

How does self-reflection change student perceptions of cognitive psychology?



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Motivation

What is PL3103 (Cognitive Psychology)?

- compulsory core course for psychology majors
- survey course on cognitive psychology, the study of mental processes and representations that support perception, attention, learning, memory, language, and decision making
- unpopular with students due to its strong emphasis on theoretical models and abstract concepts
- *Can a small change in my teaching inspire students to appreciate the importance and relevance of cognitive psychology in their lives?*

Small Change 1: Prediction

- "Asking students to make predictions before learning something new primes their brains for engagement and improves retention, even if their guesses are incorrect." (Lang, Chapter 1)

Small Change 1: Retrieval

- "The more times that you practice remembering something, the more capable you become of remembering that thing in the future." (Lang, Chapter 2)

Inquiry Question

- *How does the process of self-reflection impact students' perceptions of cognitive psychology?*

Method

Intervention

- Students completed a short writing task responding to writing prompts both before lecture and after lecture (10 min each)
- Responses were recorded in Canvas

Analysis

- Rubrics were developed to compare pre-and post-lecture responses on three dimensions
- Each rubric contained three levels: No change/Reverse direction, Limited change, Major change
- 1. Do students show **increased sophistication or conceptual depth** when discussing or explaining concepts/topics?
- 2. Do students show **increased application** of concepts/topics to personal lives or real-world examples?
- 3. Do students show **reduced misconceptions** or conceptual errors related to the topics/concepts?

Example 1: Increase in Conceptual Depth

Student's Post-Lecture Response:

"We are able to counteract certain problems faced by language impairments because **studying the cognitive mechanisms behind language gives us insight into how different parts of the brain contribute to comprehension and production**. For example, **understanding models of sentence generation and parsing allows us to pinpoint where breakdowns occur**, whether in syntax, semantics, or phonology. This knowledge helps us design targeted interventions, such as therapy exercises that strengthen specific neural pathways or compensate for damaged areas."

Same Student's Pre-Lecture Response:

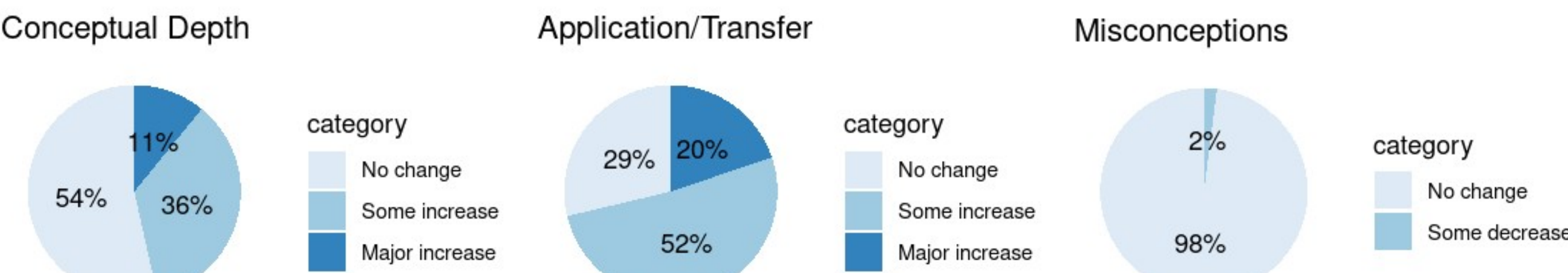
"Because language feels easy but actually involves complex brain processes, studying it helps us understand how we think, communicate, and deal with language disorders"

> *Instructor observations: Understanding of language as a system with many contributing components and how it can be studied in computational models. In contrast, the initial response only recognized the complexity of language.*

Language (N = 112)

Pre-lecture prompt. "Today we are going to learn about how humans process speech and written language. Why is this topic important? If we seem to be able to produce and understand language easily, why do we even need to learn about the cognitive mechanisms that support language processing? Even if you do not know the answer, make a guess."

