

Edu 7901

Dr. Roxanne Mitchell

Doretha Brown-Simpson
Christine Santos-Nurse
Johnny Moore
Anna Ullmann

## ••• CHAPTER 23

#### Action Research

#### • • What is action research?

- Action research is conducted for the purpose of solving a problem, examining a critical issue, or obtaining information to inform local practice.
- This research can be conducted with one or more individuals, or groups.
- A study that is performed by an individual is limited to generalizability.
- The process of *replicating* research occurs when several professionals in different schools within the district investigate the same research question. These ideas can generalized into policy or practice.

## Four Basic Assumptions about Action Research

- The individual(s) or group who perform action research have the ability to identify problems and provide solutions to the problem.
- Those involved strive to continuously improve their performance through reflection.
- Teacher or other involved individuals will systematically engage in identifying the problem, investigate procedures, collect data, analyze and interpret data, and develop actions plans.
- Individuals who perform the research have the authority to implement procedures and recommendations.

#### Types of Action Research

#### Practical Action Research

- Focuses on a particular problem in the classroom, school, or the community
- Performed in a variety of settingseducation, social service, business
- Primarily to improve practice dealing with short term and long term issues
- Results should include the implementation and evaluation of an action plan

## Types of Action Research

Participatory Action Research (Collaborative Research)

- Similar to practical action research (focus is on reviewing the findings and implementing action plans)
- Involved individuals are empowered to bring about social change within the school, community, or society.
- Intensive involvement among a sizable group of stakeholders who have diverse experiences and viewpoints with the same common interest
- The stakeholders are involved early in the process of planning the study, clarifying the purpose of the study, collecting and analyzing data, and reporting the results.
- The stakeholder jointly collaborates with the researcher to brainstorm and conduct focus groups to determine the research problem.
- The researcher contributes by sharing expertise about the problem.

## • • Levels of Participation

- Focus on the role of individuals who participate in action research
- In the past, involved individuals received little to no benefit from the research. The researcher and society benefited mostly.
- Efforts have been made to inform the participants of the purpose of the study and review the results of the study.
- This may effect the internal validity of the study or the internal validity of the data.
- Involvement is based on a continuum where higher levels include the initiation of the study and lower levels deals with providing information.
- The degree of participation varies with the interest and background of the participants.

#### • • Steps in Action Research

- Identifying the problem, question, or situation
- Determine the method and procedure for investigating the question
- Gather information to answer the question-Data Collection
- Analyze and interpret information-Draw Conclusions
- Develop a plan of action and make decisions based on the results of the research

## • • Identifying the Research Question

- Clarify the problem by examining the situation
- Focus on improving professional teaching practices, correct something that is not working, or make something better
- A successful action research project is manageable and narrow in scope.
- More extensive action research projects are not easy to resolve within a single classroom.

#### Gathering Information (Data Collection)

- Decide on the type of data to collect and the method for collecting data
- Consider the following methodologies- experiments, surveys, interviews, causal-comparative studies, analysis of documents and ethnographies
- Take field notes during observations to record and describe what is seen and heard.
- Interview students or other individuals from whom information is desired
- Assess the accuracy of observations by formulating questions during the observation and follow-up with questionnaires.
- Analyze documents such as student journals, seating charts, lessons plans, and administrative logs.
- Utilize a variety of instruments including questionnaires, interview schedules, checklists, etc.
- When necessary, develop an instrument that is appropriate for the research study.
- The use of more than one assessment instrument triangulation
- Avoid collecting anecdotal data, such as the personal opinions of people.

## • • • Analyzing and Interpreting Information

- Determine what the data reveals
- Examine the data and its relation to resolving the research question
- Enable participants to identify associated influences
- Utilize guided questions to answer the questions - who, what, where, when, how

## • • Developing an Action Plan

- Implement changes based on the findings
- A formal document is desirable, but not required.
- Focus on clear directions to further potential work on the problem.

# Similarities and Differences between Action Research and Qualitative and Quantitative Research

- Sampling The sample and population are identical. Random sampling is difficult in schools.
- Internal Validity Data collection biases may exist due to the data collector's awareness of the study (distortion of results)
- External Validity Limitations exist when the research deals with a practice that is found in one single subject. Replicate the study to generalize it to other individuals, situations and settings.

