

SELF-LEARNING HOME TASK (SLHT)

Subject: Practical Research 2 Grade Level: 12 Quarter: 2 Week: 3

MELC: Plans data collection procedure; Plans data analysis using statistics and hypothesis testing (if appropriate); and Presents written research methodology

Competency Code: *CS_RS12-IIa-c-5; CS_RS12-IIa-c-6; and CS_RS12-IIa-c-7*

Name _____ Section _____ Date _____

School _____ District _____

A. Readings

Quantitative Data

Generally, data are pieces of information or facts that people have known. Once these data answer the research problem, it becomes helpful in research. When research data appears to be measurable in the numerical form, it is considered quantitative data. However, some qualitative data can also be useful to quantitative research once it is given a numerical value. For example, if you study about adjustment experiences of students to distant learning, if it is categorized and numbered accordingly, then it can be quantified during analysis.

Techniques in Collecting Quantitative Data

The following are the common quantitative data gathering technique.

Observation. It is gathering information about a certain condition by using senses. The researcher records the observation as seen and heard. This is done by direct observation or indirect observation using gadgets or apparatus. An observation checklist aids the researcher in recording the data gathered.

Survey. Data gathering is done through interview or questionnaire. By means of questionnaire, you use a series of questions or statements that respondents will have to answer. Basically, respondents write or choose their answer from given choices. On the other hand, interview is when you ask respondents orally to tell you the responses. Since you are doing quantitative research, it is expected that responses have numerical value ;whether nominal or ordinal in form.

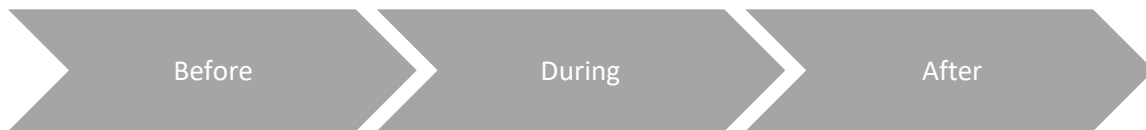
Experiment. When your study is an experimental design, it was discussed in the previous lesson that it would use treatment or intervention. After the chosen

subjects, participants, or respondents underwent the intervention, the effects of such treatment will be measured.

Three Phases in Data Collection

Data collection is a major component of research. Neglecting to clarify the collection procedure would result in acquiring inaccurate data that will make your research study invalid. Hence, the data collection procedure is given meticulous attention to gather appropriate data. You are making sure that the data you will gather answers your research questions.

The data gathering procedure is presented in a paragraph format in your research paper. Basically, the contents are the steps you are going to follow: (1) **before** you will gather the data, (2) what to do **during** the actual gathering of data, and (3) the things to consider **after** data has been gathered. The following are the suggested steps or procedures but not limited to it, in gathering quantitative data.



- Prepare the research instruments
- Identify the authorities that will be involved and will need to be asked permission to
- Determine the sample size and corresponding respondents, per group if applicable.
- Ask consent form (if respondents are 18 years old above) or parent's consent (if minor).
- Pilot-test the instrument if needed.
- Clarify the instructions provided to the respondents.
- Administer the research instrument or implement the research intervention if applicable.
- Collect or gather or take note of the responses.
- Summarize the data gathered in tabular form.
- Analyze the summarized data corresponding to the research questions.

Data Analysis

Data Analysis needs statistics for validation. That is the reason why a pre-requisite for taking Practical Research 2 is Statistics and Probability subject. It is presumed that you already have a good practice of the learning competencies needed to conduct

quantitative research. Your statistics and probability background will help you plan and choose your data analysis.

In planning your data analysis in quantitative research, you also need to consider your research problem, type of data, hypothesis, and scale used in your research instrument.

Data analysis in research is a process in which gathered information are summarized in such a manner that it will yield answers to the research questions. During quantitative data analysis, gathered information are broken down and ordered into categories to draw trends or patterns in a certain condition. In quantitative research, the numerical data collected is not taken as a whole. To understand it better, one must be able to analyze the components based on the chosen research variables and research questions that will be answered.

These numerical data are usually subject to statistical treatment depending on the nature of data and the type of research problem presented. The **statistical treatment** makes explicit the different statistical methods and formulas needed to analyze the research data.

Planning your Data Analysis

Before choosing what statistical test is appropriate for your research study, it is important to determine what statistical formation is applicable to your current study. In immersing yourself into planning your data analysis, you must decide what basic descriptive statistical technique you are going to use. Although this technique does not give you the degree of association or effect between variables, this will help you to code and simply tabulate your data.

Descriptive Statistical Technique provides a summary of the ordered or sequenced data from your research sample. Frequency distribution, measure of central tendencies (mean, median, mode), and standard deviation are the sets of data from descriptive statistics. **Inferential Statistics** is used when the research study focuses on finding predictions, testing hypothesis, and finding interpretations, generalizations, and conclusions. Since this statistical method is more complex and has more advanced mathematical computations, you can use computer software to aid your analysis.

