

Formulation of Action Research Design

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New HRD Module on Action Research

Unit 2: Formulation of Action Research Design

Unit introduction

In unit 2, you will explore how to formulate action research design. As you work through this unit, you will learn about action research process and how to begin the action research project. The unit will also introduce you several principles of action research.

Unit learning outcomes

When you have worked through this unit, you should be able to:

- understand the concept of action research
- have knowledge about action research process
- begin the action research design.

Action research

Whyte provides a good characterization of action research when he distinguishes three types of research, depending upon the degree of user

participation throughout the research process. The first type is the preparation of reports and theoretical analysis of a fairly general problem-oriented nature. The second type is an attempt to make changes to an organization. The participation of users will often consist only of making decisions about solutions developed and proposed by researcher. Third one is called action research which engages users in all phases of research projects.

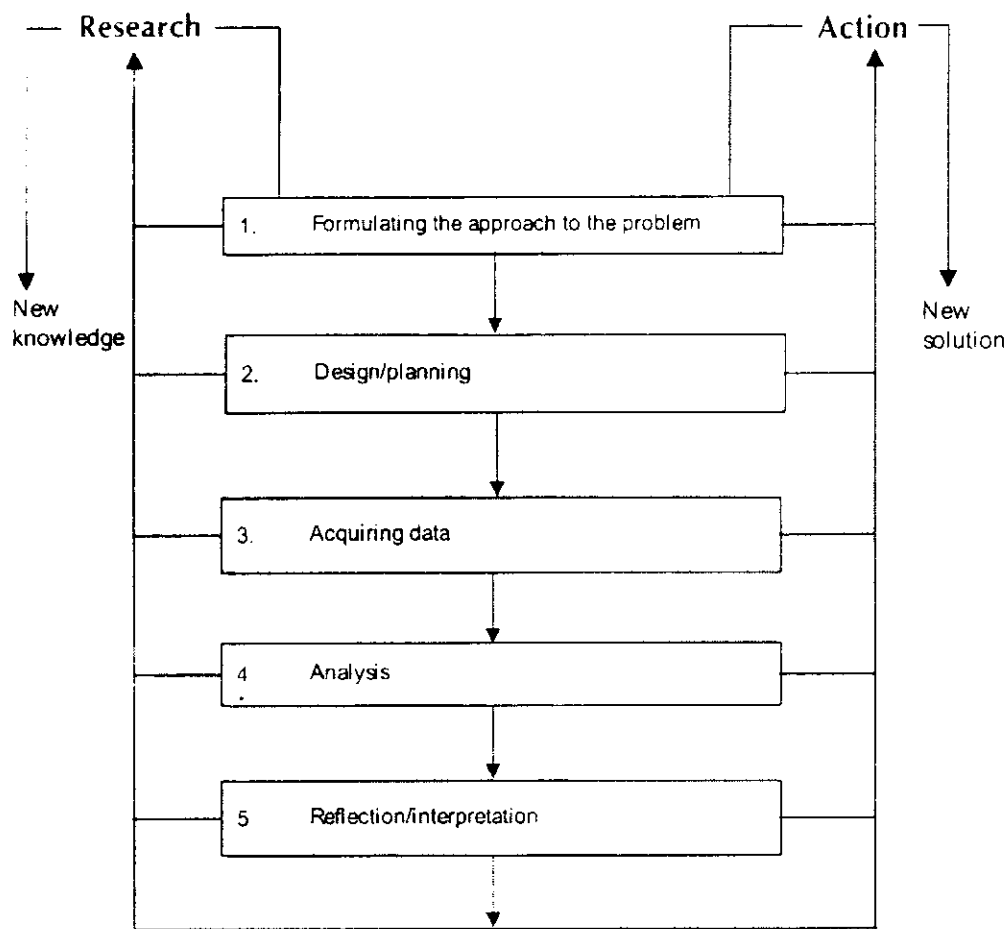
Action research is focused on immediate application, not on the development theory or on general application. It has placed its emphasis on a problem and in a local setting. Its findings are to be evaluated in terms of local applicability, not universal validity. Its purpose is to improve those who try to improve the practices: to combine the research processes, habits of thinking, ability to work harmoniously with others, and professional spirit.

