Chapter 4 – Generating Research Ideas
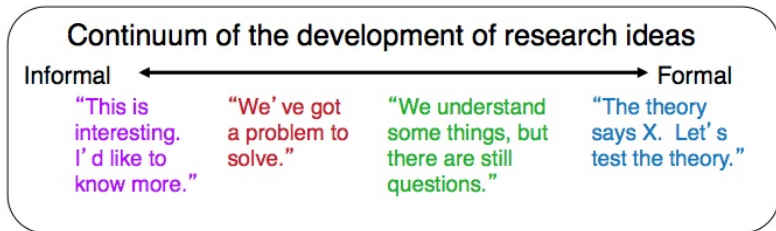
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Where do ideas come from?

Research is driven by curiosity.

- We typically study things that *interest us*.

Continuum of the development of research ideas

Informal ←————————————————————→ Formal

"This is interesting. I'd like to know more."

"We've got a problem to solve."

"We understand some things, but there are still questions."

"The theory says X. Let's test the theory."

Move from "ideas" to "questions"
What are characteristics of good research questions?

Example: A research idea

- Idea: "I like math. Why don't my students like math?"
- Question: "How do people do math?"
  - This is a pretty big question
  - To begin to answer it, we've got to FOCUS
    - Break the general idea down into smaller, more specific questions
    - Find/extend theories that specify mechanisms behind math performance
  - Then, we can begin using experiments to test specific parts of the theories

Example: A research idea

Focusing the idea

- What does doing math involve?
    - Encoding – getting the problem in
        - does modality/format matter?
    - Calculation – figuring out the answer
        - memory retrieval?
        - procedural strategies?
        - estimation?
    - Production – getting the answer out

- Are these stages independent? Interactive?

Example: A research idea

Evaluating the idea (ROT)

- Can we **replicate** our study?
- How do we **observe** people doing math?
- Are our predictions **testable**?

Reading the literature will help GREATLY with evaluating research ideas

Types of SOTL questions

Hutchings (2000)

- What works? – how effective is this approach to teaching?
  - What is the impact of approach X on outcome Y?

Types of SOTL questions

Ecological Validity of the Testing Effect: The Use of Daily Quizzes in Introductory Psychology

W. Robert Batsell Jr.[1], Jennifer L. Perry[1], Elizabeth Hanley[1], and Autumn B. Hostetter[1]

Abstract
The testing effect is the enhanced retention of learned information by individuals who have studied and completed a test over the material relative to individuals who have only studied the material. Although numerous laboratory studies and simulated classroom studies have provided evidence of the testing effect, data from a natural class setting with motivated students are scant. The present two-class quasi-experiment explored the external validity of the testing effect in the Introductory Psychology classroom. The control class studied chapters from the textbook whereas the quiz class studied chapters and completed daily quizzes on those readings. Subsequently, both classes completed exams over this textbook information. The quiz class scored significantly higher than the control class on these test questions about the textbook information; these differences were significant both when the test questions were the same as the quiz questions and when they were new, related questions from the textbook. These data suggest the use of daily quizzes to embed the testing effect into the Introductory Psychology classroom can improve student learning.

Keywords
Testing Effect, Quizzes, Spacing Effect, Effortful Recall, Introductory Psychology

Types of SOTL questions

Hutchings (2000)

- What is? – what does good teaching look like?
  - What are the characteristics of "successful" students?

Types of SOTL questions

Undergraduate Psychological Writing: A Best Practices Guide and National Survey

Shaziela Ishak[1] and Nicholas P. Salter[1]

Abstract

There is no comprehensive guide for teaching psychological writing, and little is known about how often instructors teach the topic. We present a best practices guide for teaching psychological writing beyond just American Psychological Association style, discuss psychology-specific writing assignments, and examine psychological writing instruction. In an online survey, 177 psychology instructors across the United States reported on psychological writing instruction and their writing assignments. In general, we found that instructors reported using many best practices. Comparisons between courses revealed that instructors use course-specific writing instruction such that it becomes progressively complex across courses. However, instructors might not provide students with enough training to successfully complete assignments. Instructors assign diverse assignments, though, suggesting that students get varied practice at psychology-specific writing.
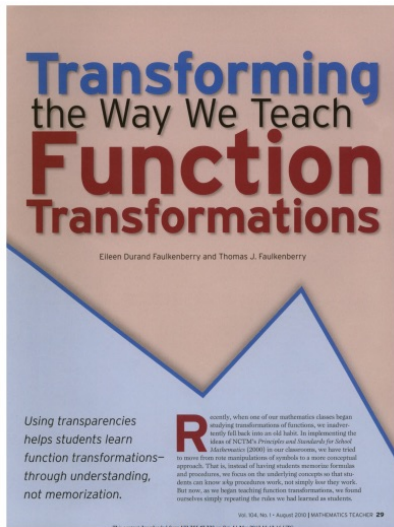
Keywords

writing practices, teaching writing, psychology-specific writing, writing survey

Types of SOTL questions

Nelson (2003)

- Reports of particular classes – what worked?

Transforming the Way We Teach Function Transformations

Eileen Durand Faulkenberry and Thomas J. Faulkenberry

Using transparencies helps students learn function transformations— through understanding, not memorization.

Generating good SOTL questions

1. Find something you're interested in (theme)
2. Start with a question in this theme
3. Search the literature. See what others have done. Don't be afraid to replicate (either direct or conceptual)
4. Write more questions, but begin to focus your ideas
   - make sure your questions involve things that are observable and testable

Cautions

- Don't think you *must* use a particular methodology
  - don't be a slave to the pretest-posttest design
- Don't rely *only* on course grades as a measure. Find other measures in the literature
- Don't think you *must* find an effect. Sometimes finding *no effect* can be illuminating!

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