

Practical Research 2

Quarter 1 - Module 2

Identifying the Inquiry and Stating the Problem



Practical Research 2- Grade 12
Alternative Delivery Mode
Quarter 1 – Module 2: Identifying the Inquiry and Stating the Problem
First Edition, 2020

Republic Act 8293, section 176 states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this module are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education
Secretary: Leonor Magtolis Briones
Undersecretary: Diosdado M. San Antonio

Development Team of the Module:

Authors:	Kim Charies L. Okit, Rochelle A. Luzano, PhD	
Reviewers:	Joel D. Potane, PhD Warren I. Luzano, PhD Shera May L. Gochuco	Kareen J. Agcopra, PhD Cristina D. Abao Ryan Z. Roa
Illustrator:	Ley Krystal C. Jayoma	
Layout & Design Evaluator:	Allan H. Guibone	

Management Team

Chairperson:	Dr. Arturo B. Bayocot, CESO III Regional Director
Co-Chairpersons:	Dr. Victor G. De Gracia Jr., CESO V Asst. Regional Director Mala Epra B. Magnaong CES, CLMD
Members:	Dr. Bienvenido U. Tagolimot, Jr. Regional ADM Coordinator Dr. Marie Emerald A. Cabigas Regional EPS, LRMDs

Printed in the Philippines by _____

Department of Education – REGION 10

Office Address : Zone 1, Upper Balulang, Cagayan de Oro City 9000

Telephone : (088) 880-7071, (088) 880-7072

E-mail Address : region10@deped.gov.ph

Senior High School

Practical Research 2

Quarter 1- Module 2

**Identifying the Inquiry and
Stating the Problem**

Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

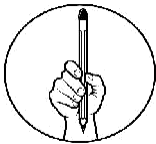
Thank you.



What I Need to Know

At the end of this module, you should be able to:

1. design a research useful in daily life (**CS_RS12-Id-e-1**);
2. write research title (**CS_RS12-Id-e-2**);
3. describe background of research (**CS_RS12-Id-e-3**);
4. state research questions (**CS_RS12-Id-e-4**);
5. indicate scope and delimitation of study (**CS_RS12-Id-e-5**);
6. present written statement of the problem (**CS_RS12-Id-e-7**);



What I Know

Directions: Read and analyze the statements below. Encircle the letter of the correct answer.

1. Which of the following is **NOT** an essential characteristic of a researchable question?
 - A. The question is answerable by some sort of data that can be collected.
 - B. Answering the question provides a positive outcome to the society.
 - C. The question is comprehensive.
 - D. The question is interesting.
2. Which of the following is the most reliable source of research topic idea?
 - A. Review of Literature
 - B. Wikipedia
 - C. Folklores
 - D. Blogs
3. Which of the following questions is most suitable for quantitative research?
 - A. Will the colors of the wall affect children's preference and engagement during play time?
 - B. Is there a relationship between soil components and shape of seeds?
 - C. Do online materials enhance the performance of students?
 - D. What are the features of herbal plants in the province?
4. Which of the following best describes the development process for a research question?
 - A. A broad topic is trimmed down to make it more interesting.
 - B. Research topic must be refined first before doing preliminary research.
 - C. As specific question can be broadened to make a study more significant.
 - D. Preliminary research helps trim down a broad topic to a more manageable question.
5. Which of the following statements is a characteristic of a good research title?
 - A. It is a short but accurate description of the content of the study
 - B. It uses abbreviations to shorten the number of characters.
 - C. All beginning letters of each word is capitalized.
 - D. It indicates all variables in the study.
6. Which of the following is the most common form of the research title?
 - A. Interrogative
 - B. Declarative
 - C. Question form
 - D. Phrase

7. It refers to an issue that has not been fully addressed by previous studies.
 - A. Research problem
 - B. Research topic
 - C. Research question
 - D. Research gap

8. It is a part of the research that expresses the context of the problem that will support the validity and rationale of the study.
 - A. Research title
 - B. Research topic
 - C. Background of the study
 - D. Research problem

9. Which if the following statements is **NOT** true about the background of research?
 - A. It elaborates on the findings or information from the literature cited.
 - B. It explains how the research question was derived.
 - C. It justifies the need to conduct the study.
 - D. It establishes the research gap.

10. A good research question is:
 - A. Feasible, clear, significant and hypothetical
 - B. Feasible, clear, significant, and ethical
 - C. Clear, significant, and ethical
 - D. Feasible, clear, and ethical

11. Quantitative research problem deals more with
 - A. precision and general explanation of phenomena
 - B. description and explanation of situations
 - C. trends and patterns of the chosen group
 - D. precision and specificity of the problem

12. Which of the following research questions is an example of correlational research?
 - A. Is there a difference in the height of Mung Bean in setup A from setup B after various treatments?
 - B. What are the various learning modalities offered in Gusa Elementary School for SY 2020-2021?
 - C. Is the pre-online tutorial effective in preparing preschool for distance learning?
 - D. What is the relationship between time spent on texting and spelling ability?

13. Which of the following qualifies a good quantitative research question?
 - A. How would the parents respond to the current educational challenge?
 - B. Is blended learning more effective than face to face learning?
 - C. Does a social medium lead to more social awareness?
 - D. Are the teachers well-motivated?

14. A research question becomes significant when _____.
 - A. no harm is possible to be inflicted to participants
 - B. it contributes to a bigger body of knowledge
 - C. it does not take undue resources
 - D. it uses simplest words for readers

15. It is part of the research study that states what is included and not in the research study.
 - A. Statement of the Problem
 - B. Significance of the Study
 - C. Background of the Study
 - D. Scope and Delimitation

DESIGNING RESEARCH TOPIC



What's In

You have learned from Module 1 that quantitative research is very useful in all fields of study because of its objectivity and fast data collection and analysis. The different kinds of research designs (descriptive, correlational, ex-post-facto, quasi-experimental, and experimental) offer a viable and numerous options for any type of inquiry. The field of studies where you can apply quantitative research is practically countless. In this lesson, you will expand your understanding of the characteristics and different applications of quantitative research and be able to design a study useful in daily life.



