

PRACTICAL RESEARCH 2
LEARNING MODULE 01

Quantitative Research Foundations

Name: _____

Section: _____

START Status and Destination

- **Primary role:** Guided continuation
- **Task labels:** Parts A and B are Practice - not graded. Parts C and D are Progress Check - feedback only. The Foundation Application Record is a Graded-Outcome Component.
- **Graded outcome:** Quantitative Foundations and Variables Application Packet. The Foundation Application Record will be combined with the aligned variables work from Learning Module 02. The module is not scored as a separate additional output.
- **Planned independent time:** 60 minutes in total, distributed across the current lesson
- **Use in the next class session:** Selected responses will be retrieved, corrected, and used in the next lesson activity.

PART A	PART B	PART C	PART D	FOUNDATION RECORD
Practice	Practice	Progress Check	Progress Check	Graded-Outcome Component

RECALL What You Already Learned

Quantitative research is a systematic way of answering a clear question using measurable evidence. Its main evidence may include counts, scores, ratings, frequencies, percentages, or measurable categories. A questionnaire does not automatically make a study quantitative. The information collected must help answer a clear quantitative question.

? RETRIEVAL	Without looking at your notes, complete these statements. 1. Quantitative research is systematic because _____. 2. It is quantitative because _____. 3. A number is not automatically good evidence because _____.
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OUTPUT What You Will Produce

A four-part comparison worksheet that:

- distinguishes a quantitative research question from an opinion, unsupported claim, or qualitative question;
- connects the characteristics of quantitative research to its strengths;
- corrects claims that go beyond the available evidence; and
- classifies common kinds of quantitative research using purpose, variables, groups, intervention, and control.

WHY Why This Matters to Your Study

Before choosing a topic, you must know whether the question can be answered through quantitative evidence and what that evidence can honestly support. This module gives you the decision rules you will later use when choosing variables, a research design, an instrument, and an analysis.

MODEL Study This Model

Broad claim	Internet is a problem for learners.
Improved quantitative question	What percentage of Grade 12 learners report having stable home internet access?
Respondent group	Grade 12 learners
Measurable information	stable or unstable home internet access, based on a clearly stated response rule
Possible numerical answer	frequency and percentage in each access category
What the result would not yet prove	why access is unstable or whether internet access caused a learner's academic performance

The improved question is quantitative because it identifies a respondent group and information that can be collected consistently, counted, and summarized. It does not promise an explanation or causal conclusion that the data cannot provide.

STEPS Follow These Steps

1. Complete Part A after Session 1.
2. Complete Part B after Session 2.
3. Complete Part C after Session 3 and revise any unsafe claim.
4. Complete Part D after Session 4.
5. Use the final checklist. Mark an item honestly if it still needs help.
6. Bring the complete module to the next lesson, Importance Across Fields, Variables, and Researchable Problems. Only selected responses will be checked during the opening activity.

TRY Begin Here: First-Step Rehearsal

> TRY	This first row should be completed during the contact lesson.
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Statement: Most Grade 12 learners sleep fewer than six hours each night.

My classification: Opinion / Claim Needing Evidence / Researchable Question

I selected this because: _____

Evidence needed to check it: _____

A clearer researchable question: _____

PRACTICE Part A. Question and Evidence Check

For each example, select the best classification. Then explain the feature that controlled your decision.

CLASSIFICATIONS	Quantitative research question Qualitative research question Opinion Not yet researchable
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Example	Classification	What feature controlled your decision?	If needed, how could it become clearer or measurable?
1. What percentage of Grade 12 learners use printed modules during class suspensions?			
2. Printed materials are always better than online materials.			
3. How do working learners describe the challenges of balancing school and employment?			
4. Is weekly study time related to quiz performance among Grade 12 learners?			
5. Social media and students			
6. Do you like research?			

Revise either Example 5 or Example 6 into a clear quantitative research question.

Identify its measurable information and possible respondent group.

Measurable information:

Possible respondents:

PRACTICE Part B. Characteristics and Strengths

Study the example below.

POSSIBLE STUDY	Home internet stability among Grade 12 learners
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Complete the map. Use only information that would help answer a clear question about home internet stability.

Characteristic	What could it look like in this study?	What strength may it provide when done well?	What could weaken it?
Variable			
Measurement or indicator			
Structured tool			
Population and sample			
Statistical summary			
Effort to reduce personal bias			

Complete the statement:

Quantitative research can

when the researcher

! REMEMBER	A characteristic becomes a strength only when it is implemented carefully. A structured questionnaire is useful, but a confusing or biased questionnaire can still produce weak data.
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PROGRESS CHECK Part C. Evidence Supports / Evidence Does Not Yet Prove

For each claim, identify the risk and rewrite the claim so it stays within the evidence.

POSSIBLE RISKS	weak sampling unclear measurement hidden context causal overclaim unsupported generalization ethical concern
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C1 Claim 1

Thirty learners who reported longer social-media use also reported lower study time. Therefore, social media causes learners to stop studying.