You also must identify types of statistical analysis of the variables in your quantitative research. A **univariate analysis** means analysis of one variable. Analysis of two variables such as independent and dependent variables refers to **bivariate analysis**, while the **multivariate analysis** involves analysis of the multiple relations between multiple variables.

Furthermore, selecting what test to use is basically done by identifying whether you will use parametric test or non-parametric test. As these were already discussed in your Statistics and Probability subject, a summary of what to consider is presented below:

Points to Consider		Type of Test
Scale	Interval or Ratio	Parametric Tests
	Ordinal or Nominal Scale	Non-parametric Tests
Sample Size	30 or more per group	Parametric Tests
	Fewer than 30	Non-parametric Tests
Distribution of Data	Normal Distribution	Parametric Tests
	Data deviates from Normal Distribution	Non-parametric Tests

In addition, in choosing statistical techniques in quantitative research, the purpose or objective of the research study should be considered.

Test of Relationship between Two Variables

- Pearson's r (parametric)
- Phi coefficient (non-parametric for nominal and dichotomous variables)
- Spearman's ρ (non-parametric for ordinal variable)

Test of the Difference between Two Data Sets from One Group

- T-test for dependent samples (parametric)
- McNemar change test (non-parametric for nominal and dichotomous variables)
- Wilcoxon signed-rank test (non-parametric for ordinal variable)

Test of Difference between Two Data Sets from Two Different Groups

- T-test for independent samples (parametric)
- Two-way chi-square (non-parametric for nominal variable)
- Mann-Whitney U test (non-parametric for ordinal variable)

Test More than Two Population Means

- Analysis of Variance or ANOVA (parametric)

Test the Strength of Relation or Effect or Impact

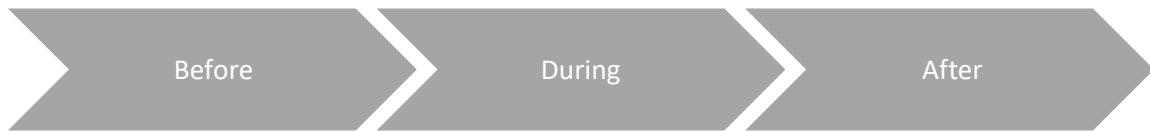
- Regression (parametric)

B. Exercises

Exercise 1

Test I. Direction: Analyze the situation below and accomplish the Before-During-After Flowchart of Data Collection.

Situation: You want to do study about the effects of the modular learning modality to the interpersonal skills of the senior high students who underwent modular learning. Therefore, you want to survey the senior high students in your school who are currently in modular learning. What data collection plan can you propose?



Exercise 2

Directions: From the concept presented in this lesson, create five simple basic procedures in planning the data analysis. What to do beforehand (pre-process) is already given as your guide.

Step	To Do
Preprocess	Identify the types of variables, research question, hypothesis, and scale of measurement.
1.	
2.	
3.	
4.	
5.	

C. Assessment/Application/Outputs (Please refer to DepEd Order No. 31, s. 2020)

Test I. Direction: Arrange the following steps in data gathering in their correct sequence, 1 being the first step, and 10 as the last step.

Order	Steps
_____	The respondents will have a chance to have a look at the performance tasks.
_____	Each of the participants will be interviewed for individual filling out of the personal background of media literacy information.
_____	The researcher will meet the participants eight times in a four-month data gathering period.
_____	The participants will answer the learning activity sheet (LAS) after practicing the new approach.
_____	The data collection in each group will be supervised by two experienced Information Technology teachers to ensure proper implementation of the intervention.
_____	The participants will read example situations about media literacy that are not familiar to them.
_____	The new approach in assessing the performance tasks of learners will be implemented.
_____	The list of performance tasks and assessment tools will be prepared.
_____	The media literacy summative test will be administered after the implementation of the new approach in assessing performance tasks.
_____	The test results will be encoded for summary and will be analyzed.

Test II. Direction: Determine the statistical test/s appropriate for the sample research then explain/justify your answers briefly.

1. Relationship between Academic Stressors and Learning Preferences of Senior High School Students

Statistical Test/s: _____

Explanation: _____

2. Reading Electronic Learning Materials as a Support for Vocabulary of Grade 1 Pupils

Statistical Test/s: _____

Explanation: _____

3. Impact of the Implementation of COVID – 19 Health Protocols in Supermarkets on Consumer Behaviors

Statistical Test/s: _____
Explanation: _____

D. Suggested Enrichment/Reinforcement Activity/ies

Test I. Direction. Base on your current research study, present your research methodology. Use the guide below to make an outline then explain it in paragraph form.

In your current study,	
1. What is your research design?	
2. Describe your sampling procedure.	
3. Describe your research instrument. Did you validate it? How?	
4. Do have any research intervention? If yes, describe it.	
5. What is your data collection procedure?	
6. What data analysis will you use?	

Research Methodology

References:

Books

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GUIDE

For the Teacher

For the Learner

For the Parent/Home Tutor