PSY205-CLASSIFICATION OF RESEARCH

Meaning of Research

- **The term research comprises of two words, namely ‘re’ and ‘search’.**
  - **‘re’ means again and ‘search’ means to find out.**
- The search for knowledge through objective and systematic method of finding solution to a problem is research!

Characteristics of Research

1. research is systematic
2. research is logical
3. research is empirical
4. research is deductive (genellenebilirlik-general)
5. research is replicable and transmittable

Process of Good Research

1. Formulating the research problem
2. Extensive literature survey
3. Development of working hypothesis
4. Preparing the **research design**
5. Determining sample (WHO?)
6. Collecting the data
7. Analysis of data
8. Hypothesis testing
9. Generalizations and interpretation
10. Preparation of the report or the thesis

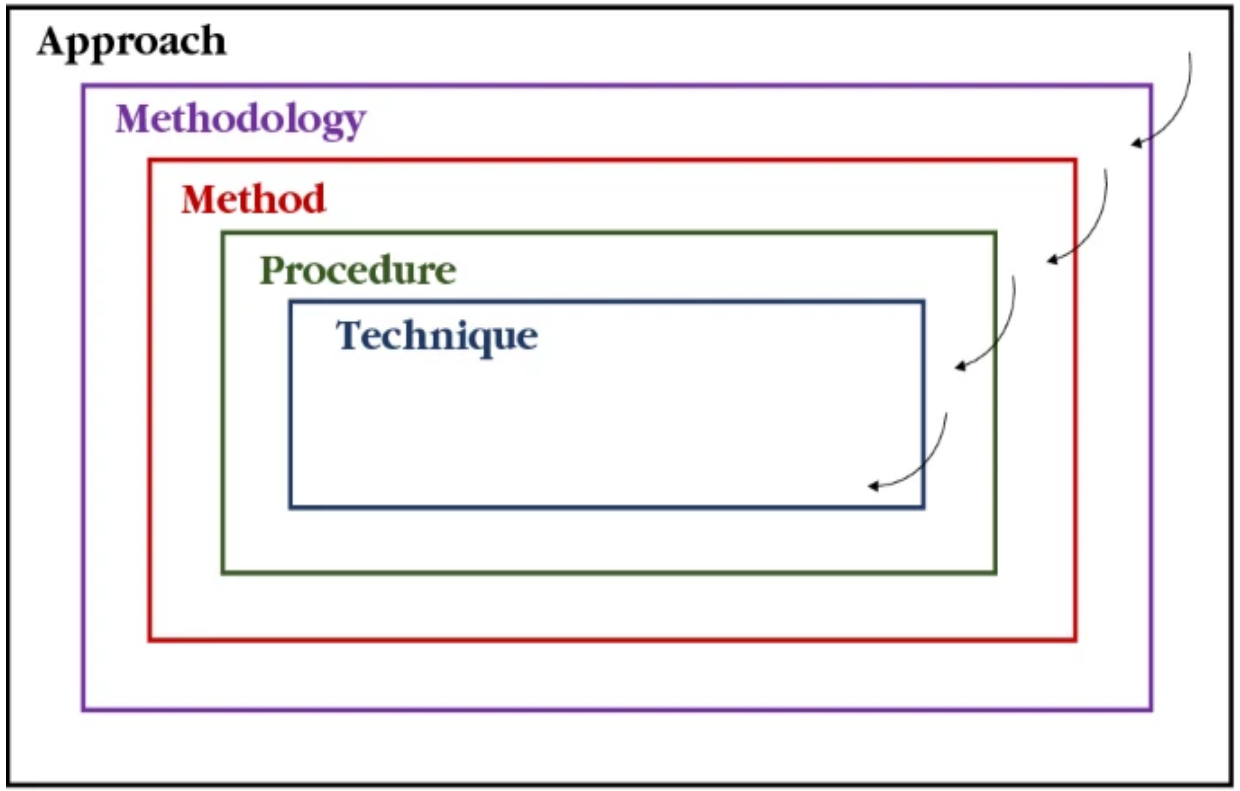
Research Methods vs. Methodology

- **Research Methods** are the methods by which we conduct research into a subject or a topic.

e.g. Conduct of experiments, tests, surveys

- **Research Methodology** is the way in which research problems are solved systematically.

e.g. Learning of various techniques that can be used to conduct research, tests, experiments, surveys and critical studies.



Methodology vs. Method

METHODOLOGY

1. It is the beginning.
2. The technique(s) how to conduct research.
3. The study about the tools of research.
4. Explains the methods by which you may proceed with your research.

METHOD

1. The end of any scientific or non-scientific research.
2. The actual tools/steps taken by which you conduct research into a subject or a topic.

