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# Teaching Research Methods and Reporting Through Scaffolded Hands-On Student Research in Introductory Psychology

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## Abstract

This is a method for teaching students in introductory psychology to conduct and report on research. Scaffolded assignments gradually help them master the development of a thesis and hypothesis, learn to find appropriate sources for research, develop experimental or observational research proposals based on their hypotheses, carry out their research in class, and learn to report on the results in both conference presentation and article formats.


## In-Class Research

- Shows that psychology is a science
- Gives practical, hands-on research experience
- Teaches students presentation skills

## Scaffolding Tips

1. Don't give one big assignment
   - The stakes are too high
   - Students may not know how to write college-level research papers
   - Remember how we all learned it: slowly, by making a lot of mistakes along the way
2. Provide all-inclusive grading rubrics to show:
   - What we expect them to do
   - The value we give specific parts of the work
   - A checklist of what to cover
3. Use nested assignments
   - Shows how different activities come together to form the whole
   - Allows students to revise earlier versions for inclusion in the later papers
   - Each successive paper improves because students benefit from the previous critiques
4. Provide sample papers, so that they can see what successful students have done in the past
5. Provide templates for the papers and presentations, so students are working on the material, not fighting with their word processors
6. Teach students how to work on the papers:
   - Parts of a scientific paper
   - How to write a scientific paper
   - Using appropriate tools to find background information (e.g., PsycINFO, PsychARTICLES, ScienceDirect)
   - Evaluating sources for validity and appropriateness
7. Provide class time to:
   - Help students come up with appropriate topics
   - Write with you there to help
   - Give one-on-one or group critiques
   - Conduct online research, if your classroom is networked
   - Teach them how to use any specific research tools or equipment they'll need to use

## Individual Projects

The assignments:

1. Thesis and hypothesis paper
2. Formal research proposal
3. Class selects the best 2-4 experiments proposed by class members
4. Run experiments as class demonstrations
5. Work through the final research report as a class, leading the group through the process

Advantages

- Students like individual responsibility and grades
- The class works through several experiments
- Highly productive class sessions
- Students enjoy being able to contribute with no grades at stake
- Easy to grade each person

Disadvantages

- Generally lower paper quality
- Individual students don't do as much hands-on experimental work or reporting
- Many papers to grade

## Group Projects

The assignments:

1. Thesis and hypothesis paper
2. Formal research proposal
3. Groups run their experiments
4. PowerPoint or poster presentation
5. Final research report

Advantages

- Students share producing the paper
- Groups' better editing yields better papers
- Each group carries out a complete research project from start to finish
- Fewer papers to grade for each assignment

Disadvantages

- Students hate group work
- Hard to get everyone together outside of class
- May require more in-class time for group work
  - Groups can use wikis or GoogleDocs
- Hard for students to work toward consensus
- Free riders and dictators
  - Use a group process questionnaire
- Students dropping the class may leave groups with too few people

## Hybrid Projects

The assignments:

1. Individual thesis and hypothesis papers
2. Individual formal research proposals
3. Form groups after returning graded papers
4. Groups choose and run an experiment from among those proposed by group members
5. Group PowerPoint or poster presentation
6. Group final research report

Advantages

- Many more topics from which to choose experiments
- Students dropping the class will be gone by the time groups are formed
- Each group carries out a complete research project from start to finish
- Individual accountability for the initial papers
- Better final papers, because of group editing
- Fewer papers to grade during the end of semester crunch

Disadvantages

- Generally lower quality on the initial papers
- Same as for group work for the final stages

## Outcomes

Comparing the methods:

- All 3 produced good student outcomes
- Students liked both individual and hybrid projects
- Hybrid projects yielded the best student presentations and final papers

Students:

- Learned to develop and test hypotheses
- Worked with real equipment
- Engaged in simple data analysis
- Found understandable ways to explain their results to their classmates
- Had to determine what went right, and more interestingly, what went wrong

Best of all, it was more fun for all of us!

## For More Information

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