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HIGHLIGHTED HANDOUT

EDU407

Research Methods in Education

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EDU407 MCQS/QUIZ + SUMMARIZED NOTES + CONCEPTUL Q/A + MODEL PAPER BY VULMS MASTERY

MCQs TOPIC 1 - 48

1

A teacher facing continuous classroom management issues decides to systematically collect data about student behavior, analyze patterns, and implement strategies based on findings. This situation best reflects the idea that research:

- A. Is only theoretical in nature
- B. Is a structured way of solving real-life problems through evidence
- C. Eliminates all uncertainty permanently
- D. Is unrelated to classroom practice

✓ **Answer: B**

2

When it is said that “research is in your instinct,” it suggests that humans:

- A. Avoid solving problems naturally
- B. Have a natural tendency to question, explore, and seek answers
- C. Depend only on external authority
- D. Prefer guessing over investigation

✓ **Answer: B**

3

Educational research differs from casual observation because it:

- A. Is based only on personal opinions
- B. Follows a systematic, organized, and scientific inquiry process
- C. Avoids data collection
- D. Relies solely on experience

✓ **Answer: B**

4

A teacher using action research to improve student participation is demonstrating that research:

- A. Is limited to laboratories
- B. Can directly improve teaching and learning practices
- C. Is only for policymakers
- D. Has no classroom relevance

✓ **Answer: B**

5

The inclusion of philosophical, sociological, and economic foundations in education research indicates that:

- A. Research is limited to one discipline
- B. Educational issues are multidimensional and require diverse perspectives
- C. Teaching is purely mechanical
- D. Research ignores context

✓ **Answer: B**

6

When a researcher identifies a problem, reviews literature, and defines variables before collecting data, they are working within:

- A. Reporting phase
- B. Foundations of research
- C. Data interpretation phase
- D. Dissemination phase

✓ **Answer: B**

7

A study that carefully selects participants, uses structured tools, and follows a clear procedure reflects:

- A. Random inquiry
- B. Organized research process
- C. Unsystematic thinking
- D. Informal observation

✓ **Answer: B**

8

When a researcher uses percentages, averages, and numerical comparisons to present findings, the data type is:

- A. Qualitative
- B. Quantitative
- C. Narrative
- D. Descriptive only

✓ **Answer: B**

9

A researcher exploring students' feelings about online learning through interviews and themes is working with:

- A. Numerical data
- B. Qualitative data
- C. Experimental data
- D. Survey data only

✓ **Answer: B**

10

Presenting research findings in a simplified and user-friendly format for the general public reflects:

- A. Data collection
- B. Dissemination of research
- C. Hypothesis testing
- D. Sampling

✓ **Answer: B**

11

When a student learns through listening to lectures, discussions, and media, it demonstrates the role of:

- A. Vision only
- B. Hearing as a source of knowledge
- C. Smell perception
- D. Taste perception

✓ **Answer: B**

12

The example of a pencil appearing bent in water highlights that:

- A. Vision always provides accurate knowledge
- B. Sensory perception can be misleading under certain conditions
- C. Scientific observation is unnecessary

D. Reality changes with observation

✓ **Answer: B**

13

The mirage effect on a hot road, where water appears to exist, demonstrates:

A. Perfect visual accuracy

B. Limitations and deception of human senses

C. Scientific certainty

D. Environmental stability

✓ **Answer: B**

14

When individuals fail to differentiate between multiple fragrances quickly, it suggests:

A. Strong sensory discrimination

B. Sensory overload and temporary limitation of perception

C. Perfect sensory adaptation

D. No effect of repetition

✓ **Answer: B**

15

The conclusion that senses are sources of knowledge but not always reliable implies that:

A. Knowledge should rely only on senses

B. Senses must be complemented with critical thinking and verification

C. Senses are useless

D. Perception is always correct

✓ **Answer: B**

16

Experience as a source of knowing is best described as:

A. Knowledge derived from theory only

B. Knowledge gained through personal involvement and observation

C. Knowledge from books only

D. Knowledge without evidence

✓ **Answer: B**

17

Authority as a source of knowledge becomes questionable when:

- A. Experts disagree or provide biased information
- B. It is always correct
- C. It is scientific
- D. It is verified

✓ **Answer: A**

18

Deductive reasoning is best illustrated when:

- A. A conclusion is drawn from specific cases
- B. A general theory is applied to a specific situation
- C. Observation leads to theory
- D. Data is ignored

✓ **Answer: B**

19

Inductive reasoning involves:

- A. Moving from general laws to specific cases
- B. Developing generalizations from specific observations
- C. Ignoring observations
- D. Testing theories only

✓ **Answer: B**

20

Survey research that studies public opinion about a new curriculum is primarily concerned with:

- A. Past events
- B. Current status and perceptions
- C. Future predictions
- D. Experimental control

✓ **Answer: B**

21

A key feature of survey research is that it:

- A. Manipulates variables
- B. Describes existing conditions as they are

C. Focuses only on past

D. Ignores data

✓ **Answer: B**

22

Correlational research examining the relationship between study hours and grades focuses on:

A. Cause-effect proof

B. Degree of association between variables

C. Experimental manipulation

D. Narrative description

✓ **Answer: B**

23

The statement “variables in correlational research are not independent or dependent” implies:

A. No relationship exists

B. Variables are examined without assigning causal roles

C. Variables are ignored

D. Only one variable is studied

✓ **Answer: B**

24

Regression analysis extends correlational research by:

A. Ignoring relationships

B. Predicting outcomes based on relationships

C. Eliminating variables

D. Testing hypotheses only

✓ **Answer: B**

25

Causal-comparative research is appropriate when:

A. Variables can be manipulated

B. The researcher investigates causes of existing differences

C. Only future predictions are needed

D. No groups exist

✓ **Answer: B**

26

Studying absenteeism differences between children of working and non-working mothers is an example of:

- A. Experimental research
- B. Causal-comparative research
- C. Survey research
- D. Narrative research

✓ **Answer: B**

27

Experimental research is considered strong because it:

- A. Avoids variables
- B. Manipulates independent variables under controlled conditions
- C. Relies only on observation
- D. Focuses on stories

✓ **Answer: B**

28

In an experiment studying exercise and health, exercise is:

- A. Dependent variable
- B. Independent variable
- C. Control variable
- D. Outcome variable

✓ **Answer: B**

29

The necessity to control factors like diet and sleep in experiments highlights:

- A. Randomness
- B. Need for validity and accuracy
- C. Irrelevance of variables
- D. Lack of planning

✓ **Answer: B**

30

Narrative research focusing on a student's life experiences aims to:

- A. Collect numerical data
- B. Understand individual perspectives and meanings
- C. Test hypotheses
- D. Conduct surveys

✓ **Answer: B**

31

Inductive hypotheses are developed when:

- A. Theory is tested
- B. Observations lead to general conclusions
- C. Experiments are conducted
- D. Statistics are applied

✓ **Answer: B**

32

Deductive hypotheses are formed by:

- A. Ignoring theory
- B. Applying existing theory to specific cases
- C. Random guessing
- D. Observing behavior only

✓ **Answer: B**

33

A non-directional hypothesis is useful when:

- A. Direction is clear
- B. Only existence of difference is known
- C. No variables exist
- D. Theory is proven

✓ **Answer: B**

34

A directional hypothesis strengthens research by:

- A. Avoiding prediction
- B. Clearly specifying expected outcomes
- C. Ignoring variables
- D. Reducing clarity

✓ **Answer: B**

35

A null hypothesis is important because it:

- A. Confirms relationship
- B. Provides a baseline for statistical testing
- C. Predicts direction
- D. Eliminates testing

✓ **Answer: B**

36

A well-written hypothesis should:

- A. Be vague
- B. Be clear, testable, and specific
- C. Be lengthy
- D. Avoid variables

✓ **Answer: B**

37

Eliminating unnecessary words in hypothesis writing helps:

- A. Increase confusion
- B. Improve clarity and precision
- C. Reduce meaning
- D. Increase length

✓ **Answer: B**

38

Specifying variables in a hypothesis ensures:

- A. Ambiguity
- B. Measurability and clarity
- C. Complexity
- D. Bias

✓ **Answer: B**

39

Hypothesis testing contributes to research by:

- A. Proving researcher correct always

- B. Supporting or rejecting propositions
- C. Avoiding analysis
- D. Ignoring results

✓ **Answer: B**

40

The researcher's primary role in hypothesis testing is to:

- A. Prove hypothesis correct
- B. Ensure proper methodology and analysis
- C. Manipulate results
- D. Ignore findings

✓ **Answer: B**

41

Quantitative research relies heavily on:

- A. Narratives
- B. Statistical testing
- C. Stories
- D. Interviews only

✓ **Answer: B**

42

Qualitative research differs by:

- A. Testing hypotheses
- B. Exploring meanings and experiences
- C. Using numbers only
- D. Avoiding interpretation

✓ **Answer: B**

43

In qualitative research, hypotheses serve as:

- A. Final conclusions
- B. Guiding frameworks for exploration
- C. Statistical tools
- D. Fixed statements

✓ **Answer: B**

44

The introduction section of research mainly:

- A. Reviews studies
- B. Provides rationale and background
- C. Presents data
- D. Shows results

✓ **Answer: B**

45

Literature review is different because it:

- A. Explains personal opinion
- B. Summarizes previous research findings
- C. Presents hypothesis
- D. Shows results

✓ **Answer: B**

46

Rationale in research helps:

- A. Present data
- B. Justify the need for the study
- C. Analyze results
- D. Write conclusion

✓ **Answer: B**

47

A researcher designing a study ensures that participants are selected according to specific criteria mentioned in the hypothesis. This reflects the role of hypothesis in:

- A. Data interpretation only
- B. Guiding sampling procedures
- C. Eliminating variables
- D. Writing conclusions

✓ **Answer: B**

48

When a hypothesis states a difference between two teaching methods, it directly influences:

- A. Research topic
- B. Selection of statistical tests for difference
- C. Literature review
- D. Introduction writing

✓ **Answer: B**

49

The statement “the researcher is not responsible for proving the hypothesis” implies that:

- A. Hypothesis is unimportant
- B. Research must be unbiased and evidence-driven
- C. Results are predetermined
- D. Data is irrelevant

✓ **Answer: B**

50

If research findings reject a hypothesis, this outcome:

- A. Indicates failure
- B. Still contributes valuable knowledge and future directions
- C. Should be ignored
- D. Invalidates research design

✓ **Answer: B**

51

A researcher focusing on statistical verification and hypothesis testing is most likely using:

- A. Qualitative approach
- B. Quantitative approach
- C. Narrative approach
- D. Philosophical inquiry

✓ **Answer: B**

52

When a researcher explores classroom dynamics without testing a formal hypothesis, the approach is:

- A. Experimental
- B. Qualitative exploratory
- C. Survey-based

D. Correlational

✓ Answer: B

53

Guiding research questions in qualitative research serve to:

A. Replace data

B. Direct inquiry and exploration

C. Test hypotheses statistically

D. Eliminate interpretation

✓ Answer: B

54

A researcher studying students' lived experiences through detailed interviews is primarily:

A. Measuring variables

B. Interpreting meanings and perspectives

C. Testing relationships

D. Conducting experiments

✓ Answer: B

55

Confusion between introduction and literature review often occurs because:

A. Both present data

B. Researchers fail to distinguish between rationale and previous studies

C. Both are identical

D. Both include statistics

✓ Answer: B

56

An introduction that explains the importance, scope, and reasoning behind a study is:

A. Literature review

B. Rationale of research

C. Data analysis

D. Hypothesis testing

✓ Answer: B

57

A literature review strengthens research by:

- A. Presenting personal views
- B. Building on existing knowledge and identifying gaps
- C. Ignoring past studies
- D. Focusing on results only

✓ **Answer: B**

58

When a researcher argues that a problem is psychological rather than physical, they are:

- A. Presenting results
- B. Developing rationale for the study
- C. Writing hypothesis
- D. Conducting experiment

✓ **Answer: B**

59

A strong rationale is essential because it: 

- A. Reduces data
- B. Justifies why the research is needed
- C. Eliminates hypothesis
- D. Avoids literature

✓ **Answer: B**

60

If a researcher includes irrelevant or repeated words in a hypothesis, it violates:

- A. Clarity principle
- B. Sampling method
- C. Data analysis
- D. Research ethics

✓ **Answer: A**

61

Mixing terms of “relationship” and “difference” in one hypothesis leads to:

- A. Precision
- B. Conceptual confusion

- C. Better clarity
- D. Stronger design

✓ **Answer: B**

62

A hypothesis stating “students using digital tools perform better than traditional learners” is:

- A. Null hypothesis
- B. Directional hypothesis
- C. Non-directional hypothesis
- D. Qualitative assumption

✓ **Answer: B**

63

A hypothesis stating “there is no difference between two teaching methods” represents:

- A. Directional
- B. Non-directional
- C. Null hypothesis
- D. Inductive

✓ **Answer: C**

64

The process of testing a hypothesis ultimately helps to:

- A. Prove researcher right
- B. Contribute to knowledge regardless of outcome
- C. Avoid conclusions
- D. Reduce analysis

✓ **Answer: B**

65

A researcher controlling all external variables except one demonstrates:

- A. Survey research
- B. Experimental control
- C. Narrative inquiry
- D. Correlational design

✓ **Answer: B**

66

If no manipulation is done and only relationships are studied, the research design is:

- A. Experimental
- B. Correlational
- C. Causal-comparative
- D. Narrative

✓ **Answer: B**

67

When research focuses on understanding “how” and “why” people experience phenomena, it aligns with:

- A. Quantitative method
- B. Qualitative approach
- C. Experimental design
- D. Statistical testing

✓ **Answer: B**

68

The importance of hypothesis lies not only in results but also in:

- A. Length of statement
- B. Rigor of research process
- C. Simplicity
- D. Writing style

✓ **Answer: B**

69

A well-defined hypothesis contributes to:

- A. Confusion
- B. Efficient planning of tools, sampling, and procedures
- C. Ignoring variables
- D. Avoiding research design

✓ **Answer: B**

70

Overall, research methods serve as a framework that:

- A. Eliminates thinking
- B. Guides systematic inquiry, analysis, and problem-solving
- C. Focuses only on theory
- D. Avoids real-world application

✓ **Answer: B**

45 Q/A TOPIC 1 - 48

1. Why are research methods important in education?

Research methods are important because they provide a systematic way to solve classroom and educational problems. They help teachers make decisions based on evidence rather than assumptions.

2. How is research connected to daily life?

Research is part of daily life because people constantly gather information, analyze situations, and make decisions. It helps in solving problems in a logical and systematic way.

3. What makes educational research systematic?

Educational research follows a structured process including problem identification, data collection, analysis, and interpretation. This ensures reliable and valid results.

4. What is the main purpose of educational research?

Its main purpose is to improve teaching and learning processes by identifying problems and finding effective, evidence-based solutions.

5. What is action research in education?

Action research is conducted by teachers to solve classroom problems. It focuses on improving teaching practices through practical and continuous inquiry.

6. What are the main areas of research?

Research includes foundations, process, data analysis, and reporting. These areas guide the complete research cycle from planning to conclusion.

7. What is research design?

Research design is a plan that outlines how a study will be conducted. It includes methods of data collection, sampling, and analysis.

8. Why is sampling used in research?

Sampling is used to select a smaller group from a large population. It saves time and resources while still providing accurate results.

9. What is qualitative data?

Qualitative data is descriptive information based on feelings, experiences, and opinions. It is non-numerical and focuses on meaning.

10. What is quantitative data?

Quantitative data is numerical data that can be measured and analyzed statistically. It is used to find patterns and relationships.

11. What is research reporting?

Research reporting is the process of presenting findings in a structured way. It helps others understand and use the research results.

12. How do senses help in acquiring knowledge?

Senses help humans gather information from the environment. Hearing, sight, smell, taste, and touch act as tools for learning.

13. How does hearing function as a source of knowledge?

Hearing allows us to learn through listening to teachers, discussions, and media. It is a major source of communication-based learning.

14. Why are senses not always reliable?

Senses can be misleading because they sometimes create illusions. What we perceive is not always the true reality.

15. What is an example of sensory illusion?

A pencil appearing bent in water is an illusion caused by light refraction. It shows that vision can sometimes be inaccurate.