What I Need to Know

The first and foremost step in the research is selecting and properly defining a research problem. Before starting a laborious journey of finding the unknown, you need to know first what it is that you want to find out, where and how you are going to find the answers to your questions, and what specific qualities are you looking for. For instance, you want to find a specific kind of fish in the ocean; however, the ocean is so vast that it is almost impossible for you to achieve that goal of finding the fish without equipping yourself with the right tools and information about it. You may need to know first its behavior and living conditions before you can precisely pinpoint the perfect spot to find the fish. Thus, baseline information is needed for a successful quest.

That fish analogy can be applied to finding a research topic. A well-defined research topic is essential for a successful research. When the topic is not well-defined, it becomes unmanageable and may result in some drawbacks during data collection and analysis that could compromise the strength of your study.

Hence, choosing a topic must undergo proper and thorough planning and designing. The four basic steps in designing a research topic are the following: (1) choose a broad topic, (2) do preliminary research, (3) define the problem, and (4) refine the question. Guided with these steps, a student researcher can certainly jumpstart a quantitative research project.



What's New

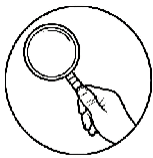
Activity 1: Topics that interest me!

Directions: Take time to identify the things that matters most to you by filling out the following information:

1. My chosen SHS track is: _____.
2. The top three things that I excel doing are _____, _____ and _____.
3. The top five (5) things that make me happy are _____, _____, _____, _____, and _____.
4. The three things that I find interesting are _____, _____ and _____.

Activity 2: Tell me about your problems!

Directions: Make an online or offline survey at your community, family, and friends to determine common issues or problems. List all the problems raised and identify the most common ones.



What Is It

Steps in Developing Research Topic

Despite the advancement in knowledge and technology, there is still a lot to discover in this world. There is still an ocean of things that we are yet to explore. It can be a difficult situation that we want to improve or eliminate, a better understanding of the unfamiliar, information gaps we wish to fill, or theories that we want to validate. What limits our choice of a topic are our capacity, understanding, resources, and skill.

Most researchers will agree that choosing a good topic is a challenging and tedious task. Because a research topic serves as the groundwork for any succeeding actions, it must be defined appropriately at the beginning of the research work. Otherwise, it may result in unanticipated complexities to the researcher.

Developing a research problem can be done in four (4) steps:

1. Choose a broad topic
2. Do a preliminary research
3. Define the problem
4. Refine the question

As a student researcher, let us go through these steps to guide us in choosing a quantitative research topic related to our chosen field.

1. **Choose a broad topic.** The first step is quite simple. As a Senior High School student, these tips will surely guide you in selecting a broad topic for quantitative research:

A. Choose an interesting topic.

Research is a very challenging task that demands your time and persistence. Your motivation to find the answer to the problem should keep you going, thus building a momentum along the way. Therefore, your research topic must be something that you are passionate about. Review your answers in Activity 1, and it might lead you to the right path. After all, nothing is more satisfying than accomplishing something that matters to you.

B. Select a significant topic.

A topic that is worth researching must be able to answer or solve problems in the community. No one will take an interest in your topic if it is obsolete and does not address any real problem. To be proactive and to take part in solving problems with socio-economic relevance gives a sense of accomplishment. You do not even have to look far, just take a look at your household, neighborhood, school, group of friends, or local community for a common problem or difficulty. Activity 2 will help you identify some main points that can serve as a basis for choosing your research study.

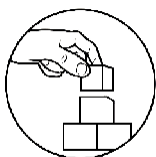
C. Choose a topic relevant to your field.

One of the goals of this course is for you to be able to produce a quantitative research study that is aligned to your chosen track. A SHS student under ABM must choose a topic related to business and management while students taking HUMSS may consider choosing a topic about politics, culture, and arts. Choosing a topic that you can relate will certainly make your research project less challenging.

In the event that the three tips above do not shed some light on your minds, do not despair; other sources of ideas like the ones below may be available for you.

- i. Resources. Department of Science and Technology (DOST) harmonized National R & D Agenda for 2017-2022. Early in 2017, DOST, together with researchers from the health, agriculture, industry, and academe, released research priorities for 2017 to 2022 that are relevant for the economic growth of the country. Visit this link <https://bit.ly/3hHTf2Y> for a list of suggested studies.
- ii. Review of Literature. Some researchers reveal that reading previous studies fueled their minds with tons of research topics. Reviewing the literature lets them know what has been studied, what is not yet done, and what other researchers suggest working on. Journals, periodicals, and peer-reviewed articles are a good read.
- iii. Field experts. Gather up some guts to approach anyone you know that are experts on the field of your choice because they may give valuable inputs or may currently be working on a study where you can collaborate. Your teacher may also give you some advice, especially on the possible obstacles, resource limitations, and expanse of the study.
- iv. Brainstorming. Do not underestimate the ideas from classmates, friends, and family members. You may be overwhelmed at first by the outpouring of ideas. Just build a list, then cross off any topic unrelated to your field or not so interesting to you. Of course, you must take precautionary measures in doing this by observing physical distancing. You can use any social media platform to do this.