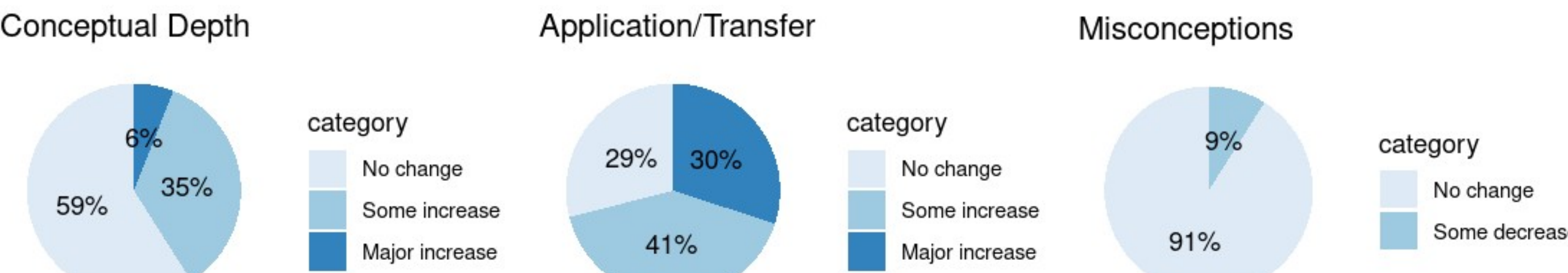
Post-lecture prompt. "Think back to the question at the beginning of lecture: If we seem to be able to produce and understand language easily, why do we even need to learn about the cognitive mechanisms that support language processing? Now, how would you answer this question after today's lecture? What are some key takeaways from today's lecture that you could apply in your own life?"



Problem Solving (N = 105)

Pre-lecture prompt. "Today we are going to learn about how humans solve problems. In your lifetime, you must have encountered several challenging problems. How did you solve these problems? How can you become a more effective problem solver? Even if you do not know the answer, make a guess."

Post-lecture prompt. "Revisit the questions from the beginning of class: How do you solve the challenging problems in your life? How can you become a more effective problem solver? Has today's discussion deepened or shifted your understanding of these questions? If so, in what ways?"



Example 2: Increase in Application

Student's Post-Lecture Response:

"I think some key takeaways include **how learning a different language can actually interact with and interfere with our existing memory**. it can lead us to mix up our words more often than others, which explains some of the common errors i have made or heard others make before.

i also think it helps me to understand **how we try to pronounce words that we have never seen before**, so i understand **how non speakers of a language may actually attempt to pronounce the word**, and it makes me find it less odd when they do it that way"

Same Student's Pre-Lecture Response:

"To be able to support those who have difficulties in producing and understanding language. It can also help us to understand how language works so that we can identify the key aspects that are important in childhood."

> *Instructor observations: Application to foreign language learners and learning the pronunciations of words in a different language (not explicitly mentioned in lecture nor in the student's initial response).*

Discussion

Summary of Results

- **Conceptual Depth**: ~40% of students showed some or major increases in the conceptual depth of their responses
- **Application/Transfer**: ~70% of students showed some or major increases in application of material to their own lives
- **Misconceptions**: Only a very small % of students showed any correction in their misconceptions.
- Qualitative observations suggest that students had a newfound appreciation of cognitive psychology and found the concepts meaningful for their own lives.

Implications

Providing students time and space during lecture to engage with the cognitive processes of *Prediction* and *Retrieval* led to measurable changes on 2 dimensions: Increase in Conceptual Depth and Increase in Application/Transfer.

Link to Reflective Impact Narrative and other materials:

<https://www.dropbox.com/scl/fo/ngsp3lc3ktq3gow474bqc/AO4txcFI XnEVa10hph11fDg?rlkey=i6usmzb5f2tc7psq4mmdi416r&st=s81e1pt o&dl=0>

<https://bit.ly/44WBXsM>

Password: siew-rite (Expires: 28th Oct 2026)