Scientific Method

- **Inductive (tümevarım) –** from observation to hypotheses.
- **Deductive (tümdengelim) –** from hypotheses to logical implication of the hypotheses.
- Identification and definition of the problem.
- Formulation of a hypothesis.
- Implications of hypothesis through deductive reasoning.
- Collection and analysis of evidence.
- Verification, rejection or modification of hypothesis.

Characteristics of Scientific Method

- Replicability - The results of the tests of hypotheses should be supported again and again when the same type of research is repeated in other similar circumstances. When the results are repeated, we will gain confidence in the scientific nature of our research.
- Falsifiability - A good theory or hypothesis also must be falsifiable, which means that it must be stated in a way that makes it possible to reject it. In other words, we have to be able to prove a theory or hypothesis wrong.
- Precision (Kesinlik) - Precision refers to the closeness of the findings to reality based on a sample. Precision reflects the degree of accuracy of the results on the basis of the sample, to what really exists in the universe.
- Parsimony - Parsimony refers to simplicity in explaining the phenomena or problems that occur, and in generating solutions for the problems.

Types of Scientific Method

Descriptive, Exploratory and Explanatory Research

- The purpose of research is to describe or define a particular phenomenon, termed descriptive research
- Researchers conducting exploratory research are typically in the early stages of examining their topics.
  - A researcher may wish to do some exploratory work to learn what method to use in collecting data, how best to approach research subjects, or even what sorts of questions are reasonable to ask.
- Research that answers “why” questions is referred to as explanatory research.
  - In this case, the researcher is trying to identify the causes and effects of whatever phenomenon they are studying.

Descriptive Research

- The research that describes a situation, an event and an institution is descriptive research.
  - It describes the nature of a situation as it exists at the time of study.
- Descriptive research answers the questions who, what, where, when and how...
- Descriptive research is about describing the phenomenon, observing and drawing conclusions from it.
  - includes surveys with adequate interpretation.

Exploratory Research

- **Keşifsel!**

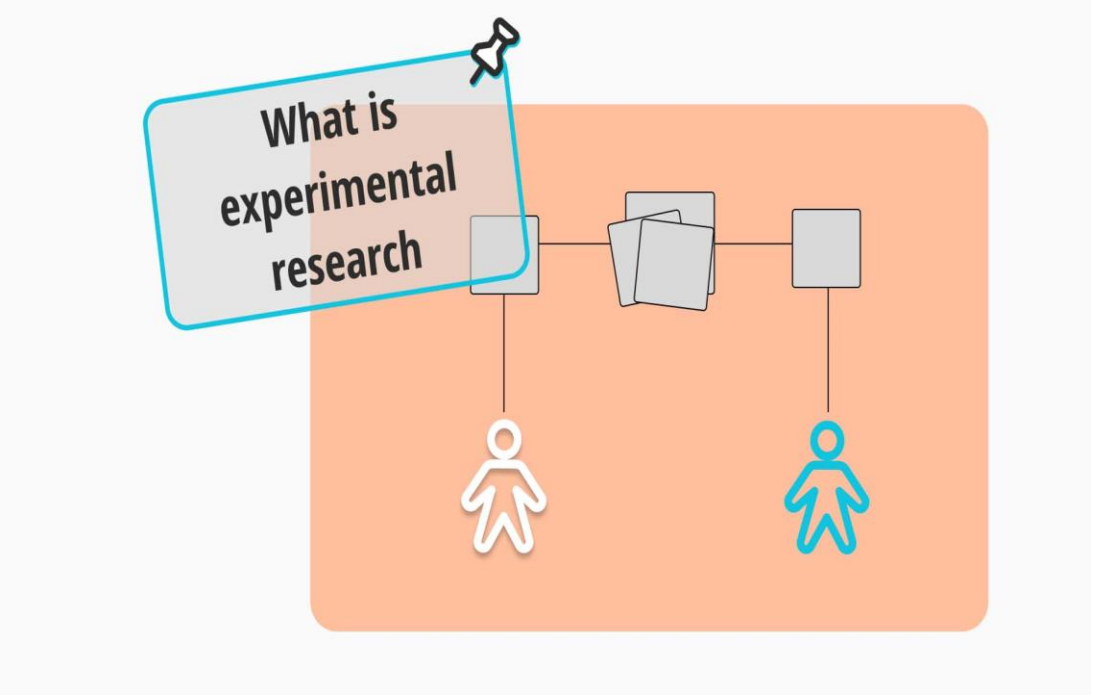
- Exploratory Research Design - **Formulative Research Design**
- It is applied when the researcher is not acquainted with the problem.
- The main emphasis is the discovery of new ideas and insights.
- Much of social researches are of exploratory nature.
- A specific problem is formulated for precise investigation.
- Exploratory research design is «**flexible**»
- **Highly Unstructured**
- **NOTE: Exploratory research - explore and discover new ideas, Descriptive research focuses on describing and understanding existing issue!**