16. What is experience in research?

Experience is knowledge gained through direct involvement in real-life situations. It helps individuals understand practical aspects of life.

17. What is authority as a source of knowledge?

Authority refers to knowledge obtained from experts or reliable sources. It is trusted but must be verified for accuracy.

18. What is deductive reasoning?

Deductive reasoning starts from general principles and moves toward specific conclusions. It applies theory to specific cases.

19. What is inductive reasoning?

Inductive reasoning starts from specific observations and develops general conclusions. It builds theory from data.

20. What is survey research?

Survey research studies the current status of a situation or opinion. It collects data to describe existing conditions.

21. What is the main feature of survey research?

Its main feature is that it focuses on “what is happening now.” It does not explore past or future deeply.

22. What is correlational research?

It studies the relationship between two or more variables without manipulating them. It shows association, not causation.

23. What does covariance mean in correlational research?

Covariance means that when one variable changes, the other variable also changes. It shows a pattern of relationship.

24. What is regression in research?

Regression is a statistical method used to predict one variable based on another. It extends correlational findings.

25. What is causal-comparative research?

It studies causes of existing differences between groups. It analyzes past events to explain current outcomes.

26. Why is causal-comparative research retrospective?

Because it examines past conditions to identify possible causes. It does not manipulate variables directly.

27. What is experimental research?

It is a method where researchers manipulate variables to observe effects. It is conducted in controlled environments.

28. Why is control important in experiments?

Control ensures that only the independent variable affects the outcome. It increases validity and accuracy.

29. What is narrative research?

Narrative research studies individuals' life experiences through storytelling. It focuses on meaning and personal interpretation.

30. What is the main focus of narrative research?

It focuses on understanding personal experiences and how individuals interpret their lives.

31. What is a hypothesis?

A hypothesis is a tentative statement predicting a relationship between variables. It guides the research process.

32. What is an inductive hypothesis?

It is developed from observations and experiences. It moves from specific cases to general ideas.

33. What is a deductive hypothesis?

It is based on existing theories and tested in specific situations. It moves from general to specific.

34. What is a non-directional hypothesis?

It states that a relationship exists but does not specify its direction. It only predicts difference.

35. What is a directional hypothesis?

It clearly states the expected direction of relationship between variables. It predicts which is higher or lower.

36. What is a null hypothesis?

It states that there is no significant relationship or difference between variables. It is used for statistical testing.

37. Why should a hypothesis be testable?

Because it must be verified through data and evidence. Untestable hypotheses are not scientifically useful.

38. Why is clarity important in hypothesis writing?

Clarity ensures understanding and avoids confusion in research interpretation. It makes hypotheses measurable.

39. What is the role of variables in research?

Variables define what is being studied and measured. They form the basis of hypothesis testing.

40. What happens after hypothesis testing?

The hypothesis is either accepted or rejected based on evidence. Both outcomes contribute to knowledge.

41. What is qualitative research?

It explores meanings, experiences, and understanding of human behavior. It is non-numerical in nature.

42. What is quantitative research?

It deals with numerical data and statistical analysis. It focuses on measurement and hypothesis testing.

43. What is the difference between introduction and literature review?

Introduction explains the problem and rationale, while literature review summarizes previous research studies.

44. What is research rationale?

It explains why a study is important and necessary. It justifies the need for research.

45. Why is hypothesis important in research?

It provides direction to the research process and helps in selecting methods, samples, and analysis techniques.

Summarized Notes TOPIC 1 - 48

Research methods in education provide a systematic and scientific way to identify, analyze, and solve educational problems. They are essential because they guide teachers and researchers in making informed decisions based on evidence rather than assumptions. Research is deeply connected to daily life, as humans naturally gather information, interpret experiences, and make decisions to solve problems. In education, research helps improve teaching practices, classroom management, and learning outcomes by introducing structured inquiry and evidence-based solutions.

Educational research follows a systematic process that includes identifying a problem, reviewing literature, selecting research design, collecting data, analyzing it, and reporting findings. It is divided into major areas such as foundations of research, research process, data analysis and interpretation, and research reporting. Data in research can be quantitative (numerical and statistical) or qualitative (descriptive and based on meanings and experiences). Both types are used depending on the nature of the study.

Human beings acquire knowledge through five senses: hearing, sight, smell, taste, and touch. Although these senses are important sources of knowledge, they are not always fully reliable, as they can sometimes create illusions or misleading perceptions. Therefore, knowledge gained through senses must be verified through reasoning and scientific methods. Along with senses, experience, authority, deductive reasoning, inductive reasoning, and the scientific method are also important sources of knowledge used in educational research.

Different research approaches are used depending on the purpose of study. Survey research focuses on the current status of a phenomenon and collects numerical data to describe existing conditions. Correlational research examines the relationship between variables without manipulating them, while causal-comparative research identifies possible causes of existing differences between groups by studying past events. Experimental research is the most controlled form of research where variables are manipulated to observe cause-and-effect relationships under controlled conditions. Narrative research, on the other hand, is a qualitative approach that focuses on individuals' life experiences and meanings through storytelling.

Hypothesis plays a central role in research by providing a tentative statement that guides the study. Hypotheses may be inductive (based on observation), deductive (based on theory), directional (specifying relationship direction), non-directional (stating existence of relationship), or null (stating no relationship). A good hypothesis must be clear, specific, testable, and focused on measurable variables. Hypothesis testing helps determine whether to accept or reject a statement, but both outcomes contribute to knowledge development.