Risk:

The evidence supports:

The evidence does not yet prove:

Safer rewritten claim:

C2 Claim 2

Seventy percent of respondents prefer printed materials. Therefore, all Grade 12 learners in the province should receive printed materials only.

Risk:

The evidence supports:

Information still needed:

Safer rewritten claim:

c3 Claim 3

A study of internet access was answered only by learners active in the class group chat. The report concludes that almost all learners have reliable internet access.

Risk:

Who may have been missed:

How the result may be distorted:

Safer rewritten claim:

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CAUTION

A limitation does not automatically make a study useless. It tells the researcher how to improve the procedure and how carefully to word the interpretation.

PROGRESS CHECK Part D. Choose the Quantitative Research Kind

Use this decision path:

1. What is the study trying to do: describe, compare, relate, or test an intervention?
2. How many variables or groups are involved?
3. Is an intervention introduced?
4. If there is an intervention, are participants randomly assigned and conditions strongly controlled?
5. Which research kind best fits the actual question and procedure?

KINDS

descriptive | survey | correlational | comparative | experimental | quasi-experimental

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REMEMBER

Survey describes a way of gathering structured responses. A survey may support a descriptive, comparative, or correlational study. Do not classify a study from its tool alone.

DECIDE Part D. Research Scenarios 1-3**1. Describe the level of research confidence reported by Grade 12 learners.**

Main purpose: _____	Important clue: _____
Best research kind: _____	One-sentence justification: _____

2. Examine whether weekly study time is related to research confidence.

Main purpose: _____	Important clue: _____
Best research kind: _____	One-sentence justification: _____

3. Compare reported task difficulty between learners using printed and digital materials without assigning them to a material type.

Main purpose: _____	Important clue: _____
Best research kind: _____	One-sentence justification: _____

DECIDE Part D. Research Scenarios 4-6

4. Randomly assign consenting participants to two review methods and compare their test scores under controlled conditions.

Main purpose:

Important clue:

Best research kind:

One-sentence justification:

5. Use two existing sections, give one section a guided review activity, and compare the sections' later performance.

Main purpose:

Important clue:

Best research kind:

One-sentence justification:

6. Ask all respondents the same structured questions about device access and preferred learning resources.

Main purpose:

Important clue:

Best research kind:

One-sentence justification:

Which scenario could be described as survey research but still needs another label to explain its analytical purpose? Explain.

For a Grade 12 group with limited time, access, and control, which research kinds are usually more feasible? Why?

GRADED OUTCOME Graded-Outcome Component: Foundation Application Record

* GRADED-OUTCOME	Used in the Quantitative Foundations and Variables Application Packet: Complete this record after correcting Parts A-D. It will be combined with the aligned variables work in Learning Module 02. Do not submit the entire module as a second separate graded output.
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Use one unfamiliar scenario assigned by the teacher or select one scenario from Part D that you can explain confidently.

Decision	Your response
Scenario or possible study	
Clear quantitative question	
Measurable variable or information	
Possible respondent group or data source	
Main purpose: describe, compare, relate, or test	
One quantitative-research characteristic that supports the study	
One strength when that characteristic is implemented well	
One limitation or claim the evidence must not exceed	
Best research kind	
One-sentence justification	

Current status: Developing / Ready for the Graded Outcome / Needs Help

CHECK Check Your Work

☐	I distinguished a research question from an opinion or broad topic.
☐	I identified measurable information and possible respondents.
☐	I connected a research characteristic to a realistic strength.
☐	I corrected at least two claims that went beyond the evidence.
☐	I did not treat a relationship as proof of cause.
☐	I classified at least four of the six research-kind scenarios and justified each decision.
☐	I used purpose and procedure, not only the word "survey," to classify a study.

Write one decision rule you want to remember:

HELP If You Get Stuck

? HELP	Use the smallest helpful route first.
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1. For Part A, ask: Is there a clear question? What could be measured or counted? Who or what would provide the data?
2. For Part B, return to the model and replace only the variable, indicator, tool, sample, or summary.
3. For Part C, underline the exact evidence and cross out words that claim more than it shows. Replace "causes," "proves," or "all" when they are unsupported.
4. For Part D, begin with the purpose word: describe, relate, compare, or test. Check intervention and control only after the purpose is clear.
5. Consult Unit 1 of the reference reading under "Main Characteristics," "Weaknesses and Limits," and "Kinds of Quantitative Research."

MINIMUM Minimum Attempt for the Next Class Session

Before each next class session, complete the part assigned by the teacher. Before the next lesson, the minimum reasonable attempt is:

- all four parts have been attempted;
- two unsafe claims have been corrected; and
- at least four of the six research-kind classifications include a written justification.

? NEEDS HELP IS ALLOWED	If one classification remains uncertain, mark it Help Needed and write the exact clue that confused you. An uncertain but reasoned attempt is more useful than an empty answer.
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NEXT Bring This to the Next Class Session

Bring the complete module to the next lesson, Importance Across Fields, Variables, and Researchable Problems. Be ready to:

- explain one feature that makes a question quantitative;
- defend one corrected interpretation;
- justify one research-kind classification; and
- use the foundation rules when examining the importance of quantitative research across fields.