Many observers have deprecated action research as nothing more than the application of commonsense or good management. But whether or not it is worthy of the term 'research' it does apply scientific thinking and method to real life problems and represents a great improvement over researcher's subjective judgments and decisions based upon folklore and limited personal experiences.

Like other forms of research, action research is a way of learning about the action somebody has engaged in rather than a process that results in publication or reporting a truth. In fact, action research provides a method of determining whether or not certain actions actually lead to results that one anticipated. It aims to

solve problems or introduce innovations in specific situation. Mostly, it leads to bringing about an improvement in a situation.

The main purposes of carrying out an action research are: to provide an opportunity to assess a situation and its resources and devise a means of gathering a research done; and to check the progress and outcomes of a development reform, and how acceptable it is why users a beneficiaries, by using the action steps.



Steps of action research process

Fig. 2.1

Salient features of action research

- It can be conducted to find out the immediate solution of a problem.
- Its results are immediately applied in a specific situation.
- It is a method of careful problem diagnosis and objective evaluation of the consequences of action.
- It is a dynamic process which can be constantly modified in the light of actual experience.
- It is helpful for achieving purposes more effectively.
- It enables planning and introducing changes in a situation.
- It involves problem-solving and emphasizes a desirable decentralization of decision-making and action.
- It stresses facts and evidence.
- It provides a measure of objectivity in the action process.
- It gives prime importance to developmental work.
- It offers a smooth transition from research to operation.
- Real and concrete results are observable.
- It offers adaptability and flexibility.

- This approach is experimental and tentative rather than dogmatic.
- It assesses the results of actions and evaluates whether.
- It can be applied to any field where improvement is designed.

Principles of action research

What gives action research its unique flavour is the set of principles that guide the research. Winter (1989) provides a comprehensive overview of six key principles.

1) Reflexive critique

An account of a situation, such as notes, transcripts or official documents, will make implicit claims to be authoritative, i.e., it implies that it is factual and true. Truth in a social setting, however, is relative to the teller. The principle of reflective critique ensures people reflect on issues and processes and make explicit the interpretations, biases, assumptions and concerns upon which judgments are made. In this way, practical accounts can give rise to theoretical considerations.

2) Dialectical critique

Reality, particularly social reality, is consensually validated, which is to say it is shared through language. Phenomena are conceptualized in dialogue, therefore, a dialectical critique is required

to understand the set of relationships both between the phenomenon and its context, and between the elements constituting the phenomenon. The key elements to focus attention on are those constituent elements that are unstable, or in opposition to one another. These are the ones that are most likely to create changes.

3) Collaborative resource

Participants, in an action research project, are co-researchers. The principle of collaborative resource presupposes that each person's ideas are equally significant as potential resources for creating interpretive categories of analysis, negotiated among the participants. It strives to avoid the skewing of credibility stemming from the prior status of an idea-holder. It, especially, makes possible the insights gleaned from noting the contradictions both between many viewpoints and within a single viewpoint.

4) Risk

The change process potentially threatens all previously established ways of doing things, thus creating psychic fears among the practitioners. One of the more prominent fears comes from the risk to ego stemming from open discussion of one's interpretations, ideas, and judgments. Initiators of action research will use this principle to allay others' fears and invite participation by pointing out that they, too, will be subject to the same process, and that whatever the outcome, learning will take place.

5) Plural structure

The nature of the research embodies a multiplicity of views, commentaries and critiques, leading to multiple possible actions and interpretations. This plural structure of inquiry requires a plural text for reporting. This means that there will be many accounts made explicit, with commentaries on their contradictions, and a range of options for action presented. A report, therefore, acts as a support for ongoing discussion among collaborators, rather than a final conclusion of fact.

