



# **ACTION RESEARCH**

## **SESSION 2.3**

# **FORMULATING AND EVALUATING ACTION RESEARCH QUESTIONS AND HYPOTHESES**



# Objectives

At the end of the session, teachers should be able to:

- Enumerate the criteria for good Action Research questions;
- Formulate good Action Research questions and their corresponding hypotheses; and
- Evaluate the quality of Action Research questions formulated based on the five criteria for good research questions.



# Key Understandings

- 1 A research question narrows down the purpose of a study and specifies what the Action Researcher expects to find at the end of it.
- 2 A research question may be stated in quantitative or qualitative way.
- 3 In formulating the research question, consider the initial purpose of the study, the desired outcomes after intervention has been implemented, and the insights from your review of literature.
- 4 A research hypothesis is a tentative answer to the research question. The Action Researcher makes a prediction about the outcome of the planned intervention. The prediction is based on the results of past researches that focus on the same subject as the Action Researcher's study.

# Materials

- Laptop
- LCD projector
- Marking pens
- Masking tape

- Scissors
- Metacards or metastrips
- Metacards of five characteristics of good research to be posted (if desired) during *Abstraction*
- *Optional*: poster with examples of Research Questions for each Characteristic; the same examples may just be shown as slides
- Metacards with the terms for “Research Henyo” (The words are: Research Question, Null Hypothesis, Research Hypothesis, Quantitative Data, and Qualitative Data)
- Copies of the DepEd’s “Guide for Appraising Action Research Questions” (2017)
- Copies of different examples of hypotheses
- Copies of worksheet entitled “Our Action Research Topics”
- Poster on “Type of Research, Question and Variables”
- Poster on “Our Action Research Topics”
- Copies of the questions for journal writing assignment
- Journal notebooks for new participants



## TIME ALLOTMENT

120 minutes/ 2 hours

# References

**Creswell, John W. 2012.** *Educational Research Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Boston: Pearson Education, Inc.

**Dana, Nancy F. 2013.** *Digging Deeper into Action Research: A Teacher Inquirer’s Field Guide*. Thousand Oaks, CA: Corwin.

**Department of Education. 2017.** Research Management Guidelines. DepEd Order No. 16, s. 2017.

**Fraenkel, Jack R. and Norman E. Wallen. (1990) 2008.** *How to Design and Evaluate Research in Education*. Boston: McGraw Hill.

**Hendricks, Cher C. (2005) 2008.** *Improving Schools through Action Research: A Comprehensive Guide for Educators*. Boston, MA: Pearson Education, Inc.

# Introduction

Begin the learning session by greeting the participants. Make sure that they are comfortable, attentive, and ready. Say: “Great morning/afternoon, dear teachers! Are you ready for another enlightening LAC session? I am \_\_\_\_\_, your LAC facilitator for today’s session. Today, we will continue our discussion on Action Research topics. Our session will focus on formulating Action Research questions.

At the end of this session, you are expected to be able to enumerate the criteria for good Action Research questions; formulate Action Research question/s and corresponding hypotheses; and evaluate the quality of Action Research questions based on the DepEd’s ‘Research Management Guidelines.’”



## Activity 1 (15 minutes)

Lead the conduct of the activity called “Describe Me.” Observe the following steps.

- 1 Divide the participants into groups with five members each.
- 2 Distribute five metacards or metastrips per group.
- 3 Let each group write down on the metacards or metastrips some words or phrases that describe a good Action Research question. Give them three minutes to accomplish this task.
- 4 Assign an output area on the board for each group. Ask them to post their outputs on their designated areas.
- 5 Let each group assign a reporter. Give each group three minutes to present their work.

## Analysis 1 (10 minutes)

Lead the processing of the results of the activity by asking the participants the following guide questions. Be sure to go around the board where the groups' outputs were posted as you ask the questions.