Qualitative research focuses on understanding human experiences and meanings, while quantitative research focuses on numerical data and statistical testing. The introduction of a research study explains the problem and its rationale, whereas the literature review summarizes previous studies and identifies research gaps. Overall, research methods provide a structured framework that ensures systematic inquiry, accurate analysis, and meaningful contribution to knowledge in education.

50 MCQs TOPIC 49 - 77

1

Research methods in education are primarily used to:

- A. Memorize theories
- B. Systematically solve educational problems using evidence
- C. Replace classroom teaching
- D. Avoid decision making

✓ **Answer: B**

2

Research is considered important in education because it:

- A. Depends on guesswork
- B. Helps in evidence-based decision making
- C. Eliminates teaching
- D. Focuses only on theory

✓ **Answer: B**

3

In daily life, research is connected because humans:

- A. Avoid thinking
- B. Naturally collect and analyze information
- C. Depend only on books
- D. Ignore problems

✓ **Answer: B**

4

Educational research mainly improves:

- A. Memorization skills
- B. Teaching and learning outcomes
- C. Exam pressure
- D. Random thinking

✓ **Answer: B**

5

The process of educational research begins with:

- A. Data analysis
- B. Problem identification
- C. Conclusion writing
- D. Reporting

✓ **Answer: B**

6

Reviewing literature in research means:

- A. Writing opinions
- B. Studying previous related research
- C. Collecting new data
- D. Avoiding analysis

✓ **Answer: B**

7

Research design refers to:

- A. Final report
- B. Plan for conducting research
- C. Data collection only
- D. Results presentation

✓ **Answer: B**

8

Data collection in research is followed by:

- A. Problem selection
- B. Data analysis
- C. Literature review
- D. Topic selection

✓ **Answer: B**

9

Research reporting is used to:

- A. Hide results
- B. Present findings systematically
- C. Collect data
- D. Formulate hypothesis

✓ **Answer: B**

10

Research is divided into major areas including:

- A. Entertainment and gaming
- B. Foundations, process, analysis, and reporting
- C. Only data collection
- D. Only sampling

✓ **Answer: B**

11

Quantitative data refers to:

- A. Opinions

- B. Numerical information
- C. Stories
- D. Feelings

✓ **Answer: B**

12

Qualitative data is mainly:

- A. Numerical
- B. Descriptive and experience-based
- C. Statistical only
- D. Measured in percentages

✓ **Answer: B**

13

Human senses are considered:

- A. Scientific instruments
- B. Sources of knowledge
- C. Perfect tools
- D. Unnecessary tools

✓ **Answer: B**

14

The five senses include:

- A. Thinking, logic, memory
- B. Sight, hearing, smell, taste, touch
- C. Science, math, logic
- D. Data, theory, analysis

✓ **Answer: B**

15

Senses are not always reliable because they:

- A. Always show truth
- B. Can create illusions
- C. Never function
- D. Are scientific methods

✓ **Answer: B**

16

Knowledge from senses must be verified using:

- A. Imagination
- B. Reasoning and scientific methods
- C. Opinions
- D. Guessing

✓ **Answer: B**

17

Experience as a source of knowledge means:

- A. Reading books only
- B. Learning from personal involvement
- C. Ignoring reality
- D. Random thinking

✓ **Answer: B**

18

Authority as a source of knowledge refers to:

- A. Self-guessing
- B. Learning from experts
- C. Ignoring teachers
- D. Random data

✓ **Answer: B**

19

Deductive reasoning moves from:

- A. Specific to general
- B. General to specific
- C. Random to structured
- D. Observation only

✓ **Answer: B**

20

Inductive reasoning develops:

- A. Theory first
- B. General ideas from specific observations
- C. Random results

D. No conclusion

✓ **Answer: B**

21

Survey research focuses on:

A. Past causes

B. Current status of a phenomenon

C. Future prediction only

D. Experimental control

✓ **Answer: B**

22

Survey research is mainly used to:

A. Change variables

B. Describe existing conditions

C. Test experiments

D. Ignore data

✓ **Answer: B**

23

Correlational research studies:

A. Cause and effect

B. Relationship between variables

C. No variables

D. Random behavior

✓ **Answer: B**

24

In correlational research, variables:

A. Are manipulated

B. Are only observed

C. Are ignored

D. Are controlled strictly

✓ **Answer: B**

25

Causal-comparative research aims to:

- A. Predict future only
- B. Identify causes of existing differences
- C. Conduct experiments
- D. Ignore past data

✓ **Answer: B**

26

Experimental research is characterized by:

- A. No control
- B. Manipulation of variables
- C. Only observation
- D. Storytelling

✓ **Answer: B**

27

Narrative research focuses on:

- A. Numbers
- B. Individual life experiences
- C. Statistical tests
- D. Surveys

✓ **Answer: B**

28

Narrative research mainly involves:

- A. Data tables
- B. Storytelling and experiences
- C. Experiments
- D. Surveys only

✓ **Answer: B**

29

A hypothesis is:

- A. Final result
- B. Tentative statement for testing
- C. Data collection tool
- D. Research report

✓ **Answer: B**

30

Inductive hypothesis is based on:

- A. Theory
- B. Observation
- C. Statistics only
- D. Experiment only

✓ **Answer: B**

31

Deductive hypothesis is based on:

- A. Experience only
- B. Existing theory
- C. Guesswork
- D. Random ideas

✓ **Answer: B**

32

Non-directional hypothesis states:

- A. Direction of relationship
- B. Only existence of relationship
- C. No relationship
- D. Exact prediction