2. **Do a preliminary research.** The second step is much more time-consuming. Once you have chosen a broad topic, you need to have a better understanding of it by reading some more articles, journals, and related research studies. Find out how other researchers gathered their data, what research instruments were used, how the data were analyzed, and what important findings they shared. Take note of every relevant research study for future reference. If you started the topic search (first step) by doing a literature review, the second step is just a continuation of what you started. A much deeper discussion of the literature review will be done in module 3.
3. **Define the problem.** After getting enough information, you may be able to list some questions or problems that you want to research. At this stage, you should be able to narrow down broad topic into feasible and manageable research questions. A broad topic can be narrowed down by limiting the population, place, period, or a certain characteristic. However, be very mindful that your problem may not be too narrow that it becomes very simple and does not need to collect unique data or does not generate new information. A very narrow research question can be developed by doing a comparative study or expanding the scope of the study.
4. **Refine the question.** This step lets you evaluate the questions formulated. What specific questions should you ask? How should you gather your data sufficient to answer the questions? Are the questions too narrow, or does it need to be trimmed down? While evaluating the research question, consider the requirements of the course. How much time are you given to finish the research? What resources do you need and are they available? You will learn more about research questions in lesson 4.



What's More

Let's go online

Directions: Go to the link below and practice what you've learned from this lesson:

<https://bit.ly/3fPFQUK>

<https://bit.ly/2NqVYZW>

<https://bit.ly/2NqmVUw>



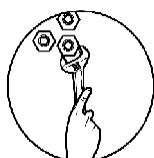
What I Have Learned

Directions: Answer briefly the questions below.

1. Why is it important to choose a relevant, significant, and interesting research topic?

2. How does background/preliminary research help in defining a research topic?

3. What is your understanding of refining the research question?



What I Can Do

Directions: Choose one broad topic related to your track that interests you. Then, preliminary research on this topic. Take note of at least five related studies with its corresponding author/s, then list three (3) quantitative research questions related to the topic. Follow the format below. Write your answers in separate sheet of paper.

Broad Topic: _____

References:

1. Title: _____
Author/s: _____
Year of Publication: _____
Name of Journal/Publication: _____
Link: _____
Notes/ Important information: _____
2. Title: _____
Author/s: _____
Year of Publication: _____
Name of Journal/Publication: _____
Link: _____
Notes/ Important information: _____

3. Title: _____
 Author/s: _____
 Year of Publication: _____
 Name of Journal/Publication: _____
 Link: _____
 Notes/ Important information: _____

4. Title: _____
 Author/s: _____
 Year of Publication: _____
 Name of Journal/Publication: _____
 Link: _____
 Notes/ Important information: _____

5. Title: _____
 Author/s: _____
 Year of Publication: _____
 Name of Journal/Publication: _____
 Link: _____
 Notes/ Important information: _____

Question 1: _____

Question 2: _____

Question 3: _____

Lesson

2

RESEARCH TITLE



What's In

At this point, you may already have an interesting and relevant quantitative research topic that is related to your chosen track. The next step is for you to have a suitable and captivating title for the research study in mind. How is it done? Is writing a research title similar to writing a title for movies, songs, or poems, or is there a guideline for it. Read through this lesson, and you will know how to make a good title for your quantitative research study.



What I Need to Know

The old saying “never judge a book by its cover” applies to research studies no matter how much we say otherwise. When the title is poorly constructed that it does not accurately describe the objective of your research, it can discredit the value of the entire research, let alone the implication of your research findings. It is, therefore, important that you make your research title accurate yet captivating. After all, the research title is the first thing your professor, fellow researchers, journal editors, or reviewers get to see first. Once it captures the attention of the readers, they will be enticed to read the entire work and learn something from your research. Learning how to make your research title create a good impression is essential.



What's New

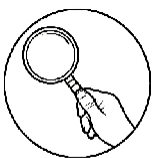
Activity 1: True or False

Directions: Write **TRUE** if the statement is correct and **FALSE** if it is incorrect.

- _____ 1. Inserting humor on the research title makes it more interesting to the reader.
- _____ 2. Abbreviations are a must to make the research title shorter.
- _____ 3. Proper punctuation and correct grammar must be observed in writing the title.
- _____ 4. All types of quantitative research design must include the independent and dependent variables in the title.
- _____ 5. Jargons make a research title more sophisticated.
- _____ 6. Only the first letters of nouns and pronouns are capitalized.

CO_Q1_Practical Research 2_Mod_2 7

- _____ 7. To minimize the number of characters in the title, only use the chemical formula than generic names.
- _____ 8. Use declarative format in writing the research title.
- _____ 9. To make it more specific, the year must be included in the title.
- _____ 10. Using obsolete terms do not matter in writing the title.



What Is It

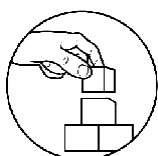
Basic Guidelines in Making a Research Title

A research study title is the very first thing a reader comes across when searching for scientific literature. It is a concise description of the content of the research study containing the fewest possible words, yet adequate to describe the contents of the paper for a simple reason that we do not want to mislead the readers. After conceptualizing a most probable research topic, drafting the title early in the research process helps in keeping your focus on the subject. The following are the basic guidelines in making a research study title:

1. Use an accurate description of the subject and scope of the study instead of using general terms.
2. Do not use abbreviations except for commonly known ones like DNA and ICT.
3. Do not include words like "The study of," "Analysis of," "An investigation of" or similar construction as these would only lengthen the title.
4. Include the main dependent and independent variables.
5. Be mindful of the proper use of grammar and punctuation.
6. Capitalize all nouns, pronouns, verbs, adjectives, adverbs as well as the first letter of the first and last words.
7. State in a declarative form, although you may also see titles in question form from time to time.
8. The year the study has been conducted should not be indicated unless it is a historical study.
9. Use current terminology.
10. Depending on the institutional requirements, 5 to 15 words are sufficient to describe the research study.
11. Use the common name instead of chemical formula (e.g., Ammonium instead of NH_4)
12. Write and italicize full scientific names.
13. Make sure to reflect the tone of the paper. An academic research paper has title which is not casual, or informal, or does not contain humor.

