steps needed for conducting scientific research, if the researcher follows certain steps in conducting the research, the work can be carried out smoothly with least difficulty. These steps are described as beneath—

1.7.1 Step-I: Identification of the Problem

The first and most important step for identifying a problem is asking a question or identifying a need that arises as a result of curiosity and to which it become necessary to find an answer. The psychological studies are focused on one or many of the following kinds of questions:

What are the events that cause or determine a given behaviour or response?

What is the nature of behaviour or action (i.e., its structure) and how it is linked with other actions and behaviours?

What are the relationships of internal psychological processes with behavioural phenomenon?

The research question determines the direction of study and researchers have to struggle a lot in identifying and articulating the same. Essentially two steps are involved in formulating the research problem, viz, understanding the problem thoroughly, and rephrasing the same into meaningful terms. The main function of formulating a research problem is to decide what you want to find out about.

It is extremely important to evaluate the research problem in the light of funds, time and expertise and knowledge available at your disposal. It is equally important to identify any gaps in your knowledge of relevant disciplines, such as statistics required for analysis.

Once the question has been asked, that next step is to identify the factors that have to be examined to answer the question. Such factors might range from the most simple, such as a child's age or socioeconomic status, to more complicated measures such as the effects of violent cartoons on a child's behaviour. The factors may be age of the child, degree of violence in programs, emotional arousal, facial expression, family communication patterns etc. Besides this, following factors should be considered by the researcher for identifying in research problem:

Have not been investigated before;

Will contribute to the understanding of your question;

Are available to investigate;

Lead to another question!

For identifying a good solvable problem, the investigator undertakes the **review of literature.** A body of prior work related to a research problem is referred to as literature. Scientific research includes a review of the relevant literature. When a researcher reviews the previous researches in related fields, he becomes familiar with several known and unknowns. Therefore one obvious advantage of review of the literature is that it helps to eliminate duplication of what has already been done and provide guidance and suggestions for further research. The main purpose of review of the literature is fourfold. First it gives an idea about the variables which have been found to be conceptually and practically important and unimportant in the related field. Thus the review of literature helps in discovering and selecting variables relevant for the given study. Second the review of the literature provides as estimate of the previous work and provides an opportunity for the meaningful extension of the previous work.

Third, a review of the literature helps the researcher in systemising the expanding and growing body of knowledge. This facilitates in drawing useful conclusions

regarding the variables under study and provides a meaningful way of their subsequent applications. Fourth, a review of the literature also helps in redefining the variables and determining the meanings and relationships among them so that the researcher can build up a case as well as a context for further investigation that has merit and applicability. There are different sources of review of the literature such as journals, books, abstracts, indexes and periodicals. If you are not sure what journals and other resources to examine for research idea, you should know that the computer search engine **PsycINFO** is a very effective tool for going through the technical literature. The print companion to PsycINFO is psychological abstracts and both of theses contain abstracts of articles from almost all journals that publish psychological research. If you find an abstract of interest, you can then read the entire articles for additional information.

1.7.2 Step-II: Formulating a Hypothesis

When the researcher has identified the problem and reviewed the relevant literature he formulates a hypothesis which is a kind of suggested answer to the problem Hypothesis plays the key role in formulating and guiding any study. The hypotheses are generally derived from earlier research findings existing theories, and personal observations and experiences. From a careful examination of relevant theory and previous findings, the psychologist would be able to state one or more prepositions whose validity could be tested. Ideally these hypotheses would be based on a deductive theory but they may simply be new hypotheses or hypothesis based on previous research findings. Hypothesis may be defined as a tentative statement showing a relationship between variables under study. It is stated in the form of a declarative sentence. For instance suppose you are interested to know the effect of reward on learning. You have analysed the past research and found the indication that the two variables are positively related. You need to convert this idea in terms of a testable statement. At this point you may develop the following hypothesis. *Those who are rewarded shall require lesser number of trials to learn the lesson than those who are not rewarded*. For unbiased research the researcher must formulate a hypothesis in advance of the data – gathering process. No hypothesis should be formulated after the data are collected.