✓ **Answer: B**

33

Directional hypothesis specifies:

- A. No relation
- B. Direction of relationship
- C. Random outcome
- D. No variables

✓ **Answer: B**

34

Null hypothesis states:

- A. Strong relationship

- B. No significant relationship
- C. Directional relation
- D. Prediction

✓ **Answer: B**

35

A good hypothesis must be:

- A. Vague
- B. Clear and testable
- C. Long and confusing
- D. Unmeasurable

✓ **Answer: B**

36

Variables in research must be:

- A. Hidden
- B. Measurable
- C. Ignored
- D. Random

✓ **Answer: B**

37

Hypothesis testing results in:

- A. Always acceptance
- B. Acceptance or rejection
- C. No outcome
- D. No analysis

✓ **Answer: B**

38

Quantitative research focuses on:

- A. Stories
- B. Numerical data
- C. Opinions
- D. Descriptions only

✓ **Answer: B**

39

Qualitative research focuses on:

- A. Numbers
- B. Meanings and experiences
- C. Statistics
- D. Experiments only

✓ **Answer: B**

40

Introduction in research provides:

- A. Results
- B. Problem and rationale
- C. Data analysis
- D. Tables

✓ **Answer: B**

41

Literature review mainly:

- A. Gives results
- B. Summarizes previous research
- C. Collects data
- D. Writes hypothesis

✓ **Answer: B**

42

Rationale in research explains:

- A. Data collection
- B. Importance of study
- C. Analysis
- D. Sampling

✓ **Answer: B**

43

Research methods ensure:

- A. Random thinking
- B. Systematic inquiry
- C. Guessing

D. Memorization

✓ Answer: B

44

Scientific method helps in:

- A. Ignoring evidence
- B. Structured investigation
- C. Random answers
- D. Opinion writing

✓ Answer: B

45

Hypothesis guides:

- A. Only reporting
- B. Entire research process
- C. Only data entry
- D. Only conclusion

✓ Answer: B

46

Research contributes to:

- A. Confusion
- B. Knowledge development
- C. Random results
- D. Guesswork

✓ Answer: B

47

Senses can mislead because:

- A. They are perfect
- B. They create illusions
- C. They are scientific
- D. They never work

✓ Answer: B

48

Survey research deals with:

- A. Causes
- B. Current status
- C. Experiments
- D. Stories

✓ **Answer: B**

49

Experimental research ensures:

- A. No control
- B. Cause-effect relationships
- C. Random outcomes
- D. No variables

✓ **Answer: B**

50

Overall research methods aim to:

- A. Replace thinking
- B. Solve problems systematically
- C. Increase confusion
- D. Avoid analysis

✓ **Answer: B**

30 Q/A TOPIC 49 - 77

1. What is the role of research methods in education?

Research methods provide a systematic and scientific way to identify and solve educational problems. They help teachers make decisions based on evidence instead of assumptions.

2. Why is research considered essential in daily life?

Research is essential because humans constantly face problems and make decisions by collecting and analyzing information. It ensures logical and informed decision-making.

3. What is the main purpose of educational research?

Its main purpose is to improve teaching, learning, and classroom practices. It focuses on finding effective solutions to educational problems.

4. What is meant by systematic research process?

It refers to a step-by-step method including problem identification, literature review, data collection, analysis, and reporting. This ensures accuracy and reliability.

5. What is action research in education?

Action research is conducted by teachers to solve immediate classroom problems. It focuses on improving teaching practices through practical solutions.

6. What are the main areas of research?

The main areas include foundations of research, research process, data analysis, and research reporting. These cover the full research cycle.

7. What is qualitative data?

Qualitative data is descriptive information based on experiences, feelings, and meanings. It is non-numerical in nature.

8. What is quantitative data?

Quantitative data is numerical data that can be measured and analyzed statistically. It is used to identify patterns and relationships.

9. Why are senses considered sources of knowledge?

Senses help humans gather information from the environment. They include sight, hearing, smell, taste, and touch.

10. Why are senses not fully reliable?

Senses can sometimes create illusions or incorrect perceptions. Therefore, they need verification through reasoning and scientific methods.

11. What is experience as a source of knowledge?

Experience refers to learning through personal involvement in real-life situations. It provides practical understanding.

12. What is authority in knowledge acquisition?

Authority means gaining knowledge from experts, teachers, or reliable sources. It is trusted but should be verified.

13. What is deductive reasoning?

It is a logical process that moves from general principles to specific conclusions. It applies theories to specific cases.

14. What is inductive reasoning?

It is a process that moves from specific observations to general conclusions. It helps in theory development.

15. What is survey research?

Survey research studies the current status or opinions about a phenomenon. It describes existing conditions.

16. What is the key feature of survey research?

Its key feature is focusing on “what is happening now.” It does not manipulate variables.

17. What is correlational research?

It examines the relationship between two or more variables without manipulation. It shows association, not causation.

18. What does covariance mean in correlational research?

It means that when one variable changes, the other variable also changes. It shows a relationship pattern.

19. What is regression in research?

Regression is used to predict one variable based on another variable. It extends correlational findings.

20. What is causal-comparative research?

It identifies causes of existing differences between groups by analyzing past events. It is retrospective in nature.

21. Why is causal-comparative research important?

It helps explain why differences exist between groups. It provides insight into possible causes of behavior.

22. What is experimental research?

It is a research method where variables are manipulated to study cause-and-effect relationships under controlled conditions.

23. Why is control important in experimental research?

Control ensures that only the independent variable affects the outcome. It increases validity of results.