The following steps can guide you in writing your research title:

1. Determine what it is that you wish to accomplish or know from your study. Write one to two sentences to state the main objectives of your research project.
2. Include important keywords and variables. Revise the sentences into one complete sentence that includes important keywords and variables of the study.
3. Shorten the title by eliminating unnecessary words. You may also shrink a phrase into a simpler phrase or a single word. In doing this, make sure that the main thought of the research study is retained.
4. Correct grammar and punctuation errors if there is any.
5. Observe proper formatting. The format may vary according to the requirements of the course or school. Please seek guidance from your professor.



What's More

Directions: Evaluate the following erroneous research title and justify what makes it wrong.

Example: Phytochemical analysis and antioxidant activity of *S. trifasciata* leaves

Answer: The scientific name was abbreviated and not italicized.

1. An investigation of the effects of electronics uses on Interpersonal Relationship in adults.
Answer: _____
2. Effects of Coconut Oil and Beeswax Edible coating.
Answer: _____
3. The Effects of Arts-Integrated Instruction on Arithmetic Skills of Students for S.Y. 2018-2019.
Answer: _____
4. Antibacterial effects of $\text{C}_2\text{H}_5\text{OH}$ extract of *Carica papaya* leaves.
Answer: _____

5. Managing business during global pandemic.

Answer: _____



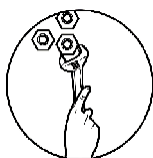
What I Have Learned

Directions: Answer briefly what is asked.

1. A researcher is discouraged from putting too many words in the research title. Why?

2. A bad title discredits a good research. Why?

3. What are the components of a good research title?



What I Can Do

Directions: This activity is a continuation of what you have done in Lesson 1 of this module. You are to construct a good research title for each of the quantitative research questions made on page 6. Follow the format below:

Research question 1: _____

Proposed title A: _____

Proposed title B: _____

Proposed title C: _____

Research question 2: _____

Proposed title A: _____

Proposed title B: _____

Proposed title C: _____

Research question 3: _____

Proposed title A: _____

Proposed title B: _____

Proposed title C: _____



Additional Activity

Directions: After you submit your Research Title and once it is corrected in accordance with the guidelines given, you may start incorporating your Research Title to your research manuscript.

Lesson

3

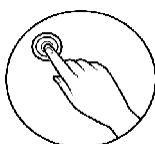
BACKGROUND OF RESEARCH



What's In

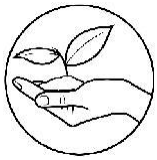
Reading a well-written research title gives the reader an insight of what the research study is all about. Although it captures the main point of the study, it does not sufficiently explain all the details of the study. Hence the reader opts to read on for better understanding.

When introducing your study to the readers, you must bridge the gap from what is known to what is unknown. Establishing the importance of finding the answer to the question makes the reader feel the need to answer such question. Thus, it makes the research project more meaningful and valuable.



What I Need to Know

Choosing a sound research topic entails a considerable amount of time, focus, and preliminary research. Before a topic is finalized, you may have read and evaluated the question many times and even consulted professionals or instructors to ensure its validity and feasibility. How you relay to the reader the implication of the research problem formulated is what constitutes the background of the study section of your paper. At the end of this lesson, you should be able to describe the background of research and will learn what salient information should be included in the background of the study segment of your paper.



What's New

Activity 1: Expand Your Vocabulary!

Directions: Read through the text of this lesson and look for an underlined word that has the same meaning as the word in the list below. Write the word on the space provided.

1. Uncharted - _____
2. Motivation - _____
3. Background - _____
4. Extensive - _____
5. Communicate - _____
6. Conceive - _____
7. Remarkable - _____
8. Inclusive - _____
9. Understanding - _____
10. Valid - _____



What Is It

Background of the Study

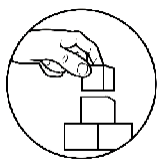
The background of the study is the part of your paper where you inform the reader of the context of the study. When we say context, it means the situation or circumstances within which your research topic was conceptualized. Ideally, this part is written when you have already conducted a literature review and has a good perception of the topic so you can articulate the importance and validity of the research problem. It is also in this part of the paper where you justify the need to conduct a research study about the topic selected by establishing the research gap.

A research gap is an under or unexplored area of a topic that requires further exploration. The gap can be in a form of other variables, conditions, population, methodology, or test subject. To identify research gaps, an exhaustive literature review regarding the topic is required. You may have to look for similar or related studies employing quantitative, qualitative, or mixed methods from legitimate sources and examine the gray areas. Reading through the Discussion, Conclusion, or the Recommendations sections of the articles will help you know potential areas of study that need further attention. Identifying research gaps sometimes would even make researchers modify their research problem as they get noteworthy ideas from fellow researchers.

While both the Background of the Study and the Review of Related Literature involve reading past related studies, they differ in some aspects. The former is at the introductory part of the paper with the purpose of relaying the importance of your research study; the latter is more comprehensive and thoroughly discusses the studies mentioned in the background of research. Moreover, the background of the study answers the following questions:

1. What is already known about the topic?
2. What is not known about the topic?
3. Why do you need to address those gaps?
4. What is the rationale of your study?

While answering these questions, keep in mind that the studies you include in this part of the paper are laid down as part of the introduction and should not be discussed in great detail. The depth and length of the background information largely depend on how much information you think the reader needs to know to have a full grasp of the topic being discussed.



What's More

Directions: Organize the reviewed related literature about the research problem previously selected (see page 6) by completing the table below. Write your answers on a separate sheet of paper.