6) Theory, practice and transformation

For action researchers, theory informs practice, practice refines theory, in a continuous transformation. In any setting, people's actions are based on implicitly held assumptions, theories and hypotheses, and with every observed result, theoretical knowledge is enhanced. The two are intertwined aspects of a single change process. It is up to the researchers to make explicit the theoretical justifications for the actions, and to question the bases of those justifications. The ensuing practical applications that follow are subjected to further analysis, in a transformative cycle that continuously alternates emphasis between theory and practice.

Hypothesis formulation

Hypotheses are tentative generalizations/guesses which are the products of considerable speculation and imaginative guess work. They are based partly on known facts and explanations, and partly

conceptual. They are no precise rules for formulating hypotheses and deducing consequences from them—that can empirically be verified. All investigations virtually do not need hypothesis but for providing a casual explanation it is necessary to begin with a hypothesis. For example: if a researcher wants to know how many young people in a community take drug, there is no need to formulate a hypothesis. But if s/he wants to know why do these youth take drug? Then, there is necessary to have a hypothesis.

The hypothesis is a powerful tool in action research process to achieve dependable knowledge. It is formulated only as the suggested solution to the problem, with the objective that the ensuring study may lead either to its rejection or to its retention.

Hypotheses are formulated on the basis of the following criteria:

1. *Hypotheses should be clearly and precisely stated* - The clear statement of hypotheses generally involves concise technical language and definition of terms that are better defined than those in common language.
2. *Hypotheses should be testable* - The hypotheses should be formulated in such a way that they can be tested or verified. If the hypotheses are not testable, it would be impossible either to confirm or contradict them or therefore they do not help the investigator to draw conclusions.
3. *Hypotheses should be limited in scope* - Hypotheses of global significance are not

usable as they are not specific and simple for testing and drawing conclusions. It is desirable to formulate hypotheses that are simple to test, and yet are highly significant.

4. *Hypotheses should be consistent with most known facts* - Hypotheses should not be inconsistent with a substantial body of established theories and laws. Hypotheses, however, cannot be consistent with all known facts because in so many cases it is worthwhile to formulate hypotheses that resolve the contradiction.
5. *Hypotheses should be stated as far as possible in simple terms* - Stating the hypotheses in simple terms not only makes their meaning clear to others, but also helps in their testability. Moreover, the simplicity of statement provides a basis for a clear and easily comprehended report at the completion of the study.
6. *Hypotheses should state the expected relationship between variables* - A satisfactory hypothesis should state explicitly an expected relationship between the variables. Let us consider two hypotheses:
 - i. The young people who attend N.S.S. programmes show greater moral growth than youth who do not.
 - ii. Extraversion, as measured by the Maudsley Personality Inventory, will be related positively to achievement in social studies of seventh grade students, as measured by standardized test X.

A hypothesis is a formal affirmative statement predicting a single research outcome, a tentative explanation of the relationship between two or more variables. For the hypothesis to be testable, the values must be operationally defined. That is, the researcher specifies what operations are conducted, to measure each variable. Thus, the hypothesis focuses the investigation on a definite target and determines what observations or measures are to be used.

Framing of action research objectives

What does a researcher hope to accomplish in his/her research? Unless he/she is himself/herself very clear about the objectives research cannot run smoothly. That's why objectives must be clearly stated without ambiguity and should be logically sound and brief.

Characteristics of objectives

- Objective must be practical and specific rather than vague and general.
- Objective must be measurable and must clearly be noticeable.
- It must describe the terminal event of the research.
- It must describe the terminal event of the research.

Consideration of these characteristics with examples.

Two hundred young people will reach destinations by 3:00 p.m. on Saturday, 19th July after a peace March and plant ten peace flags in the square at destination D.

The effectiveness of this (whether it matches the characteristics that objectives should be checked) in the following ways:

Relevant?

Yes. The purpose of the research is a peace march by young people and the objective reflects this.

Specific?

Yes. The description is specific and not vague. There are also limits to how specific we can be. For example: each of the ten flags need not be described in the objective. What is important is that any over interpreting the objective must get the same meaning from it as anybody else.

Measurable?