#### **Comparing Action Research to Quantitative and Qualitative Research**

#### **Action Research**

- Systematic inquiry
- Solve problem of local concern
- Limited formal training to conduct research
- Performed by a professional in the field of education
- Primarily uses teacherdeveloped instruments
- Less rigorous
- Value-based
- Purposeful sample selected
- Selective opinions of researcher often used as data
- Generalizability limited

#### Formal Research

- Systematic inquiry
- Develop and test theories to produce knowledge generalizable to wide populations
- Training required to conduct research
- Primarily uses professionally developed instruments
- More rigorous
- Value-neutral
- Random sample preferred
- Selective opinions of researcher never used as data
- Generalizability often appropriate



- Any professional in a school setting can investigate the problem.
- Improvement in educational practice is evident due to ability of the teachers, counselors, or administrators to understand, apply and critique research findings.
- When teachers are researchers, new methods and best practices are discovered in order to enhance the craft.
- Teachers develop methods to identify and solve problems systematically.
- Feelings of isolation are reduced due to the collective interest of individuals within a school who are interested in solving the problem or resolving a situation.

## Investigating the Teaching of Science Concepts By Means of a Comparison Group Experiment

#### **Questions**

Does using drama in the classroom improve fifth graders' understanding of science concepts?

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How would you proceed with this investigation using action research?

#### Action Research Approach #1

- Since this is a comparison-group experiment, randomly assign students to classes in which some teachers incorporate dramatics into their lessons and some do not.
- Test the students' level of understanding at specified intervals by comparing and contrasting the teaching methods.
- Evaluate the average score of different classes to determine the effectiveness of the method.

#### • • Action Research Approach #2

- Use a quasi-experimental design to compare student achievement scores in two or more *intact* classes where teacher agree to use the method.
- This is not considered as a true experiment because students are not randomly assigned.
- If the differences between the students' conceptual understanding is large, the results of the pre-test scores could demonstrate a comparison between the two methods.

#### • • Action Research Approach #3

A causal-comparison approach might be used if teachers are currently using the dramatic teaching methods in their classroom.

### PREDICTING WHICH KIND OF STUDENTS ARE LIKELY TO HAVE TROUBLE LEARNING ALGEBRA BY MEANS OF A CORRELATIONAL STUDY

Mr. Thompson (algebra teacher) was bothered by the fact that some students have difficulty learning algebra while others learn it with ease.

#### Question:

How can I predict which sorts of individuals are likely to have trouble learning algebra?

#### COMPARING TWO WAYS OF TEACHING CHEMISTRY BY MEANS OF A CAUSAL COMPARATIVE STUDY

Mrs. Perea (1st yr teacher) wanted to know if students in past classes achieved more in and felt better about chemistry when taught using "inquiry science" materials.

#### Questions:

How the achievement of those students who have been taught with inquiry science materials compared with that of students who have been taught with traditional materials?

#### FINDING OUT HOW MUSIC TEACHERS TEACH BY MEANS OF AN ETHNOGRAPHIC STUDY

Mr. Adams (Dir. of Curriculum) is interested in knowing more about how the district's music teachers teach their subject.

#### Questions:

What do our music teachers do as they go about their daily routine-in what kinds of activities do they engage?

What are the explicit and implicit rules of the game in music classes that seem to help or hinder the process of learning?

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#### An Example of Action Research

#### \*The most difficult type of research to do in schools (quasi-experiment)\*

Researcher: Darlene DeMaria

**Subject:** Learning disabled students in public school

Location: Near San Francisco, California

**Hypothesis:** Male learning-disabled students in elementary schools who receive a systematic program of relaxation exercises would show a greater reduction in off-task behaviors than students who do not receive such program of exercise.

**Instrument:** 60 item scale previously designed to asses attention deficit

**Sample:** Grades 1 through 6

18 students (not able to randomly place)

**Experiment:** rating scales completed pre experiment to establish a benchmark (pretest)

experimental group received relaxation on a daily basis for 4 weeks (phase 1)

1 hour a day in groups of 2 or 4

rated all 18 students first test of hypothesis

relaxation continued for the original experimental group (phase II)

begun for the comparison group (phase II)

Rated all students

**Limitations:** insufficient agreement during pretest

comparison group could not be precisely matched on the pretest and had more students

at both extremes.

#### What Do You Mean "Think before I act"?: Conflict Resolutions with Choices

From: Journal of Research in Childhood Education, 14, no. 2 (2000): 232-238. Copyright 2000 by the Association for Childhood Education International

Lonisa Browning Barbara Davis Virginia Resta Southwest Texas State University, San Marcos

- Abstract
- Sample description
- Research question
- Purpose
- Prior research

#### Methods and Procedures

(sample and method outlined)

Data collection (purpose sub-sample)

Reliability? Validity? Student Surveys

Cognitive, not behavioral

Possible validity checks Conflict resolution
 Journals

Recall of behavior

Behavioral measure Tally Sheets

 Behavioral evidence of Cognitive change only

**Observational Notes** 

- Analysis of Data and Findings
   Targeted sub-sample only

  - Interpretation

- Conclusion
  - Agree or disagree with hypothesis

#### Analysis of the Study

- Purpose/Justification
- Definitions
- Prior Research
- Hypothesis
- Sample
- Instrumentation
- Procedural/ Internal Validity
- Data Analysis
- Results/Discussion/Interpretation

#### \*\*\*\*Main Points\*\*\*\*

- The Nature of Action Research
- Assumptions Underlying Action Research
- Types of Action Research
- Level of Participation in Action Research
- Steps in action Research

## Threats to the internal validity of action research

 Action research studies suffer especially from the possibility of data collector bias, implementation and attitudinal threats.
 Most others can be controlled to a considerable degree.