Author/s & Yr.	Topic	Sample	Data Collection Method	Major Findings	Recommendation



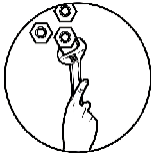
What I Have Learned

Directions: As you have learned from this lesson, answer each question comprehensively.

1. What is the relevance of the Background of the Study in your research paper?

2. Compare and contrast Background of the Study and Literature Review.

3. What important components should be included in the Background of the Study?



What I Can Do

Directions: Let's expand the research topic and title you did in the activities from Lessons 1 and 2 by composing a one to two-page Background of the Study. Print it on a short bond paper in the format below:

Font: Arial, size 11

Spacing: double

Margin: Normal: 1" all sides

Name: _____ Section: _____ Date: _____

Research topic: _____

Research title: _____

Background of the Study



Additional Activity

Directions: After you submit your Background of the Study and once it is corrected in accordance with the guidelines given, you may start incorporating your Background of the Study to your research manuscript.

Lesson

4

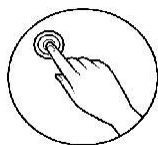
RESEARCH QUESTIONS



What's In

In the previous lessons of this module, you were taught how to design research that is interesting and something that you are passionate about. You have learned that research problems are within your environment or area of interest. You were given various activities to learn how to come up with interesting and useful research problems. In this lesson, Identification of the research problems and research questions will be furthered explained.

You have also learned how to craft qualitative research problems and questions when you took Practical Research 1. In this lesson, quantitative research problems and types of quantitative research questions will be elaborated.



What I Need to Know

Nature of Quantitative Research Problem

Once we encounter uncertainty, being inquisitive, we always find ways for answers or solution. Ignited by interest, curiosity, or need, we always find ourselves pondering about the current problem we are facing. When we are thinking and behaving this way, we are then confronted by a problem that can be a source of a research problem.

A research problem is simple as a problem you would like to research. *Quantitative Research Problem* deals more with the precision and specificity of the problem. Furthermore, the quantitative research problem describes trends and patterns of a phenomenon.

When you have identified your quantitative research problem, you can now state it and make sure to establish its place in your study. In your written paper, this can be found as *Statement of the Problem*, where it formally introduces the problem that you want to investigate or address. By this time, you can start specifying what you want to answer in your study.

Research Problem and Research Questions

The *research questions* help clarify and specify the research problem. They are also considered as sub-problems of your research problem and are informative in nature. They specify the method of collecting and analyzing data, and the type of data to be collected when exploring a quantitative research problem.

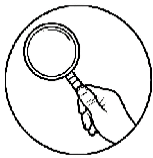


What's New

Activity 1: That's a Good Question

Directions: Here are some samples of research questions. Rank them on a scale of 1 to 10 (1= lowest, 10 = highest) based on their feasibility and clarity as a quantitative research question. Then, provide a brief explanation of your rating.

Quantitative Research Question	Your Rating	Explanation
1. How many Grade-7 students are enrolled in blended learning this School Year?		
2. Is modular learning or online learning more effective in Language or Science subjects?		
3. Is there a significant relationship in the number of households and COVID-19 confirmed cases in a Barangay?		



What Is It

Characteristics of Good Research Questions

Once you have already enumerated your research questions for your study, it is important that you consider its quality to answer and explain your research problem. The following are good characteristics of research questions, as described by Fraenkel and Wallen (2020).

Feasible. Consider the amount of time, energy, money, respondents, and even your current situation as a student-researcher. Is the research problem possible? Will it not spend unreasonable amount? Consider these examples: *“How do parents feel about the blended learning modality for elementary learners?”* and *“How would giving each learner their own laptop to be used in this blended learning modality affect their performance tasks?”* The first example is definitely a more feasible research question. Considering the resources, it is more possible to gather the data needed to answer the question.

Clear. The clarity of how the questions are stated lead to agreement of meaning of the readers of your study. Since your research questions are also considered as the main focus in the gathering and analyzing the data, it is therefore very important that these are stated clearly.

Significant. Ask if your research questions are relevant or important to ask. Will answering these questions provide an additional contribution to address the given research problem? In other words, are the research questions really worth investigating?

At this point, you do not just consider the time and money that you will spend, but more importantly, the value of what you are trying to investigate. So aside from the reason that your chosen research problem is within your interest, you should also provide a sound justification of your choice as a researcher.

Ethical. Always consider the welfare of people, animals or whosoever are involved in your study. Look into ways of answering the research questions without inflicting physical and psychological harm to persons involved.

Formulating Research Questions

Research questions can be generally classified into two: general and specific. The general question of the study is derived from the research problem while the specific questions are anchored on the general research problem.

For example:

This study aims to determine the relationship between the types of learning delivery mode and students' learning styles. Furthermore, it seeks to answer the following research questions: (1) What are the different learning delivery modes of the school? (2) What are the various learning styles of the students? (3) Is there a significant relationship between the different learning delivery modes of the school and the learning styles of its students?

Notice that a general problem was presented first. Then it was followed by the specific questions considered as research questions of the study.

In stating quantitative research questions, you should also consider the design of your quantitative research. Quantitative research designs will be elaborated in Module 4. For the purpose of writing your research question, here's a quick guide of research questions for

descriptive research, correlational research, Ex Post Facto research, Experimental, and Quasi-experimental research.

Research Questions for Descriptive Research focus on observing, describing, and reporting factors or aspects of the research problem. Phrases such as how often/frequently, how many/much, what is/are, to what extent/degree, and the likes are used in these questions. For example, you study the use of social media among Senior High School Students, you can ask the following questions:

What are the various social media platforms used by Senior High Students?

How many hours students spend on social media per day?

Research Questions for Correlational Research aim to determine the relationships among two or more variables in your research problem. Correlational research questions usually begin with the phrases “Is there a significant relationship...” or “What is the relationship between/among...”. In the study of use of social media and level of digital literacy of students following questions can be asked:

What is the relationship between the length of hours spent on social media and level of digital literacy of students?