Yes. Measurable indicators included in the objective are destination D, and planting 10 flags.

Terminal events?

Yes. The planting of ten flags after reaching destination D is the end activity of the investigation.

Characteristics of outcomes

Outcomes are broader and more generalized than objectives. They enable you to shape your activities clearly but do not exactly spell out the details of what you will achieve.



Activity 2.1

Here is an objective for a research study.

Research : Skills training for village youth.

Objective : 100 young people will be provided with skills training for cycle repair.

Read over the characteristics that should be present in objectives. Now tick the boxes below to indicate which characteristics are present in this objective.

| | Yes | No |
|------------------------------------|--------------------------|--------------------------|
| Is the objective relevant? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is it specific? | <input type="checkbox"/> | <input type="checkbox"/> |
| Is it measurable? | <input type="checkbox"/> | <input type="checkbox"/> |
| Does it describe a terminal point? | <input type="checkbox"/> | <input type="checkbox"/> |

Objectives are the goals you set out to attain in your study. Since these objectives inform what you want to word them clearly and specifically. Objectives

should be listed under two headings:

- Main objectives; and
- Sub-objectives

The main objective is an overall statement of the trust of your study. It is also a statement of the main associations and relationships that you seek to discover or establish. The sub-objectives are the specific aspects of the topic that you want to investigate within the main framework of the study. The sub-objectives should be worded clearly and unambiguously. You should be sure that each objective contains only one aspect of the study. Use action-oriented words or verbs when writing your objectives. The objectives should start with words like to determine, to examine, to ascertain, to measure, to explore etc. Fig. 2.2 displays the characteristics of the wording of objectives in relation to action research.

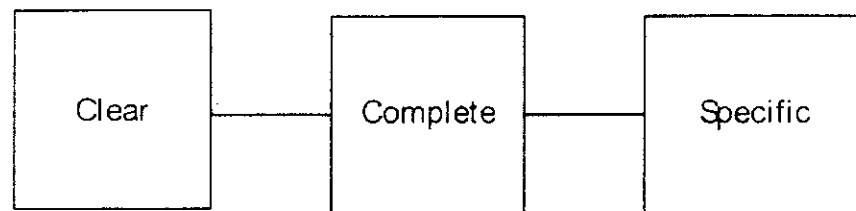


Fig. 2.2

How do I begin the action research project?

Before beginning the step-by-step process, please take a few minutes to review the questions in the

pre-project activity section to help frame the entire process before you explore the individual components. Action research asks you to look at your current practice, identify something you might change or a new strategy to implement, set up a system for implementing your plan, and then analyze your results. Complete this organizing activity before begin developing a framework for your project.

Pre-project activity

Guiding questions or “things to think about when beginning an action research project”

As you reflect on the questions listed below intimate to your tutor with a 3-4 sentence description of the issue you are going to explore, and a brief narrative/description of the strategy/methodology you are considering implementing in order to reach your objectives.

- What do you want to learn as a result of this activity?

- What ISSUE are you going to explore?
 - ❖ What do you want to change?
 - ❖ What do you want to try?

- What STRATEGY will you use to gather information before and during the study?
 - ❖ How will you change your practice? (Intervention)

- ❖ How will you know it has changed?
(Data gathering)
- What kind of ANALYSIS will you do to find out if things have changed?
 - ❖ Did anything change as a result of your intervention?
 - ❖ How do you know?

Step 1: Identifying an issue and developing a research question

Your research topic should reflect an issue of importance to you as a teacher. The study you choose to do can impact student learning, seek to develop new teacher habits, or address an important issue such as parent involvement.

Complete Activity 2.2 to begin and to identify an action research topic.

Step 1 – Activity



Activity 2.2

Complete the starting points worksheet below, which will assist you in developing a research topic.

Starting points worksheet

Complete these open-ended questions to help identify an area of interest for your action research project.