Explanatory Research

- **Açıklayıcı!**
- The research - to explain why events occur to build, elaborate, extend or test the theory.
- The cause-effect relationships…
- To test specific theories!
- Make amends to previous theories…

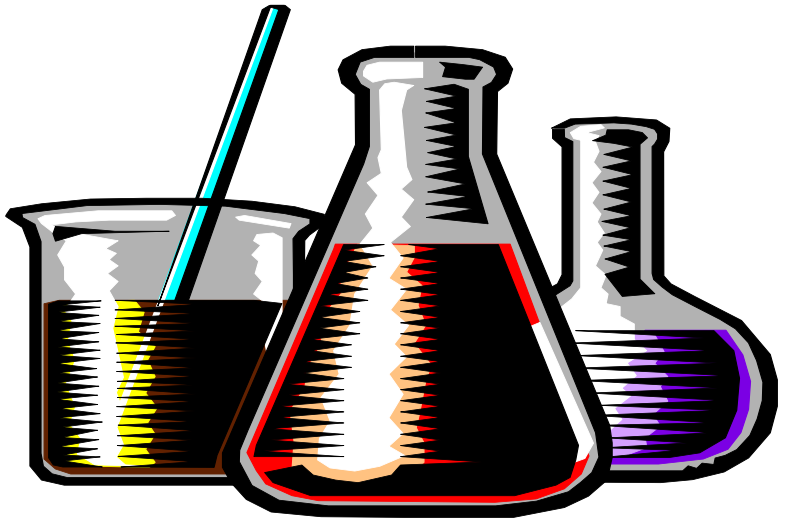
Experimental Research

- Observation under controlled conditions!!
- It studies observable changes that take place in order to establish a cause and effect relationship…
- It is the description of "What will be", "What will occur" in the behaviour of the subject -dependent variable, when the experimenter deliberately and systematically manipulates certain stimuli, treatments or environmental conditions- independent variable(s)



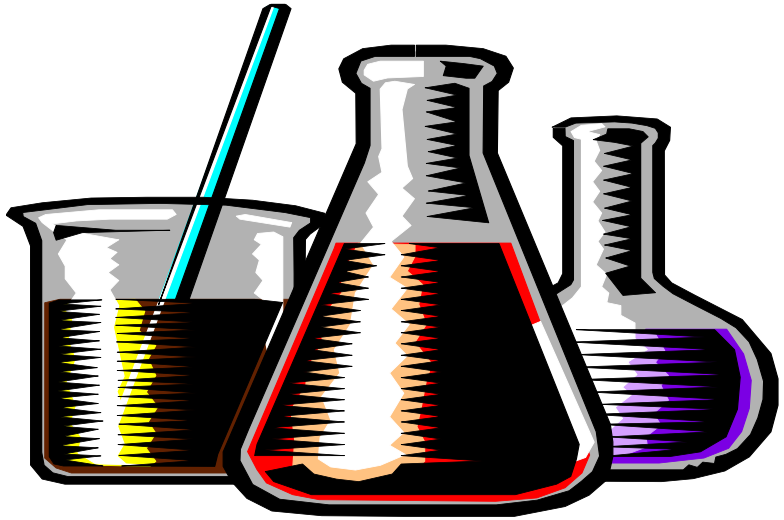
Experimental Research

- Experimental research is an attempt by the researcher to maintain control over all factors that may affect the results of an experiment.



Process of Experimental Research

- Identify and define the problem.
- Formulate hypothesis and deduce its consequence.
- Construct an experimental that represents all the elements, conditions, and relations to the consequence.
- Conduct the experiment.
- Compile raw data and reduce to usable form.
- Apply an appropriate test of significance.



Based on data type, research can be classified as quantitative data and qualitative data.

Qualitative vs. Quantitative Research

Classifications Based on Data Type

Qualitative and Quantitative

- Research data is any information that has been collected, observed, generated or created to validate original research findings.
- There are two general types of data: **QUANTITATIVE AND QUALITATIVE**

1. **Quantitative** data is information about **quantities -** can be measured, counted and with numbers.
2. **Qualitative** data is the information about **qualities** or the information that cannot be actually measured. It is the information about how people feel about something.

Quantitative Research

- Quantitative research usually involves collecting and converting data into numerical form so that statistical calculations can be made and conclusions drawn.
- The overall structure for a quantitative research is based on scientific method.
- It uses deductive reasoning, where the researcher forms a hypothesis, collects data related to the problem, and then analyze the data using statistical methods and reach conclusions to prove or the disprove the hypotheses.
- Quantitative research is a research which collects numerical data to explain a particular phenomenon.
  - How many males get a first-class degree at university compared to females?