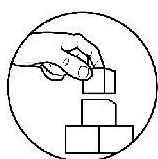
Is there a significant relationship between the type of social media used and the level digital literacy of students?

Research Questions for Ex Post Facto Research attempt to identify the causes of the phenomenon in the context of your research problem. It is also assumed that no control or manipulation of variable has been done in order to cause the effect. It is also understood that the cause of the problem already exists before you conducted your study. For example, ex post facto study on family background and digital literacy of students, the following questions can be asked:

Is there a difference in the literacy level of students between their cultural and educational family background?

Research Questions for Experimental and Quasi-experimental Research suggest that answers to these questions are brought about by manipulation or control of a certain variable during the conduct of the study. These questions provide explanation to the causal relationship of variables. The following research questions can be asked on studies on elementary student's remedial sessions and academic performance of students:

Is there a significant difference in the posttest scores of the control group and experimental group?



What's More

Activity 2: The Very Good Questions

Directions: Using the same examples in your Activity 1, rank them on the scale of 1 to 10 (1= lowest, 10 = highest) based on the given parameters in writing a good research question. If you find that the questions are not so good, then rewrite the questions on the last column of the table. If you think it is already good, then write your justification as well.

Quantitative Research Question	Your Rating				Revised Question/Justification
	Feasible	Clear	Significant	Ethical	
1. How many Grade-7 students are enrolled in blended learning this School Year?					
2. Is modular learning or online learning more effective in Language or Science subjects?					
3. Is there a significant relationship in the number of households and COVID-19 confirmed cases in a Barangay?					

Activity 3: Write the Questions

Directions: Write one general research question and two specific research questions for the given research problem below.

Research Problem	General Question	Specific Questions
The Relationship between Media Exposure and Health Anxiety		
Organization's Leadership Practices and Employee's Job Satisfaction		
Effects of Parenting Style and Children Study Habits		

Activity 4: Let's go Online

Go to the link below and practice what you've learned from this lesson:

<https://bit.ly/2zxLYS5>

<https://bit.ly/2M2lfzC>



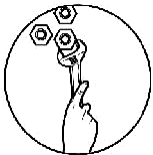
What I Have Learned

Directions: As you have learned from this lesson, answer each item comprehensively.

1. What I know about research question is

2. I have learned that good questions are

3. This time, I have learned that when stating quantitative research questions



What I Can Do

State your Research Questions

Directions: Perform the following task. Referring to your background of the study and research problem, list your research questions. When formulating these questions, consider the design of your quantitative research.

1.

2.

3.

4.

5.



Additional Activity

Direction: After you submit your research questions and once they are corrected in accordance to the guidelines given, you may start incorporating your research questions to your research manuscript.

SCOPE AND DELIMITATION OF THE STUDY



What's In

In Module 1, Lesson 3 you were taught how to identify and differentiate various research variables and its uses. Identifying your research variables is very important since it will set the parameters of your study. Carefully selecting your research variables also helps you to determine what will be investigated. As a result, it will be easier for you to set the scope and delimitation of the study. This lesson focuses on how you are going to indicate the scope and delimitation of your study.



What I Need to Know

Activity 1. Find and Form the Meaning

Directions: Find five synonyms of “scope” and “delimitation”. Then, analyze and connect the gathered words in order to form the meaning of “Scope and Delimitation of the Study.”

	Synonyms	Formed Meaning
Scope	1. 2. 3. 4. 5.	
Delimitation	1. 2. 3. 4. 5.	



What's New

Activity 2. It's the Scope and Limitation

Directions: Read the sample scope and limitation and identify the boundaries of the study by writing the corresponding components on the table below.

Sample Scope and Delimitation of the Study	
<p>The main objective of this study is to provide information about students' knowledge and perception of genetically modified foods and their family health practices. The study also includes the student's personal information and occupation of their parents and siblings. This study is limited to the 120 Grade 12 Male and Female enrolled in the First Semester, School Year 2019-2020 of Gusa Regional Science High School – X. Each of the respondents is given questionnaire to answer. The students selected came from six different sections to prevent subjective perceptions.</p>	
Components of the Scope and Delimitation	
✓ Topic of the study	
✓ Objective of the study or problems to be addressed	
✓ Time frame in which the study will be conducted	
✓ The locale or area where the study will be conducted	
✓ Characteristics of the participants of the study	
✓ <i>Other parameters</i>	



What Is It

Scope and Delimitation

In doing research study, we make sure that we have certainty and reasons for drawing the inclusion and exclusion of research variables. We do not write for the sake of writing the parts of the research paper, such as setting the scope and delimitation of your study. It is important because it draws the boundary of your study. Without doing so, research procedures and results will not be coherent to the goal of your study.

The **scope** specifies the coverage of your study such as variables, population or participant, and timeline. **Delimitation** cites factors of your study that are not included or excluded or those you will not deal in your study.

In this section of your research paper, you may also state the reasons why you did not include the variables. A clearly written scope and delimitation of the study will make it definitely easier to answer questions which are related or not related to your study.

Components of Scope and Delimitation

In writing the scope and delimitation of your study, you are also asking the basic profile questions of your research. The following are the components of the scope and delimitation of the study but not limited to:

Topic of the Study. *What* are the variables to be included and excluded?

Objectives or Problems to be Addressed. *Why* are you doing this study?

Time Frame. *When* are you going to conduct this study?

Locale of the Study. *Where* are you going to gather your data?

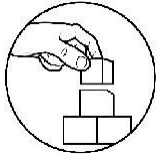
Characteristics of the Respondents. *Who* will be your respondents?

Method and Research Instruments. *How* are going to collect the data?