I would like to improve _____

I am perplexed by _____

Some people are unhappy about _____

I am really curious about _____

I want to learn more about _____

Something I think would really make a difference is _____

Something I would like to do to change _____ is _____

Right now, some areas I'm particularly interested in are _____

Source: Action Research Facilitator's Handbook by Cathy Caro-Bruce. Oxford, Ohio: NSDC, 2000.

Turning these ideas into action research questions

Consider this as you begin to craft your research question.

A good action research question

- Gets at explanations, reasons, relationships. “How does...?” “What happens when...?”
- Is manageable and can be completed.
- Is close to your own practice.
- Provides you an opportunity to stretch.
- Provides a deeper understanding of the topic and is meaningful to you.

Here are some sample research questions

- How can I make students feel more comfortable working with diverse groupings of classmates?
- How can I more effectively facilitate independent writing in my kindergarten classroom?
- How does the writing workshop approach affect my students’ writing and their feelings toward writing?
- What classroom strategies are effective in developing student self-evaluation of their learning?

Step 2: Learning more about your issue: what does research show?

Once you have decided on a topic, you’ll need to read more about it—looking in particular at other

studies that might guide your research strategy. For your project, you should consider at least three sources of research (text or online). You'll probably read more than three! As you search for articles that increase your knowledge of the topic you'll find more and more articles that will help you refine your research question and identify new strategies and interventions.

Ultimately, you might even rework your initial research question as you learn more about the topic and think about what intervention you hope to use in your classroom and what kind of data you'll need to gather.

See Model 2 - Process for developing a research question below.

Check out the resources area for research to guide your project. Some general research sites have already been posted online and your tutor can help by posting more specific resources to help with your study.

Step 3: Developing a strategy for your study

Once you have a question and you've read the relevant research related to your topic, you will need to decide how you want to approach the study. For example: if you want to know if increasing parent contact increases homework completion, then you will need to think through each part of your question. What do you mean by parent contact? Phone calls home, emails, interactions with them as they come to drop off or pick up their child, parent/teacher conferences? Whatever you decide becomes your

intervention or strategy. It is the “what” or “how” of your study.

Once a topic is identified and a research question developed, you must begin the task of determining what you are going to DO in your classroom to affect a change. What **intervention** are you going to use? And, what are the best ways to observe the impact you hope to make?

Think about... Ask yourself the following questions as you begin to develop a comprehensive plan for implementing your study:

Developing a strategy/intervention

- What do you want to do?
- How will you measure the data?
- What baseline and post-intervention?
- How will you know that it worked/didn't work?
- Have you spoken with your principal/department chair/team leader about this project?

Before you implement

- Do you have all the necessary permissions (if needed—this depends on the study. Please speak with your principal or team leader for guidance)?
- How will you remember to do the intervention?
- Are there visual cues you can post?
- How can you monitor consistency?
- Have you developed all of the instruments necessary to gather the data?
- Are you storing your data in a safe place?

Step 4: Gathering and analyzing data

Once you've identified your **intervention** strategy, you will need to think about what overt, observable behaviours you can measure to determine if your intervention has an impact. In the previous example, you might have selected sending home explicit parent instructions for assisting with homework as one of your strategies and phone calls home when students did not complete their homework as another strategy or intervention.

Before you begin your intervention, you will need to gather **baseline** data. Knowing how your students responded or performed **before** the beginning of your study gives you a starting point for comparing study results. You need to know your student homework completion rate before you enact your strategy so you will know if there has been a change as a result of the intervention. The baseline and post-intervention data must be gathered in the same fashion for your study to be **valid and reliable**.

Validity relates to the truthfulness of the data. It means that the data actually measure the specific phenomenon that you are claiming to study. Is what you are measuring or collecting data about a true representation of student achievement? Do the number of books checked out of the library really mean students are reading more? Does attendance at PTA meetings truly represent parent involvement? **Reliability** relates to your claim that the data you have collected is accurate. Your findings are less credible or reliable if the number of participants is small or the number of times data was collected is limited. Just because a group of teachers at one training session

identified training as important to them does not mean that all teachers believe that—after all, this group had already made a statement about training just by being at the session! While both of these issues are less pertinent in action research than in other educational research forums, they should still be considered when you are developing your data collection strategy.