#### External Validity and Action Research

Action research studies are weak in external validity.
 Replication is, therefore, essential in these studies.

## ••• CHAPTER 24

# Preparing Research Proposals and Reports

## ••• Objectives:

- Describe briefly the main sections of a research proposal and a research report.
- Describe the major difference between a research proposal and a research report.

## ••• Outline

- o The Research Proposal
- The Major Sections of a Research Proposal or Report
- Problem to be Investigated
   Background and Review of Related
   Literature
   Procedures
   Budget
   General Comments
- o Sections Unique to Research Reports
- Some General Rules to Consider Format
   A Few Comments about Qualitative Research Reports
   An Outline of a Research Report

# Research Proposal versus Research Report

- o A research proposal communicates a researcher's plan for a study.
- A research report communicates what was actually done in a study, and what resulted.

# A research proposal is generated before a study begins.

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A research report is prepared after a study is completed.

#### • • • Problem To Be Investigated

- o The purpose of the study
- o The justification for the study
- o The research question (hypothesis)
- o The definition of terms

### • • • Purpose of the Study

- o Usually the first section in the proposal states succinctly what the researcher proposes to investigate.
- o The purpose should be a concise statement, providing a framework to which details are added later.

#### • • Justification for the Study

- o The justification makes clear why this particular subject is important to investigate.
- A good justification should also include any specific implications that follow if relationships are identified.

#### Key Questions to Ask Yourself

- o Have I identified the specific research problem I wish to investigate?
- o Have I indicated what I intend to do about this problem?
- o Have I put forth an argument as to why this problem is worthy of investigation?
- o Have I made my assumptions explicit?

# Research Questions or Hypothesis

- The particular question to be investigated should be stated next.
   (This is usually a more specific form of the problem in question form.)
- Researchers favor hypotheses for reasons of clarity and as a research strategy.

#### • • • Key Questions to Ask Yourself

- o Have I asked the specific research question I wish to pursue?
- o Do I have a hypothesis in mind? If so, have I expressed it?
- o Do I intend to investigate a relationship? If so, have I indicated the variables I think may be related?

#### • • Definitions

- o All key terms should be defined as clearly as possible.
- o In a hypothesis testing study, these are the terms that describe the variables.
- Operational definitions are a way of clarifying terms or phrases.
- o The clearer the terms are, the fewer difficulties will be encountered.

## • • • Key Questions to Ask Yourself

o Have I defined all key terms clearly (and, if possible, operationally)?

#### **Literature Reviews**

- o It is a partial summary of previous work related to the hypothesis or focus of the study.
- o The researcher is trying to show that he/she is familiar with the major trends in previous research and opinion on the topic.
- o The researcher understands the relevance to the study.

#### • • Literature Review (continued)

The major weakness of many literature reviews is that researchers cite references without indicating their relevance or implications for the planned study.

#### Key Questions to Ask Yourself

- o Have I surveyed and described relevant studies related to the problem?
- o Have I surveyed existing expert opinion on the problem?
- o Have I summarized the existing state of opinion and research on the problem?

## • • • Procedures

- o Research Design
- o Sample
- o Instrumentation
- o Procedural Details
- o Internal Validity
- o Data Analysis

#### • • • Research Design

- o In experimental or correlational studies, the research design can be described using the symbols presented in Chapters Thirteen or Fifteen.
- o In causal-comparative studies, the research design should be described using the symbols presented in Chapter Sixteen.

#### Research Design (Continued)

- o The particular research design to be used in the study and its application to the study should be identified.
- o In most studies, the basic design is fairly clear-cut and fits one of the models presented in Chapters
  Thirteen to Seventeen and in Chapters Twenty to Twenty-Two.

### • • • Sample

- A researcher should indicate in considerable detail how he/she will obtain the subjects (the sample).
- o If generalization is intended, a random sample should be used.
- o If a convenience sample must be used, relevant demographics of the sample should be described (gender, ethnicity, occupation, IQ).

# • • • Sample (continued)

o The legitimate population to which the results of the study may be generalized should be indicated.