Difference between Delimitation and Limitation of the Study

The delimitation of the study describes the various limitations that arose during the design and conduct of the study. Along the way of conducting your study, you will encounter limitations which you have not drawn before you start – these are the **delimitations of study**. Most of the delimitations arose from the applicability or usefulness of the findings of the study to the current problem.

Variables not included in your study are also determined by delimitation of your study. While on the other hand, limitation of the study are those variables included in your study. Hence, **limitation of the study** is actually the identified scope of the study.



What's More

Activity 3. Reshape the Scope and Delimitation

Directions: Read the following scope and delimitation about a research on sickness prevention. Try to improve its structure and coverage. You can add some details in revising this research section.

Sample

The current focuses on the relationship between socio-demographic background of the family and their health practices. Only 60 Grade 11 students were considered in this study as respondents. The research lasted for two months.

Your revised version

Activity 4. Let's go online.

Practice what you have learned from this lesson. Visit the following:

<https://bit.ly/2ZF6tXK>

<https://bit.ly/3el7Ui4>

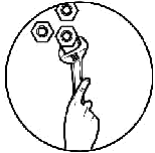


What I Have Learned

Directions: As you have learned from this lesson, answer each item comprehensively.

1. What I know about scope and delimitation of the study is

2. I have learned that when indicating the scope and delimitation of the study



What I Can Do

Indicate your Scope and Delimitation of the Study

Directions: Perform the following task. Specify the scope and delimitation of your study by answering the basic contents of this research section.

1. What are the variables to be included and excluded?

2. Why are you doing this study?

CO_Q1_Practical Research 2_Mod_2 26

3. When are you going to conduct this study?

4. Where are you going to gather your data?

5. Who will be your respondents?



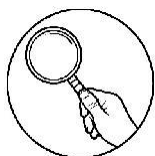
Additional Activity:

Direction: Once your work is corrected after submitting and specifying your scope and delimitation, you may start writing a paragraph format of this and incorporate it in your research manuscript.

Lesson

5

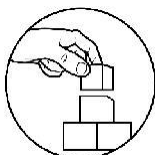
SCOPE AND DELIMITATION OF THE STUDY



What Is It

Getting this far means you have already completed the first part of the research paper. The next step is to present your Statement of the Problem. The following topics were already discussed and practiced, so it is time to present your output for this Module.

Research Title
Background of the Research
Research Questions
Scope and Delimitation of the Study
Significance of the Study or Beneficiaries (if applicable)



What's More

Activity 1. Personal Work Evaluation

Direction: Rate your own paper using the rubric below. For the purpose of improvement, rate your output as honestly as you can. Use the following scale in evaluating your own paper.

5 – Very Good, 4 – Good, 3 – Fair, 2 – Poor, 1 – Needs Improvement

Indicator	Self-Rating
1. Title Formulation <i>Variables, goal, respondents are clearly stated</i>	
2. Background of the Study <i>Rationale, basic literature background, gravity of the chosen problem are established</i>	
3. Statement of the Problem <i>General problem, research questions are correctly stated</i>	
4. Scope and Delimitation <i>Indicators to be included and excluded are mentioned</i>	
5. Significance of the Study <i>Benefits and beneficiaries are discussed completely</i>	
Total Rating	

Activity 2. Reflection

1. What is your highest and lowest rating? What are your reasons for giving yourself such ratings?

2. Overall, do you think you are ready for presentation of your research paper? Explain your answer.

Activity 3. Let's go online

Visit the following links to further enhance your written problem and to improve your preparation for presentation.

<https://bit.ly/2TFhfcy>

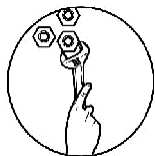
<https://bit.ly/2Aat7fW>



What I Have Learned

1. What new learnings have you gained from this module in terms of skills, content, and attitude in identifying and stating the research problem?

2. How will you improve your research writing skills in quantitative research?



What I Can Do

Direction: Get ready for presentation of your written statement of the problem. The rubrics below will serve as a guide on how you will be rated by your teacher. The 4C (content, coherence, creativity, communication) technique will be used so that you can easily remember.

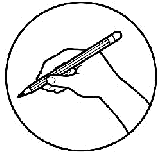
Rubrics for Written Statement of the Problem

	5	4	3	2	1
Content (35%) <ul style="list-style-type: none"> The title is concise and understandable. The Research Problem is relevant and well-explained. Research gap is established. The scope and delimitation of the study is clearly stated and explained. Overall content is comprehensive. 					
Coherence (25%) <ul style="list-style-type: none"> Cohesive of devices are effectively used. Organization of ideas is smoothly presented. 					
Creativity (25%) <ul style="list-style-type: none"> Writer's voice is showcased. Paper uses variety of sentence structures. Uses appropriate language. 					
Communication (15%) <ul style="list-style-type: none"> Sentences are well structured. Grammatical conventions are observed. Correct spelling and proper research format is followed. 					

Legend: 5 – to a very great extent, 4 – to a great extent,
3 – to some extent, 2 – to a little extent, 1 – not at all

Summary

- **Steps in developing a research topic** include; (1) Choose a broad topic, (2) Do a preliminary research, (3) Define the problem, and (4) Refine the question
- **Background of the study** states the situation or circumstances within which your research topic is conceptualized.
- **Research Problem** is the focus of investigation.
- **Characteristics of good research questions** are feasible, clear, significant, and ethical.
- The **scope** specifies the coverage of your study such as variables, population or participant, and timeline. **Delimitation** cites factors of your study that are not included or excluded or those you will not deal in your study.



Assessment: (Post-Test)

Directions: Read and analyze the statements below. Encircle the letter of the correct answer.