24. What is narrative research?

It is a qualitative method that focuses on individuals' life experiences through storytelling and interpretation.

25. What is the main focus of narrative research?

It focuses on understanding personal experiences and meanings individuals assign to their lives.

26. What is a hypothesis?

A hypothesis is a tentative statement that predicts a relationship or difference between variables. It guides research.

27. What is an inductive hypothesis?

It is developed from observations and experiences. It moves from specific cases to general conclusions.

28. What is a deductive hypothesis?

It is based on existing theories and tested in specific situations. It moves from general to specific.

29. What is a null hypothesis?

It states that there is no significant relationship or difference between variables. It is used for statistical testing.

30. Why is hypothesis important in research?

It provides direction to research by guiding sampling, data collection, and analysis. It helps structure the entire research process.

Summarized Notes TOPIC 49 - 70

Research methods in education provide a systematic and scientific approach to identifying, analyzing, and solving educational problems. They help teachers and researchers make evidence-based decisions rather than relying on assumptions. Research is also a natural part of human life because individuals continuously gather information, interpret experiences, and use knowledge to solve problems in daily situations. In education, research plays a key role in improving teaching methods, classroom management, and student learning outcomes through structured inquiry.

The research process follows a clear sequence that includes identifying a problem, reviewing related literature, selecting an appropriate research design, collecting data, analyzing data, and reporting findings. The major areas of research include foundations of research, research process, data analysis and interpretation, and research reporting. Data used in research can be quantitative (numerical and statistical) or qualitative (descriptive and meaning-based), depending on the nature of the study and its objectives.

Human beings acquire knowledge through five senses: sight, hearing, smell, taste, and touch. These senses help individuals understand the world, but they are not always completely reliable because they can create illusions or incorrect perceptions. Therefore, sensory knowledge must be verified through reasoning and scientific methods. In addition to senses, other important sources of knowledge include experience, authority, deductive reasoning, inductive reasoning, and the scientific method.

Different research approaches are used depending on the purpose of the study. Survey research focuses on describing the current status of a phenomenon without manipulation of variables. Correlational research examines the relationship between variables without establishing cause and effect. Causal-comparative research investigates possible causes of existing differences by studying past events, while experimental research determines cause-and-effect relationships through manipulation and control of variables. Narrative research, a qualitative approach, focuses on individuals' life experiences and meanings through storytelling.

Hypothesis is a central element in research and is a tentative statement that predicts a relationship or difference between variables. It can be inductive (based on observation), deductive (based on theory), directional (predicting direction), non-directional (only stating relationship), or null (stating no relationship). A good hypothesis must be clear, specific, testable, and measurable. Hypothesis testing helps determine whether to accept or reject the statement, and both outcomes contribute to the development of knowledge.

Qualitative research focuses on understanding meanings, experiences, and social phenomena, while quantitative research focuses on numerical data and statistical analysis. The introduction section of research explains the problem and rationale, whereas the literature review summarizes previous studies and identifies research gaps. Overall, research methods provide a structured framework that ensures systematic inquiry, valid analysis, and meaningful contribution to educational knowledge.

MODEL PAPER

Research Methods in Education

Section A: MCQs (33)

A

Q1. Research methods in education are primarily used to ensure that educational problems are solved through a process that is systematic, evidence-based, and logically structured rather than based on assumptions or guesswork. This idea best reflects that research is:

- A. Random thinking process
- B. Systematic problem-solving approach based on evidence
- C. Only theoretical activity
- D. Memorization technique

✓ **Answer: B**

Q2. When a teacher continuously observes classroom issues, collects data, and applies findings to improve teaching practices, this situation represents:

- A. Traditional teaching
- B. Action research approach
- C. Survey research
- D. Historical research

✓ **Answer: B**

Q3. Educational research is considered systematic because it:

- A. Depends on personal opinion
- B. Follows a structured sequence of steps from problem identification to reporting
- C. Avoids data collection
- D. Uses only imagination

✓ **Answer: B**

Q4. The stage of research where existing studies are examined to understand what has already been discovered is called:

- A. Data analysis
- B. Literature review
- C. Sampling
- D. Hypothesis testing

✓ **Answer: B**

Q5. Quantitative research is characterized by:

- A. Descriptive narratives only
- B. Numerical and statistical analysis
- C. Emotional interpretation
- D. Story-based data

✓ **Answer: B**

Q6. Qualitative research mainly focuses on:

- A. Numbers and graphs
- B. Meanings, experiences, and interpretations
- C. Statistical testing
- D. Controlled experiments only

✓ **Answer: B**

Q7. The five human senses are considered sources of knowledge because they:

- A. Always give accurate results
- B. Help in perceiving and understanding the environment
- C. Replace reasoning
- D. Are scientific tools

✓ **Answer: B**

Q8. Sensory perception is not fully reliable because:

- A. It is always accurate
- B. It can create illusions and misleading impressions
- C. It is scientifically proven in all cases
- D. It works only in laboratories

✓ **Answer: B**

Q9. The example of a pencil appearing bent in water demonstrates:

- A. Perfect vision accuracy
- B. Sensory illusion due to light refraction
- C. Scientific certainty
- D. Experimental control

✓ **Answer: B**

Q10. Survey research mainly focuses on:

- A. Cause-effect relationships
- B. Current status of a phenomenon
- C. Past historical events

D. Experimental manipulation

✓ **Answer: B**

Q11. Correlational research is used to study:

A. Causal relationships

B. Association between variables

C. Only experiments

D. Individual stories

✓ **Answer: B**

Q12. In correlational research, variables are:

A. Manipulated

B. Only observed

C. Controlled strictly

D. Eliminated

✓ **Answer: B**

Q13. Causal-comparative research is mainly concerned with:

A. Future predictions

B. Finding causes of existing differences

C. Experimental manipulation

D. Surveying opinions

✓ **Answer: B**

Q14. Experimental research is distinguished by:

A. Lack of control

B. Manipulation of independent variables

C. No hypothesis

D. No data collection

✓ **Answer: B**

Q15. Narrative research focuses on:

A. Statistical analysis

B. Individual life experiences

C. Numerical data

D. Experimental design

✓ **Answer: B**

Q16. A hypothesis is best described as:

- A. Final result
- B. Tentative statement predicting relationship or difference
- C. Data collection tool
- D. Sampling method

✓ **Answer: B**

Q17. Inductive hypothesis is based on:

- A. Theory
- B. Observation and experience
- C. Statistics
- D. Experiment only

✓ **Answer: B**

Q18. Deductive hypothesis is derived from:

- A. Personal experience
- B. Existing theory
- C. Random observation
- D. Survey data

✓ **Answer: B**

Q19. A null hypothesis states:

- A. Strong relationship exists
- B. No significant relationship or difference exists
- C. Direction is positive
- D. Cause is known

✓ **Answer: B**

Q20. A directional hypothesis specifies:

- A. No difference
- B. Direction of expected relationship
- C. No variables
- D. Random outcome

✓ **Answer: B**

Q21. Research design refers to:

- A. Final conclusion
- B. Overall plan of conducting research
- C. Data only
- D. Hypothesis only

✓ **Answer: B**

Q22. Sampling in research is important because it:

- A. Increases cost
- B. Represents population efficiently
- C. Avoids analysis
- D. Eliminates data

✓ **Answer: B**

Q23. Data analysis means:

- A. Collecting data
- B. Interpreting and organizing data
- C. Ignoring data
- D. Writing proposal

✓ **Answer: B**

Q24. Research reporting is the process of:

- A. Hiding results
- B. Communicating findings
- C. Collecting samples
- D. Designing tools

✓ **Answer: B**

Q25. Experience as a source of knowledge is:

- A. Theoretical only
- B. Based on real-life involvement
- C. Artificial
- D. Random guessing

✓ **Answer: B**

Q26. Authority as a source of knowledge refers to:

- A. Self-thinking
- B. Expert knowledge
- C. Random opinion
- D. No knowledge

✓ **Answer: B**

Q27. Deductive reasoning moves from:

- A. Specific to general
- B. General to specific
- C. Observation to theory

D. Data to confusion

✓ **Answer: B**

Q28. Inductive reasoning moves from:

A. General to specific

B. Specific to general

C. Theory to experiment

D. Law to result

✓ **Answer: B**

Q29. Hypothesis testing results in:

A. Always acceptance

B. Acceptance or rejection

C. No result

D. No analysis

✓ **Answer: B**

Q30. Qualitative research is mainly used to:

A. Measure numbers

B. Understand meanings and experiences

C. Test statistics

D. Control variables

✓ **Answer: B**

Q31. Quantitative research is mainly used for:

A. Narratives

B. Statistical analysis

C. Storytelling

D. Opinions

✓ **Answer: B**

Q32. Introduction in research explains:

A. Results

B. Problem and rationale

C. Data tables

D. Sampling

✓ **Answer: B**

Q33. Literature review mainly:

- A. Collects data
- B. Summarizes previous research
- C. Tests hypothesis
- D. Writes results

✓ **Answer: B**

Section B: Short Questions

Q1. Explain the importance of research methods in education.

Research methods are important because they provide a systematic and scientific way to solve educational problems. They help teachers make informed, evidence-based decisions to improve teaching and learning outcomes.

Q2. What is the difference between quantitative and qualitative research?

Quantitative research deals with numerical data and statistical analysis, while qualitative research focuses on meanings, experiences, and interpretations. Both are used depending on the nature of the study.

Q3. What is a hypothesis and why is it important?

A hypothesis is a tentative statement that predicts a relationship between variables. It is important because it guides the research process, data collection, and analysis.

Q4. What is the difference between survey and correlational research?

Survey research describes the current status of a phenomenon, while correlational research studies the relationship between variables without manipulating them.

Section C: Long Questions

Q1. Explain the major sources of knowledge in detail.

Sources of knowledge include senses, experience, authority, deductive reasoning, inductive reasoning, and scientific method. Senses help us perceive the world, but they are not always reliable due to illusions. Experience provides practical understanding through real-life involvement. Authority gives knowledge from experts, while reasoning helps in logical thinking. The scientific method ensures systematic and verified knowledge.

Q2. Discuss different types of research approaches.

Research approaches include survey, correlational, causal-comparative, experimental, and narrative research. Survey research studies current conditions, correlational research examines relationships, causal-comparative research finds causes of existing differences, experimental research manipulates variables to find cause-effect, and narrative research focuses on individual life experiences.

Q3. Explain hypothesis and its types in research.

A hypothesis is a tentative statement predicting a relationship or difference between variables. Types include inductive (based on observation), deductive (based on theory), directional (predicts direction), non-directional (states relationship only), and null (states no relationship). Each type serves a different purpose in research.

Q4. Explain the steps and importance of research process.

The research process includes problem identification, literature review, research design, data collection, analysis, and reporting. It ensures systematic investigation of problems. It is important because it provides reliable results, improves decision-making, and contributes to educational development.