- 1 What are the similarities among the responses of each group?
- 2 Assign three to five volunteers to group together similar responses on the board.
- 3 Let the group identify terms that describe each set of words on the board.
- 4 Lead the class in labeling similar responses into the following criteria:

<b>CLEARLY STATED</b>	<b>SIGNIFICANT</b>
<b>FEASIBLE</b>	<b>ETHICAL</b>
<b>LEADS TO MAKING AN ACTION RESEARCH</b>	

- 5 The following are examples of possible answers:

<b>CLEAR</b>	<b>IMPORTANT</b>	<b>SPECIFIC</b>
<b>DOABLE</b>	<b>HARMLESS</b>	<b>PRECISE</b>
<b>SUBSTANTIAL</b>		

- The words *CLEAR* and *SPECIFIC* can be grouped under the criterion *CLEARLY STATED*
- The word *IMPORTANT* and *SUBSTANTIAL* can be grouped under the criterion *SIGNIFICANT*
- The word *DOABLE* can be under the criterion *FEASIBLE*
- The word *HARMLESS* can be under the criterion *ETHICAL*

## Abstraction 1 (15 minutes)

### FORMULATION OF RESEARCH QUESTIONS

Proceed to the first discussion part of the session by saying: "Let us now continue with our topic for today's session—the formulation of Research Questions."

Once you have selected an Action Research topic and have clarified your perspectives and beliefs about it, the next step is to generate a personally meaningful Action Research question to guide the inquiry.

The following are the criteria for a good Action Research Question with corresponding examples.

- 1 Clearly stated.** The Action Research question should be easily understood by the readers. Look at the following examples:

Unclear	Clear
Do leisure activities enhance students' critical thinking?	Do puzzles enhance students' critical thinking skills?

- 2 Significant.** The Action Research question should contribute to the body of knowledge. The results of the study should benefit students, teachers, and schools.

Not Significant	Significant
Does the use of pastel-colored paper increase reading time?	Do text-related illustrations increase reading time?

- 3 Ethical.** The Action Research question should respect human dignity and rights of the participants. It should not create any form of harm to the participants of the study.

Not Ethical	Ethical
Does breakfast deprivation cause low attention span in children?	How does having breakfast help increase attention span in children?

- 4 Feasible.** The Action Research question should be doable in terms of resources and time, as well as researcher's skills.

Not Feasible	Feasible
Do board games help enhance the problem-solving skills of pupils in the country?	Does playing the board game Sumoku help develop the computational skills of Grade 4 pupils in School X?



**5 Leads to making an action.** The Action Research question must lead to taking an action—trying out an intervention for the purpose of improving a learning/teaching situation.

Does Not Lead to Making an Action	Leads to Making an Action
Do girls speak better English than boys?	Does journal writing enhance the English-speaking skills of pupils?



## Activity 2 (20 minutes)

Proceed to the second activity, which is a game titled “Research Henyo.” The focus is the introduction of different types of hypotheses. Observe the following instructions.

- 1 Utilizing the same groupings as earlier, play a game following the rule of the popular TV game “Pinoy Henyo.”
- 2 Write each of the following phrases on metacards or metastrips folded twice.



- 3 Ask the participants to pair up and guess the phrase assigned to them. One will be asking questions while the other will be answering “Yes” (*Oo*), “No” (*Hindi*) or “Maybe” (*Pwede*). The one who will be asking questions and guessing will be the one to pick the metacard or metastrip of their assigned phrase. Show the word or phrase to the one answering (but not to the one guessing), then paste it on the forehead of the one asking questions and guessing.
- 4 Give each pair two minutes to correctly guess the word or phrase assigned to them. Spend about ten to fifteen minutes for this activity.

## Analysis 2 (5 minutes)

Lead the participants in processing the outcome of the activity by asking them the following guide questions.

What phrase/s is/are not familiar to you?

What does the phrase \_\_\_\_\_ (Give each phrase from the activity one at a time) mean? (Call a group representative to give their definitions.)

## Abstraction 2 (25 minutes)

### TYPES OF ACTION RESEARCH QUESTIONS

After understanding how to formulate research questions, we now proceed to the types of action research questions.

*Quantitative research questions* are those that ask about quantitative variables and require numerical data.

*Examples:*

1. Do the final scores improve after the intervention?
2. Are grades of those students exposed to the intervention higher than those who were not?

*Qualitative research questions* are those that ask for descriptions and narratives.

*Examples:*

How does parental involvement affect students' attitude toward school?

In what way/s do/does the intervention help students understand the lesson better?



## Research Hypothesis

Research hypothesis is the tentative answer to the research question. It is the hypothesis of interest in the study, the statement that the Action Researcher wants to support. An example of a research hypothesis is “There is a difference in the scores of students who were given the intervention and those who were not.”