1. Which of the following is **NOT** an essential characteristic of a researchable question?
 - A. The question is answerable by some sort of data that can be collected.
 - B. Answering the question provides a positive outcome to society.
 - C. The question is comprehensive.
 - D. The question is interesting.
2. Which of the following questions is most suitable for quantitative research?
 - A. Will the colors of the wall affect children's preference and engagement during play time?
 - B. Is there a relationship between soil components and shape of seeds?
 - C. Do online materials enhance the performance of students?
 - D. What are the features of herbal plants in the province?
3. If you are going to look for a topic idea for your research study, what is the most reliable source you are going to consider?
 - A. Review of literature
 - B. Folklores
 - C. Wikipedia
 - D. Blogs
4. Which of the following best describes the development process for a research question?
 - A. To focus your literature review, research topic must be refined first before doing a preliminary research.
 - B. Preliminary research helps trim down a broad topic to a more manageable question.
 - C. As specific question can be broadened to make study more significant.
 - D. A broad topic is trimmed down to make it more interesting.
5. What refers to an issue that has not been fully addressed by previous studies?
 - A. Research problem
 - B. Research topic
 - C. Research question
 - D. Research gap
6. Which of the following statements is a characteristic of a good research title?
 - A. It is short but accurate description of the content of the study.
 - B. It uses abbreviations to shorten the number of characters.
 - C. All beginning letters of each word is capitalized.
 - D. It indicates all variables in the study
7. Which of the following is the most common form of the research title?
 - A. Interrogative
 - B. Phrase
 - C. Question form
 - D. Declarative

8. What part of research expresses the context of the problem that will support the validity and rationale of the study?
 - A. Research title
 - B. Research topic
 - C. Background of the study
 - D. Research problem

9. Which of the following characteristics describes a good research question?
 - A. Feasible, clear, significant and hypothetical
 - B. Feasible, clear, significant, and ethical
 - C. Clear, significant, and ethical
 - D. Feasible, clear, and ethical

10. Which if the following statements is **NOT** true about the background of research?
 - A. It elaborates on the findings or information from the literature cited.
 - B. It explains how the research question was derived.
 - C. It justifies the need to conduct the study.
 - D. It establishes the research gap.

11. What part of the research study states rationale of the problem and basic literature background?
 - A. Statement of the Problem
 - B. Significance of the Study
 - C. Background of the Study
 - D. Scope and Delimitation

12. Quantitative research problem deals more with
 - A. description and general explanation of phenomena
 - B. description and explanation of situations
 - C. precision and specificity of the problem
 - D. trends and patterns of chosen group

13. "What are the various learning modalities offered in Gusa Elementary School for SY 2020-21?" is an example of research question of what type of quantitative research?
 - A. Quasi-experimental research
 - B. Descriptive Research
 - C. Correlational Research
 - D. Ex post facto

14. "What is the relationship between time spent in texting and spelling ability?" is an example of research question of what type of quantitative research?
 - A. Correlational Research
 - B. Descriptive Research
 - C. Experimental research
 - D. Ex post facto

15. "Is there a difference in the scores of group A from group B after the special tutorial program?" is an example of research question of what type of quantitative research?
 - A. Correlational Research
 - B. Descriptive Research
 - C. Experimental research
 - D. Ex post facto



Key to Answers

What's New	
1. Unexplored	6. Conceptualized
2. Justify	7. Noteworthy
3. Context	8. Comprehensive
4. Exhaustive	9. Perception
5. Articulate	10. Legitimate
MODULE 2, LESSON 3	
What's New	
1. False	6. False
2. False	7. False
3. True	8. True
4. False	9. False
5. False	10. False
MODULE 1, LESSON 1	
What's New	
MODULE 2, LESSON 5	
What's New	
Topic – GMO and Health Practices	
Objective – to provide information about student's knowledge and perception of	
GMO and their family health practices	
Time Frame – 1 st Sem, SY 2019-20	
Locale – GRSHS – X	
Characteristics of the Participants – Male and Female, enrolled during the given	
time frame	
Other parameters – use of questionnaire, used of stratified random sampling	
(from 6 sections).	

Posttest		1. C	6. A	11. C	15. C
2. C		7. D	8. C	12. C	13. B
3. A		9. B	10. A	14. A	15. C
4. B					
5. D					
Pretest		1. C	6. B	11. D	15. D
2. A		7. D	8. C	12. D	13. B
3. C		9. A	10. B	14. B	15. D
4. D					
5. A					

References

- Fraenkel, Jack R. and Wallen, Norman E. *How to Design and Evaluate Research in Education*. Asia: Mc-Graw Hill Companies, Inc., 2006.
- Fraenkel, Jack R. and Wallen, Norman E. 2020. "Chapter 2 Multiple Choice Quiz." McGraw-Hill Global Education Holdings, LLC. Accessed June 1, 2020. <https://bit.ly/2zxLYS5>
- Fraenkel, Jack R. and Wallen, Norman E. 2020. "Chapter 2 True or False Quiz." McGraw-Hill Global Education Holdings, LLC. Accessed June 1, 2020. <https://bit.ly/2M2lfzC>
- Fraenkel, Jack R. and Wallen, Norman E. 2020. "Chapter 24 Preparing Research Proposal and Reports." McGraw-Hill Global Education Holdings, LLC. Accessed June 1, 2020. <https://bit.ly/2TFhfcy>
- I Hope. 2020. "Statement of the Problem." YouTube. Accessed June 2, 2020. <https://bit.ly/3emud6T>
- I Hope. 2020. "Scope and Delimitation of the Study." YouTube. Accessed June 1, 2020. <https://bit.ly/3el7Ui4>
- Verbo, Ryan Jay. 2020. "Practical Research 2 – Choosing Research Topic." LRMDs. Accessed June 1, 2020. <https://bit.ly/2ZF6tXK>

For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph