Definitions and Types of Research Articles

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Research studies are designed to find answers to a specific question or topics under investigation. Professionals across different settings conduct research to investigate topics relating to their field of study, increase knowledge to support evidence-based practices, test new hypotheses or to further understanding of existing theories. Researchers use different methods to conduct their investigations. Ideally, all research questions should be addressed using the scientific method to avoid inaccurate information; however, that is not always the case. Some researchers seek to find answers through non-scientific approaches, which are often based on experts’ knowledge, instincts, beliefs, and professional reputation.

In order to understand and evaluate the quality of research studies and apply findings effectively, it is necessary to become familiar with the characteristics that differentiate scientific research studies from nonscientific approaches.

Methods of Acquiring knowledge

Non-scientific Methods
- **Tenacity**: Basing arguments on beliefs that have long been accepted as facts.
- **Intuition**: Relying on one’s instincts to find answers.
- **Authority**: Seeking answers from authority or experts on a specific subject.
- **Rationalism**: Combining facts or assumptions with logical reasoning to find answers.
- **Empiricism**: Relying on direct observations or personal experience.

Scientific Method

The scientific method uses empirical observation to develop hypotheses; then, researchers use hypotheses to generate predictions that can be empirically tested. Scientific methods are empirical, public, objective, and are based on previous theories. The main steps of the scientific method include:
- Make observation of behaviors or other phenomena.
- Construct a hypothesis (hypotheses must be testable and refutable).
- Generate testable predictions (others should be able to replicate the study to verify findings).
- Collect data to test research hypothesis.
- Analyze data to support, refute or expand the hypothesis.

Types of Research Articles

Empirical Research Studies
In empirical studies, researchers test hypotheses using different approaches that have not been used in previous research. Empirical research articles differ from others research in that it includes four main sections:
- **Introduction**: The introduction addresses the problem under investigation and describes the research strategy that will be used in the study. Some important questions to consider in this section include:
  - Why is the problem under investigation important?
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- How does the study relate to previous work in the area?
- How does the study differ, or build on from previous work?
- What are the hypotheses and objectives of the study?
- Do the hypotheses and research design relate to one another?
- What are the theoretical and practical implications of the study?

- **Methods**: Explains the procedures, materials, variables and operational definitions used to test hypotheses. This section provides details about sample demographics, participants’ characteristics, sample size and procedures for selecting participants, and the research design.
- **Results**: Provides interpretation of data and statistical findings.
- **Discussion**: Researchers summarize findings, and evaluate the theoretical and practical implications of the results for future research. In addition, this section addresses sources of internal validity, limitation and weaknesses of the study.
- **References**: The reference list acknowledges the work of previous researchers and provides the information necessary to retrieve each source.

**Literature Reviews Articles**
Literature reviews include critical evaluation of studies and meta-analyses of previously published research, define problem statements, identifies relationships among variables, contradictions, gaps and inconsistencies in the literature.

**Theoretical Articles**
These types of articles discuss published literature with the purpose of:
- Advancing existing theory.
- Refining theoretical construct.
- Identifying inconsistency in the theoretical framework.
- Testing internal consistency and external validity of the study.

**Methodological articles**
In these articles, researchers propose new methodological approaches and modifications of existing measurements through empirical analyses of data.

**Case studies**
Include reports of case materials of an individual, group, community, or an organization. Researchers address the following information:
- State the problem and ways to solve it.
- Shed light on needed research.
- Clinical applications or theoretical matters.

**Quantitative Research Article**: The main purpose of quantitative studies is to measure variables for individual participants based on individual scores. Variables in quantitative studies vary in size, magnitude, duration, or amount.
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**Quantitative studies include the following types of research:**

- **Descriptive research**: Attempts to answer questions about the current state of individual variables for a specific group of individuals.
- **Correlational research**: Correlational studies establish and describe the relationship between variables as they exist naturally. The main purpose of this type of research is to describe the pattern, strength, and consistency of the relationship between variables (measure 2 or more scores). Correlational studies do not establish causality (cause-and-effect).
- **Experimental Research**: Aims to measure the cause-and-effect between variables (e.g., Are increases in exercise responsible for causing a decrease in cholesterol level?).
- **Non-experimental Research**: Intends to demonstrate the relationship between variables, but it does not try to prove cause-and-effect between variables (e.g., Is there a relationship between verbal skills and gender?).
- **Qualitative Research Article**: This type of research focuses on observing and understanding participants’ behaviors and attitudes. Then, researchers write narrative and reports describing the phenomena under study (e.g., Piaget’s observation of his own children formed the basis for his theories).

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**SUMMARY POINTS AND RESEARCH TERMS**

**Population**: Refers to the set of all the individuals of interest in a particular study (e.g., population of veterans, active duty military population, corporations, etc.).

**Sample**: Refers to a set of individuals selected to represent a specific population (e.g., sample of 100 veterans).

**Statistics**: Mathematical procedures used to organize, summarize and analyze information. Statistics provide researchers with standardized methods to accurately interpret information.

**Inferential Statistics**: Researchers use sample statistics to make generalizations/draw conclusions about the population.

**Data**: Measurements or observations.

**Variables**: Characteristics, traits or conditions that change or have different values for different individuals (e.g., gender, age, personality, weather, etc.).

**Independent Variable**: The variable manipulated by the researcher (e.g., the treatment conditions to which participants are exposed).

**Dependent Variable**: The outcome variable influenced by one or more independent variables. Researchers observe dependent variables to assess the effect of treatment.

**Hypothesis**: A statement that predicts the relationship between or among variables.

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**References**