Next you will need to decide on a timeline for implementing your strategy, to see if there is an observable change in behaviour. You will also need to determine exactly what you will do so you can identify what you will measure and how you will measure it. In our example, a phone log of parent contacts adds data to the pre and post intervention homework completion rate.

But if in the study you design you are going to implement a new teaching strategy to see if students are more attentive as a result, you will need to identify what you mean by attentive. Does “attentiveness” mean that they are quiet (but potentially) daydreaming, or that they are completing their classroom assignment. Whichever one (or more) of these indicators you chose, you must decide what overt behaviour you will gather data on. I’d suggest classwork completion (that’s an easy one) and one other behaviour (probably “on task” behaviors).

If you are going to gather information about whether students are on task, consider how you will gather that information. You might have a blank seating chart (it really doesn’t matter who is on task for this study) and every 5 minutes (or 3 minutes) I’d make a “sweep” of my classroom and note what everyone was doing at that specific point. Then 5 minutes (or 3 minutes)

later I'd do another sweep. If you are lucky enough to have a colleague or team leader who would gather the data for you, then you can take advantage of their completing the seating chart by marking who is off task and they can note exactly what you are doing at that point. (You might then find out that x% of your students are doing y when you are giving directions, for example.)

You might decide that instead of doing a pre/post intervention activity, you will try a new strategy with first period and keep the other classes using the traditional strategy. In this case, you'd be comparing data between your two classes, not within the same class. For example: if you want to know if doing an advance organizer prior to introducing a unit and then to support your daily motivation, increases student achievement, then you can implement the intervention with first period and gather the homework/quiz/test scores of first period and one other of your classes. (Hopefully one with similar demographics.)

Step 4 – Activity



Activity 2.3

Complete the first four columns of the action research project planner below as you think through your design. Share a copy with a fellow student for feedback and discuss with your tutor.

Action research project planner

| Research topic | Research question | Research strategy | Data collection | Analysis |
|---------------------------------|---|---|--|---|
| <i>What am I interested in?</i> | <i>What specifically do I want to find out?</i> | <i>How will I come to know this? What changes will I implement in my classroom?</i> | <i>What kinds of things do I need to collect before I begin? How will I collect the data? How often? How long?</i> | <i>What did I find out? Did it work the way I thought it would? What now?</i> |
| | | | | |

Issues/concerns/questions:

Assistance/resources I'll need to be successful:

Step 5: Taking action and sharing your study results

Once your project has been completed, return to your questions. Were they answered? Were the results what you expected? Who do you want to share your findings with? Can your results inform others in your school?

If the results are not what you expected, was it due to errors in data collection or other unforeseen situations (for example: the student, your study focused on moved or another new strategy was implemented school-wide during your study) What would you do differently next time? Remember, action research can be an ongoing process. The answers you get from this project will spawn more questions. **What will your next study topic be?**

Think about... Once your study is complete, you must look at the data from an objective viewpoint. Do the data support your question? Is the change "significant"—at least from your point of view?

As you analyze and report results

- Did you get the results you expected from your study?
- How will you state your findings?
- How will you represent your data—in a chart? Graphic?
- What are your next steps?

Step 6: Personal reflection on the action research process

After the project has been completed, please take a few moments to consider the process. The action research process is empowering, allowing teachers to not only identify and explore an issue close to their practice, but also to change the way they teach.

Think about...the learning process you experienced as a result of completing this study. Consider the following questions as you develop a brief reflection to share with your tutor. Reflect upon your experience and the usefulness of the process for improving teaching and learning

- What was the most interesting component?
- What was the most challenging aspect of the project?
- Will you do it again?
- If so, why? If not, why not?
- Did this experience affect your feeling of professionalism?
- What did you learn about yourself in the process of completing this project?

Unit summary

In this unit, you have covered the following main points:

- Concept and salient features of action research
- Principles of action research
- Formulation of research hypothesis
- Framing of action research objectives
- How to begin the action research project.