## • • • Key Questions to Ask Yourself

- o Have I described my sampling plan?
- o Have I described the relevant characteristics of my sample in detail?
- o Have I identified the population to which the results of the study may legitimately be generalized?

#### • • Instrumentation

- o Whenever possible, existing instruments should be used.
- o The use of an existing instrument can be justified if it is sufficiently reliable and valid results can be obtained for the researcher's purpose.

#### Key Questions to Ask Yourself

- o Have I described the instruments to be used?
- o Have I indicated their relevance to the present study?
- o Have I stated how I will check the reliability of scores obtained from all instruments?
- o Have I stated how I will check the validity of scores obtained from all instruments?

#### • • • Procedural Details

- o The procedures to be followed should indicate what will be done, when, where, and how.
- o The goal is to make it possible to replicate the study.
- o The researcher should make clear how the information collected will be used to answer the original question (test the original hypothesis).

## • • • Key Questions to Ask Yourself

o Have I fully described the procedures to be followed in the study – what will be done, where, when, and how?

#### • • Internal Validity

o The researcher should examine the proposed methodology for the presence of any feasible alternative explanations for the results should the study's hypothesis be supported.

## • • • Key Questions to Ask Yourself

- o Have I discussed any feasible alternative explanations that might exist for the results of the study?
- o Have I discussed how I will deal with these alternative explanations?

## • • • Data Analysis

o The researcher should indicate how the data to be collected will be organized and analyzed.

#### • • • Key Questions to Ask Yourself

- o Have I described how I will organize the data I will collect?
- o Have I described how I will analyze the data, including statistical procedures that will be used and why these procedures are appropriate?

## • • • Budget

o Budgets include such items as salaries, materials, equipment costs, secretarial and other assistance expenses and overhead.

## • • • General Comments

- o All sections of a proposal must be consistent.
- o A style manual should be consulted before beginning the report. (Many researcher use the Publication Manual of the American Psychological Association (APA), fifth edition (2001).

## • • • Format

- o The format of a report is the way it is organized.
- o Research reports generally reflect the steps involved in the study itself.

### • • • Abstract

- o A brief summary of the entire research report. It is usually no longer than a paragraph or two and is typed on a separate page with the word *Abstract* centered at the top of the page.
- O Usually it contains a brief statement of the research problem, the hypothesis, a description of the sample, followed by a brief summary of the procedures, including a description of the instruments used, how the data was collected, the results of the study, and the researchers conclusions.

## • • • Results/Findings

- o The results of a study can be presented only in a research report.
- A report of the results/findings, is included near the end of the report.

## • • • Discussion

o This section of a report presents the author's interpretation of what the results imply for theory and/or practice.

# Suggestions for Further Research

- Normally, this is the final section of a report.
- o Based on the findings of the present study, the researcher suggests some related and follow-up studies that might be conducted in the future to advance knowledge in the field.

## • • • References

o The bibliography should list <u>all</u> sources that were used in writing the report.

## • • • Footnotes

o Footnotes are numbered consecutively, using a superscript Arabic numeral, in the order in which they appear in the text of the report.

### • • • Figures

- o Figures consist of drawings, graphs, charts, photographs or pictures.
- All figures should be numbered consecutively and referred to in the text of the report.

## • • • Tables

o Tables should be used only when they can summarize or convey information better, more simply, or more clearly than the text alone.

# Qualitative ResearchReports

- The information included is similar to that included in a quantitative research report.
- o Qualitative researchers often write their reports in the first person.
- o They often use the active rather than the passive voice.

#### Organization of a Research Report

- o Introductory section
   o Title Page

  - **Table of Contents**
  - **List of Figures**
  - **List of Tables** 0
  - **Main Body** 0
  - Problem to be investigated 0
    - Purpose of study (including assumptions)
    - Justification of the study
    - Research question and hypotheses
    - Definition of terms
    - Brief overview of study
  - Background and review of related literature 0
    - Theory, if appropriate
    - Studies directly related
    - Studies tangentially related

#### **Procedures**

- Description of the sample

  Description of instruments used (scoring procedures; reliability; validity)

  Contract Contrac
  - Explanation of the procedures followed (the what, when, where, and how of the study)
  - Discussion of internal validity
  - Discussion of external validity
  - Description and justification of the statistical techniques or other methods of analysis used

#### **Findings** 0

Description of findings pertinent to each of the research 0 hypotheses or questions

#### **Summary and conclusions** 0

- Brief summary of the research question being investigated, the procedures employed, and the results obtained
- Discussion of the implications of the findings-their meaning and significance
- Limitations-unresolved problems and weaknesses
- Suggestions for further research
- References (Bibliography) 0
- **Appendixes** 0