UNIT 06

Research Methodology

How the proposed research will be conducted

A strong proposal does not simply state that the researcher will use questionnaires or interviews. It explains **why** the selected methods are appropriate for answering the research questions.

6.1 What is research methodology?

Research methodology refers to the overall approach and reasoning behind the methods used to investigate a research problem. It explains how data will be collected, analyzed, and interpreted.

6.2 Research approaches

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Quantitative approach

Focuses on numerical data and statistical analysis.

Instruments: closed-ended questionnaires, tests and assessments, structured observations, experimental measurements.

Example: Investigating whether a teaching strategy improves EFL students' writing performance through pre-tests and post-tests.

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Qualitative approach

Explores experiences, perceptions, beliefs, and classroom practices through non-numerical data.

Instruments: semi-structured interviews, open-ended questionnaires, classroom observations, document analysis.

Example: Exploring EFL teachers' perceptions of integrating AI tools into writing instruction.

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Mixed-methods approach

Combines quantitative and qualitative data for a more comprehensive understanding.

Example: Investigating students' perceptions of peer feedback through questionnaires and interviews, while also examining their writing performance.

6.3 Research design

A research design is the overall plan that connects the research questions to data collection and analysis.

Design	Main purpose
Descriptive	Describes a particular educational phenomenon.
Exploratory	Investigates an issue that requires further understanding.
Correlational	Examines relationships between variables.
Experimental	Investigates the effect of an intervention under controlled conditions.
Quasi-experimental	Examines the effect of an intervention without full random assignment.

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Design	Main purpose
Case Study	Investigates a particular case in depth.
Action Research	Investigates and improves a teaching practice through systematic cycles of action and reflection.

IMPORTANT

Research **approach** and research **design** are not interchangeable. A quantitative study can be quasi-experimental, while a qualitative study can use a case-study design.

6.4 Population and sample

Population

The entire group of individuals to whom the research is relevant. Example: first-year EFL students enrolled at an Algerian university.

Sample

The smaller group selected from the population to take part. Example: 40 first-year EFL students selected to participate.

6.5 Sampling techniques

A. Probability sampling

Each member of the defined population has a known chance of being selected. Examples: simple random, stratified, systematic sampling.

B. Non-probability sampling

Participants are selected without random selection. Examples: convenience, purposive, snowball sampling.

Example: a researcher selects a group from the class they teach because it is accessible and meets the study's requirements. This may be described as **convenience sampling**, although the researcher must explain and acknowledge its limitations.

6.6 Data collection instruments

Instrument	Purpose	Example
Questionnaire	Collects responses from participants.	Students' perceptions of online learning.
Interview	Explores experiences in depth.	Teachers' views about feedback practices.
Test	Measures knowledge or performance.	EFL writing pre-test and post-test.
Observation	Examines actual classroom behaviour.	Participation during group work.
Document Analysis	Examines existing documents.	Analysis of students' written assignments.

The choice of instruments should be guided by the research questions.

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6.7 Data collection procedures

Explain the sequence of steps you intend to follow. Example for a quasi-experimental study:

1	Obtain the necessary institutional permissions
2	Identify and select the participants
3	Administer a pre-test
4	Implement the planned teaching intervention
5	Administer a post-test
6	Collect and organize the data
7	Analyze the results

The procedure should be realistic and sufficiently detailed.

6.8 Data analysis

Type of data	Typical analysis
Quantitative	Frequencies and percentages; means and standard deviations; comparisons between groups; correlation analysis; appropriate statistical tests.
Qualitative	Transcription of interviews; coding of responses; identification of recurring patterns; categorization of themes; thematic analysis.
Mixed-methods	Quantitative and qualitative findings analyzed separately as appropriate, then integrated to answer the research questions more comprehensively.

6.9 Validity and reliability

Validity

Does the instrument measure what it is intended to measure? A writing test should assess writing abilities, not memorization of grammar rules.

Reliability

Is the measurement consistent? A reliable writing assessment gives reasonably consistent results under comparable conditions.

Ways to strengthen instruments:

- Consult relevant literature.
- Adapt established instruments appropriately.

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- Seek expert evaluation.
- Conduct a pilot study when feasible.
- Use clear assessment criteria.
- Check internal consistency when appropriate.

For qualitative research, **trustworthiness** is also important: credibility, dependability, confirmability, and transferability.

6.10 Ethical considerations

Research involving students and teachers must respect ethical principles:

Informed consent Participants know what the study involves.	**Voluntary participation** No pressure to take part.	**Confidentiality** Information is protected.
Anonymity Where possible.	**Right to withdraw** At any time.	**Responsible data use** Careful storage and use. Avoid harm.

RESEARCHING YOUR OWN STUDENTS?

Take special care to ensure participation is voluntary and does not affect students' grades or treatment.

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