1.7.3 Step-III: Identifying, Manipulating and Controlling Variables

While talking about the hypothesis you will encounter this word i.e. variable in the scientific literature in the psychology. Variables are defined as those characteristics which are manipulated, controlled and observed by the experimenter. At least three types of variables must be recognised at the outset - the dependent variable, the independent variable and the extraneous variable. The dependent variable is one about which the prediction is made on the basis of the experiment. In the other words the dependent variable is the characteristics or condition that changes as the experimenter changes the independent variables. The independent variable is that condition or characteristics which is manipulated or selected by the experimenter is order to find out its relationship to some observed phenomena. A extraneous variable is the uncontrolled variable that may affect the dependent variable. The experimenter is not interested in the changes, produced due to the extraneous variable and hence, he tries to control it as far as practicable. The extraneous variable is known as the relevant variable. In order to make a variable clear precise and easy to communicate it is important

that it is operationally defined. An operational definition involves specifying the actual operations that define a given variable. Operational definition is also important for the purpose of measurement. Since psychological variables are complex and their measurement posses special problems. Therefore, psychologists are very eager to use operational definitions. They frequently use verbal measures, behavioural measures and psychological measures of variables in their studies, which are able to help him or her to specify the operations and may allow quantification.

1.7.4 Step-IV: Formulating a Research Design

A research design may be regarded as the blueprint of those procedures which are adapted by the researcher for testing the relationship between the dependent variable and the independent variable. There are several kinds of experimental designs and the selection of any one is based upon the purpose of the research, types of variables to be controlled and manipulated as well as upon the conditions under which the experiment is to be conducted. The main purpose of experimental design is to help the researcher in manipulating the independent variables freely and to provide maximum control of the extraneous variables so that it may be said with all certainty that the experimental change is due to only the manipulation of the experimental variable. The main function of a research design is to explain how you will find answers to your research questions. The research design sets out the logic of your inquiry. A research design should include the following; logistical arrangements have to made according to proposed research design , the measurement procedures, the sampling strategy, the frame of analysis and the time frame. For any investigation, the selection of an appropriate research design is crucial in enabling you to arrive at valid findings, comparisons and conclusions. A faulty design may derive misleading findings. Empirical investigation is primarily evaluated in the light of the research design adopted. While selecting a research design it is important to ensure it is valid workable and manageable.

1.7.4.1 Constructing Devices for Observation and Measurement

When the research design has been formulated, the next step is to construct or choose appropriate tools of research for scientific observation and measurement. Questionnaire and interview schedule are the most common tools which have been developed for the psychological research. If the readymade tools are not available then the researcher may have develop appropriate tools before undertaking the study. All these tools of research are ways through which data are collected by asking for information from person rather than observing them.

1.7.4.2 Sample Selection and Data Collection

After deciding the tools for the study the researcher also decides about the participants of the study. Usually a small sample is drawn which represents the population. The participants could be children, adolescents, college students, teachers, managers, clinical patients or any group of the individual in whom/ where the phenomenon under investigation is prevalent. Depending on the nature of research problem a researcher may choose particular method (e.g. observation, experiment, case study, and survey) for data collection. The researcher also decides how the tools to be administered to collect data that is individual or group.

In data collection phase, researcher must consider recruitment of staff and assignment to them, way of increasing response rate and cost of training of staff etc. Effect of each of these must be evaluated in terms of cost, accuracy, reliability and validity.

1.7.5 Step-V: Data Analysis and their Interpretation

After making observation the data collected are analysed with the help of various quantitative / statistical and qualitative techniques .Careful scrutiny of the data is a critical aspect of scientific method. The purpose of the analysis is to make sense of the data and see what light they throw on the problem and the hypotheses of the study and draws conclusion accordingly. Data analysis can be done by using univariate analysis in which research deals with a single characteristics of interest, bivariate analysis in which researcher deals with two characteristics of interest and by using multivariate analysis in which more then two characteristics are involves.

Depending upon the nature of data and purpose of the experiment, either a parametric statistic or a non-parametric statistic is chosen for statistical analysis. In general, the purpose of carrying out the statistical analysis is to reject the null hypothesis so that the alternative hypothesis may be accepted.

1.7.6 Step-VI: Drawing Conclusions

The investigator, after analysing the results, draws some conclusions. In fact the investigator wants to make some statement about the research about the research problem which he could not make without conducting his research. Whatever conclusion drawn, researcher generalises it to the whole population. During this phase, hypotheses are accepted or rejected. At the same time the conclusions of the study are related to the theory or research findings from which the hypotheses originally came. Depending on the new findings the original theory may have to be modified.

1.7.7 Step-VII: Preparation of Report and Publication

This is the last step in most of the research studies. The researcher documents all the steps of his or her research in clear terms this report inform that what you have done, what you have discovered and what conclusion you have drawn from findings. If you are clear about the whole process you will also be clear about the way you want to write in your report. This helps the reader to understand the study and use it for various purposes. It allows one to replicate the study. The publication of study in scientific journals or books and in public domain makes the work available for wider dissemination.