Characteristics of Quantitative Research

- The aim - quantify data and generalize results from a sample to the population of interest and to classify features, count them, and construct statistical models in an attempt to explain what is observed.
- The researcher knows clearly in advance what he/she is looking for.
- All aspects of the study are carefully designed before data is collected in a quantitative research.
- The researcher uses tools such as questionnaires or equipment to collect numerical data.
- The data is in the form of numbers and statistics.
- More efficient to test hypotheses.

Types of Quantitative Research

Descriptive Research

- describe the current status of an identified variable.
- provide systematic information about a phenomenon.
- The analysis and synthesis of the data provide the test of the hypothesis.
- Systematic collection of information requires careful selection of the units studied and careful measurement of each variable.

Correlational Research

- determine the extent of a relationship between two or more variables using statistical data.
- will recognize trends and patterns in data, but it does not go so far in its analysis to prove causes for these observed patterns

Experimental Research

- it is often called true experimentation, uses the scientific method to establish the cause-effect relationship among a group of variables involved in the study.
- the independent variable is manipulated to determine the effects on the dependent variables.

Advantages Of Quantitative Research

1. Can allow for greater objectivity and accuracy of results.
2. Can generalize a research finding when it has been replicated on many different populations and sub-populations.
3. Provides precise, quantitative, numerical data.
4. Data analysis is relatively less time consuming (using statistical analysis).
5. Results are relatively independent of the researcher (e.g., statistical significance).
6. It is useful for studying large numbers of people.

Limitations Of Quantitative Research

1. Knowledge produced might be too abstract and general for direct application to specific local situations, contexts, and individuals
2. Results are limited as they provide numerical descriptions rather than detailed narrative and generally provide less elaborate accounts of human perception
3. Quantitative research is often carried out in an unnatural, artificial environment. The level of control in this research might not normally be in place in the real world yielding laboratory results as opposed to real world results
4. In addition preset answers the responses will not necessarily reflect how people really feel about a subject.
5. The development of standard questions by researchers can lead to 'structural' bias and false representation, where the data actually reflects the view of them instead of the participating subject.

Qualitative Research

- Qualitative methodology is inductive in its reasoning.
- The researcher selects a general topic and then begins collecting information to assist in the formation of a hypothesis.
- The data collected during the investigation creates the hypothesis for the researcher in this research design model.

Characteristics of Qualitative Research

- The aim is a complete, detailed description.
- Researcher may only know roughly in advance what he/she is looking for.
- Recommended during earlier phases of research projects.
- Researcher is the data gathering instrument.
- Data is in the form of words, pictures or objects.
- Subjective – individual interpretation of events is important, e.g., **uses participant observation, in-depth interviews** etc.
- Qualitative data is time consuming, and less able to be generalized.
- Researcher tends to become subjectively immersed in the subject matter. **ÖZNEL OLMA EĞİLİMİ!!**

Limitations of Qualitative Research

- Heavily dependent on the individual skills.
- Time consuming ☹
- Not as well understood and accepted as quantitative research within the scientific community.
- Can affect the subjects' responses…
- Anonymity and confidentiality can present problems.
- Difficult and time consuming to characterize in a visual way.

Qualitative vs. quantitative research

Scribbr

	Qualitative research	Quantitative research
Focus	Exploring ideas or formulating hypotheses/theories	Testing hypotheses or theories
Analysis	Summarizing, categorizing, interpreting	Math and statistical analysis
Expressed in	Words	Numbers, graphs, tables, fewer words
Sample	Few respondents	Many respondents
Questions	Open-ended	Close-ended or multiple choice
Characterized by	Understanding, context, complexity, subjectivity	Testing, measurement, objectivity, replicability

BASIS FOR COMPARISON	QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
Meaning	Qualitative research is a method of inquiry that develops understanding on human and social sciences, to find the way people think and feel.	Quantitative research is a research method that is used to generate numerical data and hard facts, by employing statistical, logical and mathematical technique.
Nature	Holistic	Particularistic
Approach	Subjective	Objective
Research type	Exploratory	Conclusive
Reasoning	Inductive	Deductive
Sampling	Purposive	Random
Data	Verbal	Measurable

BASIS FOR COMPARISON	QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
Inquiry	Process-oriented	Result-oriented
Hypothesis	Generated	Tested
Elements of analysis	Words, pictures and objects	Numerical data
Objective	To explore and discover ideas used in the ongoing processes.	To examine cause and effect relationship between variables.
Methods	Non-structured techniques like In-depth interviews, group discussions etc.	Structured techniques such as surveys, questionnaires and observations.
Result	Develops initial understanding	Recommends final course of action

DISCUSSION ACTIVITY

- Please, write down the research design that you plan to use and share it with the class…☺

THANK YOU!☺