

**Classroom-Based Research:**  
**How to Be a Researcher in Your Classroom**

Santa Ana College  
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Dr. Darla M. Cooper  
 The RP Group

theRPgroup

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**Overview**

- What is classroom-based research?
- Benefits of classroom-based research
- Moving from identifying the problem to researching the solution
- How to be a researcher in your classroom
  - Research designs
  - Data analysis
- Sharing your results
- Brainstorming – small group activity

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**Outcomes**

- Describe purpose, process, and benefits of classroom-based research
- Identify possible ways to move from problems to solutions
- Describe research designs and associated data analyses that can be applied in the classroom
- Recognize the importance of sharing the results of research and possible ways to disseminate the information

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### What is Classroom-Based Research?

- Attempts to discover the impact of interventions made in the classroom
- Researches students' knowledge, skills, and/or attitudes
- Is not limited to one classroom at a time
  - Can be done in linked classes (e.g., learning communities)
  - Can be done in sequenced classes (e.g., elementary to intermediate algebra)

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### Classroom-Based Research: The Process

1. Develop questions based on your own curiosity about your students' learning and your teaching
2. Investigate your questions with your students documenting what happens
3. Collect and analyze data from your classes including your own observations and reflections

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### Classroom-Based Research: The Process

4. Examine your own assumptions and beliefs
5. Articulate your findings and conclusions
6. Discuss your research with your colleagues for support as "critical friends" to validate your findings and interpretations of your data

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### Classroom-Based Research: The Process

- 7. Share the results with your students
- 8. Give presentations (department meetings, conferences)
- 9. Write about your research – publications (college, state, regional, national), websites, online forums, and email listserves

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### Benefits of Classroom-Based Research

- Enables you to plan and teach more effectively
- Enhances your research and teaching skills, knowledge and understanding
- Encourages collaborative working that may help you reflect more effectively on the impact you are having on students' learning
- Provides evidence that can be used to support effective classroom interventions

**Linking research to your own practice in the classroom helps address students' needs**

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### Identifying the Problem

#### Course Level

- Course success rates
- Persistence to next course in the sequence

#### Classroom Level

- Test scores
- Writing assignments
- Math problem solving (show your work)
- Performances/presentations
- Portfolios

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### How to Move from Problem to Solution

- As experts, you have implemented ways or have ideas for how to address problem
- Other possible sources include:
  - Websites such as cccbsi.org, rpgroup.org (learning assessment listserve and RP CSS archives), 4faculty.org
  - Conferences and workshops
  - Colleagues in your content area at your college and other colleges
  - Colleagues outside your content area at your college and other colleges

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### How to Be a Researcher in Your Classroom

Become familiar with research designs and the associated data analyses

- Pre/post-test
- Group comparison
- Trend analysis
- Surveys

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### Pre/Post-test

#### Research Design

Best way to measure improvement over time

O X O

- O = Observation (Pre-test)
- X = Treatment (Classroom Intervention)
- O = Observation (Post-test)

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**Pre/Post-test**

**Data Analysis**

- Compare group's overall average scores on pre- and post-test
- Compare group's scores on individual items
- Ensure that only includes scores of those students who participated in BOTH pre- and post-test

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**Pre/Post-test**

Where have you used or could you use pre/post-test in your classroom?

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**Group Comparison**

**Research Design**

Best way to compare treated and untreated groups

<b>Group 1</b>	<b>O</b>	<b>X</b>	<b>O</b>
<b>Group 2</b>	<b>O</b>		<b>O</b>

O = Observation (Pre-test)  
X = Treatment (Classroom Intervention)  
O = Observation (Post-test)

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## Group Comparison

### Data Analysis

- Compare overall average scores of the two groups
- Compare scores on individual items of the two groups
- Ensure that only includes scores of those students who participated in BOTH pre- and post-test

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## Group Comparison

Where have you used or could you use group comparison in your classroom?

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## Trend Analysis

### Research Design

Best way to measure improvement of similar groups over time

- X   O<sub>1</sub>   X   O<sub>2</sub>   X   O<sub>3</sub>
- X = Treatment (Classroom Intervention)
  - O<sub>1</sub> = Observation of Group 1
  - O<sub>2</sub> = Observation of Group 2
  - O<sub>3</sub> = Observation of Group 3

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## Trend Analysis

### Data Analysis

- Compare overall average score of each group at each observation time
- Compare scores on individual items of each group at each observation time
- Be aware that with this design you are not comparing the same group over time; so not measuring the improvement of one group of students, but of students in same class over time (e.g., course success rates)

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## Trend Analysis

Where have you used or could you use trend analysis in your classroom?

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## Surveys

### Research Design

- Best way to measure students' attitudes, beliefs, and/or perceptions
- Can be used to enhance quantitative data (helps get at the HOW to resolve a problem)
- Can be pre/post-test or post-test only
- Can be group comparisons

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**Surveys**

**Data Analysis**

- Look at percentages of students giving each response
- Analyze open-ended questions to identify themes
- If given pre/post, compare group's responses on individual items on pre- and post-tests
- If given to two or more groups, compare responses of the groups

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**Surveys**

Where have you used or could you use surveys in your classroom?

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**Qualitative Methods**

- Often asks the question of "how" instead of "what"
- Focus on the details; more holistic
- Looks at the quality of relationships, activities, experiences, situations, or materials
- Types of methods
  - Participant observation
  - Direct observation
  - Interviews
  - Case studies

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**Qualitative Methods**

Where have you used or could you use qualitative methods in your classroom?

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**Importance of Isolation**

**How do you know if the differences you found are a result of the intervention?**

- Concept of isolation is one of the more important factors to consider when designing a study
- Important to isolate the effect of the intervention as much as possible
- What to consider when doing:
  - Group comparisons
  - Pre/Post-test
  - Surveys
  - Trend Analysis

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**Sharing Your Results**

- Recommend recording your results in some kind of summary for the purposes of documentation
- You do not have to produce written volumes. Other options include:
  - Discuss your observations at a department meeting
  - Share results via newsletters, websites, online forums, and email listserves
  - Present at a conference or workshop
  - Submit for publication (college, state, regional, national journals)

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**Reality Check**

- Implementing classroom interventions and conducting research requires time investment
- You may need the support of your department chair and/or dean to develop and carry out classroom research
- Worth the investment because research can empower faculty to make a positive difference in the classroom by seeking to discover better, more effective ways of implementing teaching and learning

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**Advice from a Researcher**

- Don't try to solve the problems of the world; narrow your focus
- Be realistic with the scope of your design; don't overcommit yourself
- Consider a longitudinal approach over multiple terms; you don't have to do it all at once in one term
- Be open to many different ways to approach your research
- IR offices may be able to provide useful data (e.g., demographics, success and persistence rates) and/or offer technical assistance with design and analysis

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**Small Group Activity**

1. Choose one of the three scenarios
2. Answer the following questions:
  - Which research design would you use and why?
  - What assessment(s) would you use and why?
  - How would you analyze the data you collect?
3. Report out by scenario

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**What About You?**

Do you have any innovations that you have tried or want to try in your classroom?

- Which research design could you use and why?
- What assessment(s) could you use and why?
- How could you analyze the data you collect?

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**Questions?**

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**Thank You!**

**Contact Information:**

Dr. Darla M. Cooper  
[dcooper@rpgroup.org](mailto:dcooper@rpgroup.org)  
 (805) 351-5974

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