Self Assessment Questions

1) The first step of research process is identifying a problem. T/F
2) Hypotheses are formed after formulating a research design. T/F
3) Preparation of report and publications of research study allow the other researchers to replicate the study. T/F
4) An operational definition of the variables is not necessary for the purpose of measurement. T/F
5) Selection of particular data collection method depends on the nature of study. T/F

Answers: (1) T, (2) F, (3) T, (4) F, (5) T

1.8 IMPORTANCE OF RESEARCH IN PSYCHOLOGY

Importance and relevance of psychological research is well recognised almost in every sphere of human life. Notable progress has been reported in the field of organisational behaviour, applied aspects of human being, medical sciences and education, through application of psychological research findings.

Empirical and theoretical researches in psychology are taking place in various fields, such as learning, motivation, perception, concept learning and memory and so on. In the quest of psychological facts, laws and theories, psychologists have found research studies very helpful in gauging human and animal behaviour.

Practical gains of psychological research are many, yet include discoveries such as improved methods of treating psychologically disordered people, better designs of vehicles to make them easier and safe to use, and new ways of enhancing the performance and happiness of workers.

In psychological researches experimental methods are widely used. Therefore, nature of majority of psychological researches is highly scientific. Psychological researches have successfully led to control and manipulation of the variables associated with widely used generic and comparative methods. Psychologists have developed such effective experimental designs that that they have helped to isolate effect of other variables from independent variables.

In psychological researches, rigorous scientific norms and statistical methods are applied in collection, organisation, description and analysis of the data. By turning psychological facts into quantitative form, the nature of most of the psychological researches remains method oriented (scientific).

1.9 LET US SUM UP

Scientific research may be defined as the systematic and empirical analysis and recording of controlled observation, which may lead to the development of theories, concepts, generalisations and principles, resulting in prediction and control of those activities that may have some cause-effect relationship. Qualities of good research are empirical, logical, verifiable, based on theories and principles and replicable. Psychological researches use the scientific method to test the ideas developed within the context of discovery and the context of justification. In the discovery phase of research, observation, belief and information lead to a new way of thinking about a phenomenon. External and internal biases can distort the discovery phase because our conclusions are often subject to personal biases, observer biases, expectancy biases, and placebo biases. Psychologists use scientific theories, testable hypothesis, and creative paradigms to unravel the mysteries of mind and behaviour. In the justification phase, ideas are tested and either disconfirmed or proven. Psychologist must maintain objectivity by keeping complete records, standardise procedures, make operational definitions, minimize biases and control errors. A reliable result is one that can be repeated in similar conditions by independent investigators. This unit has provided an overview of the research process. The steps of research process includes problem identification, formulation of hypothesis, identification manipulation and controlling of the

variable, formulation of research design, constructing devices for observation, sample selection and data collection, data analysis and interpretation, drawing conclusions and preparation of report and publications.

1.10 UNIT END QUESTIONS

1) What is research? Discuss qualities of good research.
2) In your opinion, what may be various criteria of a good research?
3) Discuss importance and relevance of psychological research.
4) How can you minimize research biases in psychological research?
5) What is the role of discovery of justification in psychological research?
6) List the steps involved in research process?
7) Explain the importance of research questions in psychological research?
8) What is the role of review of literature in research process?
9) Why formulates of hypothesis is necessary while conducting it?
10) How the steps in the research process do helps a person to get knowledge?

1.11 GLOSSARY

Empirical Investigation : Research that relies on sensory experience and observation as research data.

Context of Discovery : Initial phase of research during which an investigator comes up with a new idea or a different way of thinking about phenomena.

Theory : A body of interrelated principles used to explain or predict some psychological phenomenon.

Hypothesis : A tentative and testable explanation of the relationship between two or more events or variables.

Paradigm : A model of the functions and interrelationships of a process; a "way of thinking" about the world and how to study it.

Context of Justification : Second phase of research, in which results are tested and prepared for useful communication with the scientific community.

Standardisation : The use of uniform consistent procedures in all phases of data collection.

Operational definition : Definition of a concept in terms of how the concept is measured or what operations produce it.

Placebo Control : A control strategy where researchers compare those who received actual treatment with those who received only attention or a "dummy drug."

Variable : something that can occur with different values and can be measured.

Independent Variable : a variable that represents the hypothesised "cause" that is precisely controlled by the experimenter and independent of what the participant does.

Dependent Variable : a variable that represents the hypothesised "effect "whose values ultimately depend on the values of independent variable.

1.12 SUGGESTED READINGS AND REFERENCES

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