However in scientific inquiry, the research hypothesis is stated together with the null hypothesis. This is the opposite of the research hypothesis. Its purpose is to be “nullified” or rejected, in order for the Action Researcher to accept or support his or her hypothesis. An example of null hypothesis is “There is no difference in the scores of students who were given the intervention and those who were not.”

Depending on how the Action Researcher wants to state his or her research hypothesis, a pair of null and research (also known as alternative) hypotheses can either be non-directional or directional.

The pair of hypotheses given earlier as examples is nondirectional. They can be also written as follows:

Null Hypothesis: The scores of students who were given the intervention will be equal to those who were not given the same,

Research Hypothesis: The scores of students who were given the intervention will not be equal to those who were not given the same,

Compare the pair of hypotheses above with the following pair, which is directional.

Null Hypothesis: The scores of students who were given the intervention will be either lower or equal to those of students not given the same.

Research Hypothesis: The scores of students who were given the intervention will be higher than those of students not given the same.

Can you see the difference between nondirectional and directional hypotheses?

Nondirectional hypotheses do *not* specify where the difference lies (e.g., which group is higher or better, or lower or poorer). Directional hypotheses does the opposite; it is the research hypothesis that states the difference favored by the Action Researcher. If a researcher feels that exposure to the intervention will definitely improve performance, he or she may state his or her research hypothesis in the directional way—“Students exposed to the intervention will have *higher* scores than those who are not.” The null hypothesis should now include the *two other possibilities*—the scores of students exposed to the intervention will be *lower* than or *equal* to those of students not exposed to the intervention.

The nondirectional pair of hypotheses (null and research) is often favored by most researchers. These hypotheses are particularly used for Action Research using the experimental design, where the variables of interest are quantitative in nature. However, for Action Research using qualitative design, it is enough to present only the research hypotheses. For example, if a teacher wants to see the effect of group work on the social skills of learners, the research question may be stated as “How do group activities help students develop social skills?” The research hypothesis (the statement that the Action Researcher wants to support) may be stated as, “Group work helps develop friendship, cooperation, and empathy among learners.”



### Application (30 minutes)

Lead the participants in putting into practice what they have learned so far in this session through the following activity. Encourage them to formulate meaningful questions. Present the following instructions.

Working in the same groups formed for the first activity, ask the participants to write at least one (1) quantitative and one (1) qualitative Action Research questions using the “Our Action Research Topics” template. The questions may be written on manila paper or showcased through slide presentation.

**NOTE TO THE FACILITATOR:**

Distribute copies of the following template to the participants.

## The Action Research Problem

Research Focus: \_\_\_\_\_  
(Research Problem/Topic)

Quantitative Research Question:  
\_\_\_\_\_

Null Hypothesis:  
\_\_\_\_\_

Research Hypothesis:  
\_\_\_\_\_



Qualitative Research Question:

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Research Hypothesis: \_\_\_\_\_

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Prepared by:

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Name of Teachers

**NOTE TO THE FACILITATOR:**

The participants may identify as many questions as they deem needed considering their chosen research topic.

Assess the group output using the criteria for good Action Research questions. Check if the questions are *clearly stated, significant, ethical, feasible, and leads to making an action.*

Ask the participants to share the questions they came up with to the rest of the participants for feedback. Together, evaluate the questions using the DepEd’s Guide for Appraising Action Research. Assign points to the questions following the rubric provided.

**NOTE TO THE FACILITATOR:**

Give a reward to the group with the highest points. Provide the participants with ample time to discuss their research problems and questions. Ask each group for representatives who would present their research questions with the rest of the participants.

After the group task, share the following questions to the participants to be answered in their Action Research journal as assignment.

What is the initial purpose of my study?

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What are the desired outcomes of my research?

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What have I read about or learned from my review of literature?

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Does my Research Question specify the focus of my research?

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How does my Research Question clarify the “action” part (or the intervention that will be implemented) of the Action Research process?

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## Closing

End the learning session by summarize what has been discussed for the day then connect them with previous discussions as well as the forthcoming one. Bid the participants farewell by saying: “Thank you for your participation and please don’t forget to bring a copy of your Research Questions in the next LAC session. See you again soon. Goodbye!”



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