

# Introducing Challenging Coursework: Using partner work to improve student attitudes towards challenging tasks

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# Challenging Coursework

## Neurophysiology

Challenging conceptual material

Lecture

Problem solving - homework assignments (F05), clicker questions (F06), HELP room (F08)

Attitudes on interventions & Measure of performance

**Course**

**Challenge**

**Typical format:  
teacher-centered**

**Interventions:  
student-centered**

**Outcome  
Measures**

## Critical Thinking: Neurobiology of Disease

Reading & interpreting primary scientific literature

Teacher feedback

Partner work

Pre/post attitudes & learning (performance)

# Calibrated Peer Review (CPR)

- What is CPR?
  - web-based tool ([www.cpr.molsci.ucla.edu](http://www.cpr.molsci.ucla.edu))
    - facilitates use of writing as a learning & assessment tool
    - enables frequent writing assignments without increasing instructor grading load
    - discipline & level independent
- How does it work?
  - students submit a writing assignment
    - usually roughly a paragraph
    - we did 1-2 pages (gave guiding questions on detailed rubric)
  - 3 calibrations (calibrate students as reviewers)
  - review 3 peer papers
  - self-assessment
  - students get feedback

# CPR Intervention

F07

Sp08  
CPR

F08

CU Learn - mimic CPR

Sp09  
CPR

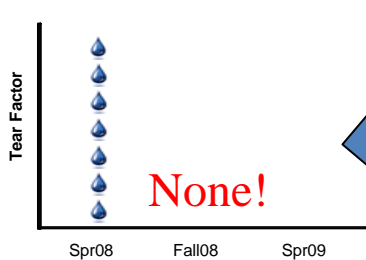
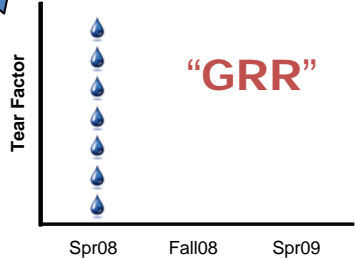
- Assignments  
-2 papers
- Small group discussion
- Final Papers
- Presentation

- Assignments  
->Practice Intro  
-2 papers
- Small group discussion
- Final Papers
- Presentation

- Assignments  
-Practice Intro  
->Divide to 4 papers  
->Work w/ partner for review
- Small group discussion
- Final Papers
- Presentation

- Assignments  
-Practice Intro  
- 4 papers  
-Work w/partner for review  
->Work w/partner for writing
- Small group discussion
- Final Papers
- Presentation

need more practice, but grading overload

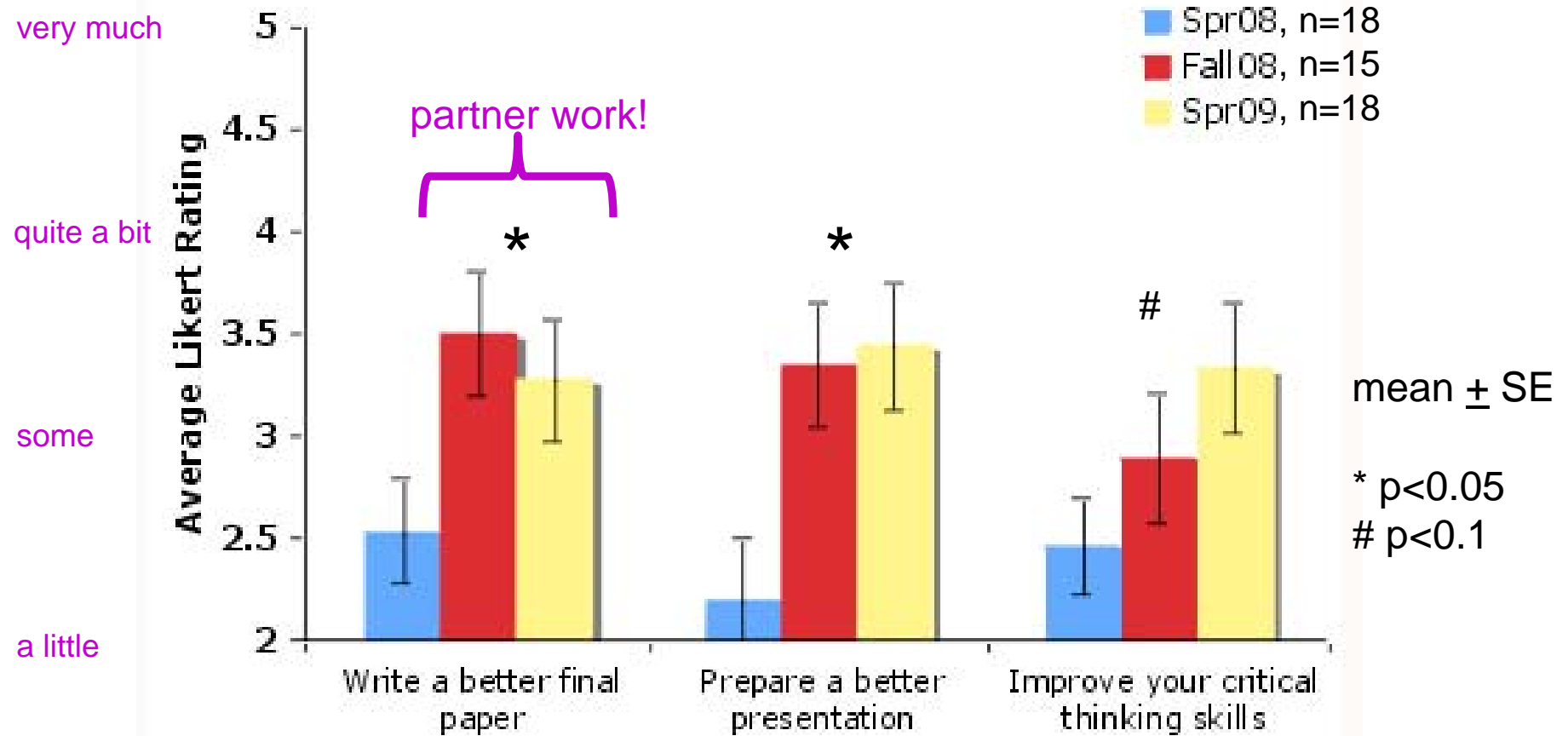


Focused on content

Students: too challenging  
Instructor: ready to give up

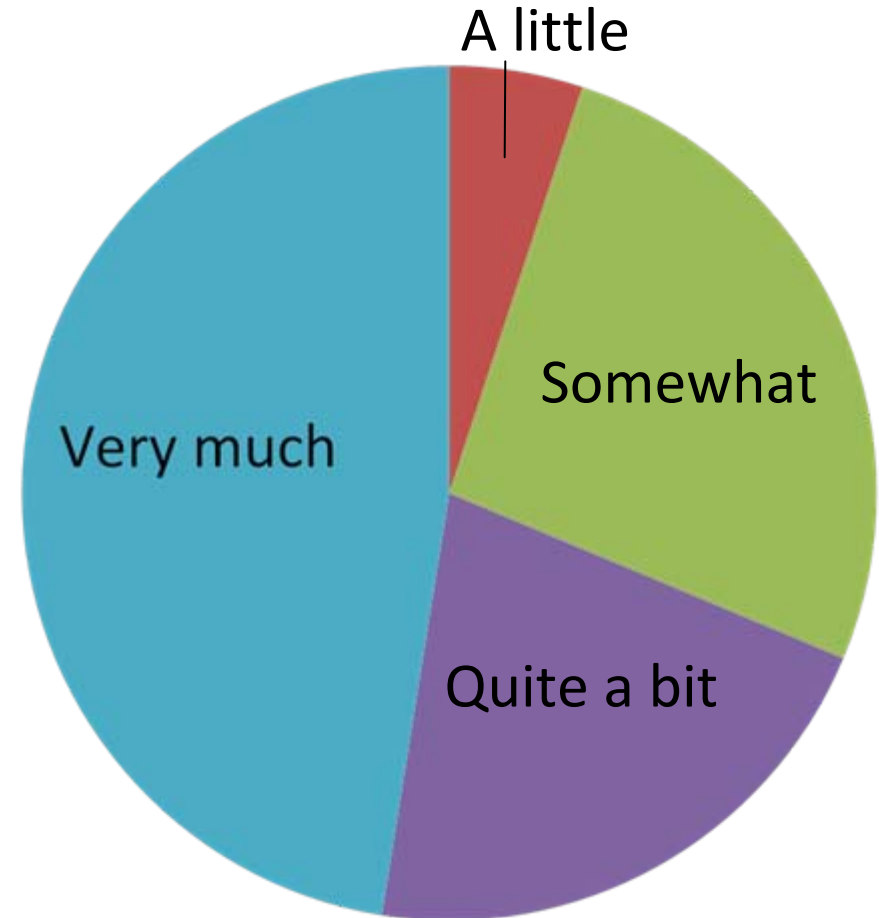
Students: all about writing  
Instructor: CU Learn too cumbersome

# Partner work increases extent to which students find CPR helpful



# Partner work is viewed as beneficial

- 94% responded 'somewhat' or greater
- When asked to explain answer:
  - 75% felt improved quality;
    - 42%: **different opinions** led to better / less biased / more standardized [evaluation]
    - 26%: said one person could catch things the other missed
  - 26% discussions led to better understanding of assignment

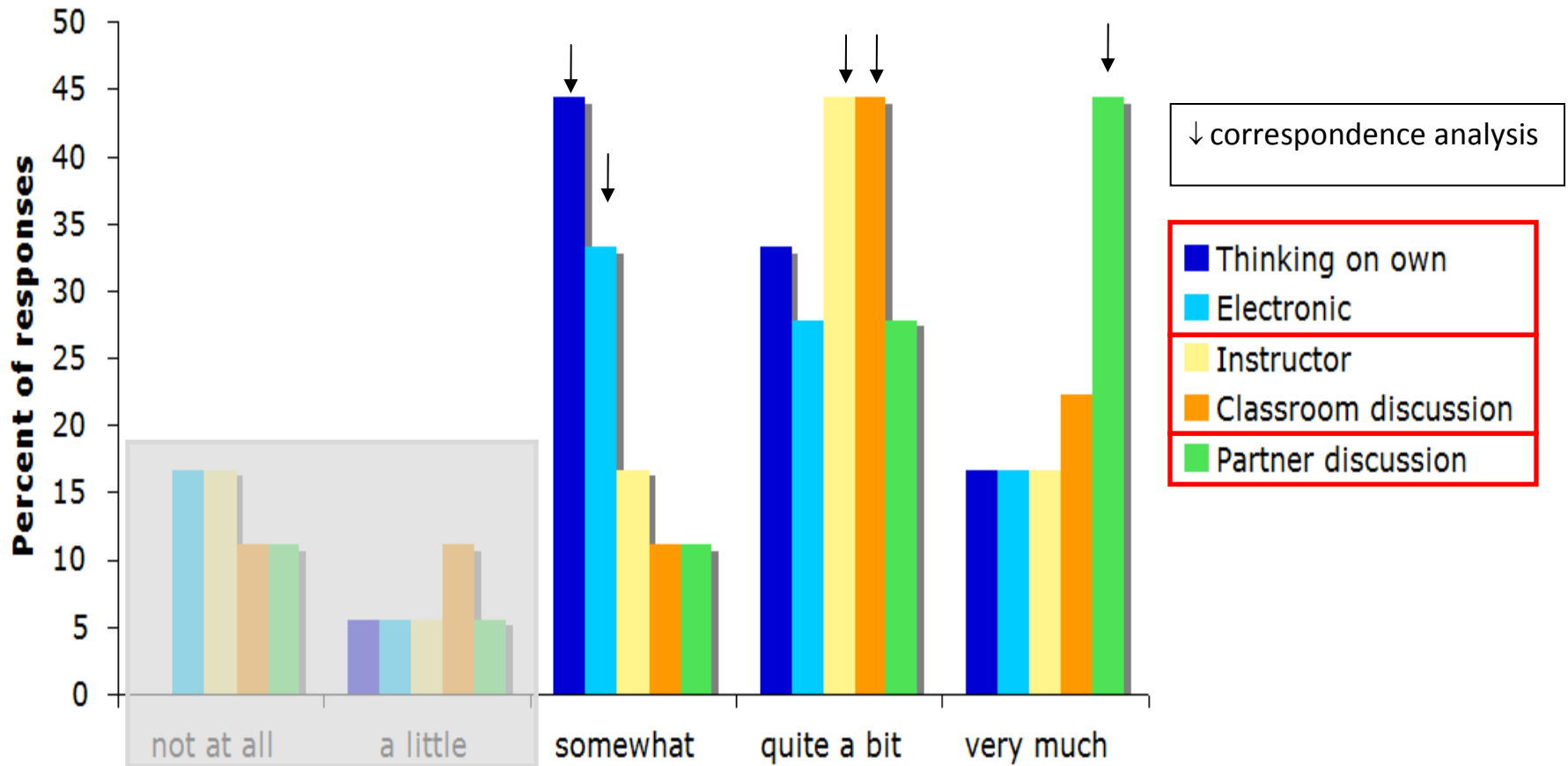


F08, n=19

# Student quotes about partner work for CPR

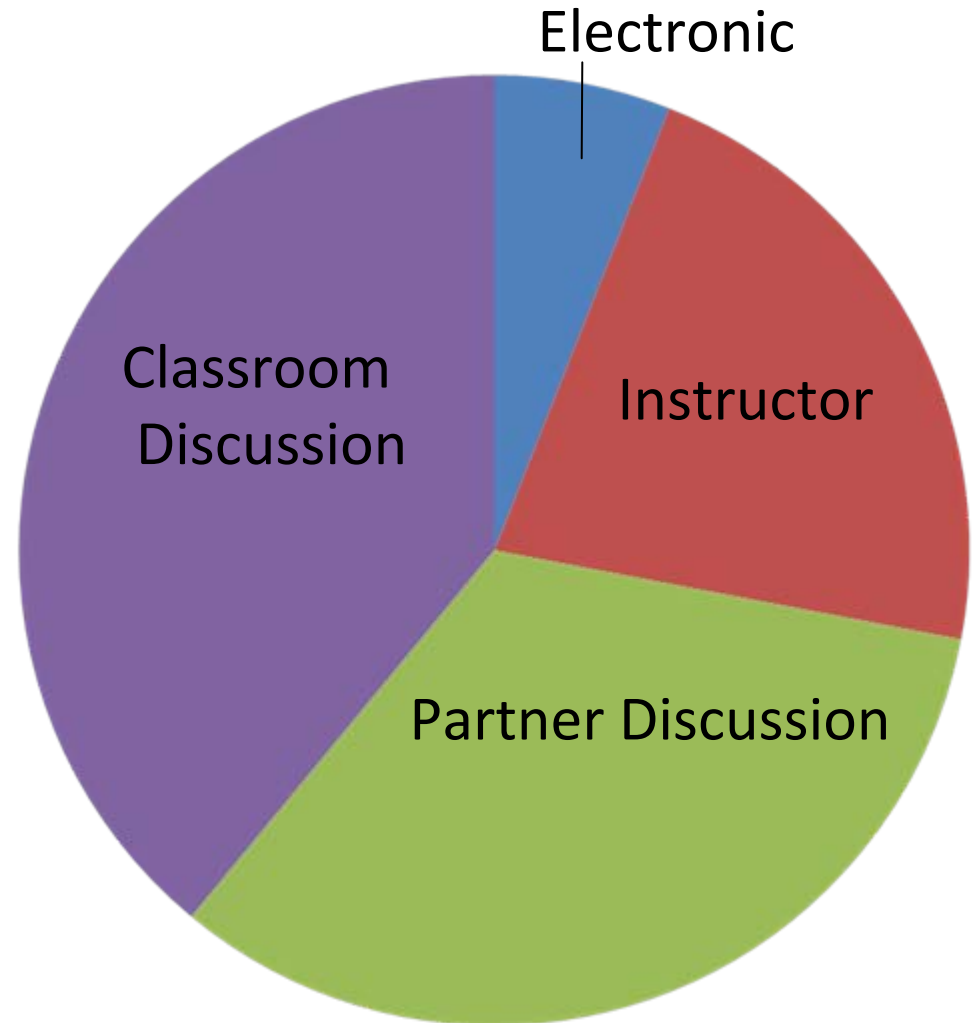
- ❖ “Working with someone is great b/c it makes **you feel like you’re understanding the material better if you agree with your partner.** It also allows for some help when you miss key points in papers, or read something wrong.”
- ❖ “Talking with a peer made it much easier to **see what we were thinking** and then trying to talk it through to explain why we thought it was A, B, or C. [You] notice much more.”
- ❖ “The other person might have a completely different view than yours on certain topics. Its **good to listen to their reasoning** and explain yours and **come up with an agreement on which reasoning is more valid** and makes sense”
- “Not everyone grades in the same way. While it can be beneficial to view other people's opinions, it can also be a tedious process”

# Partner Discussion Rated Highest in Helpfulness (F08)

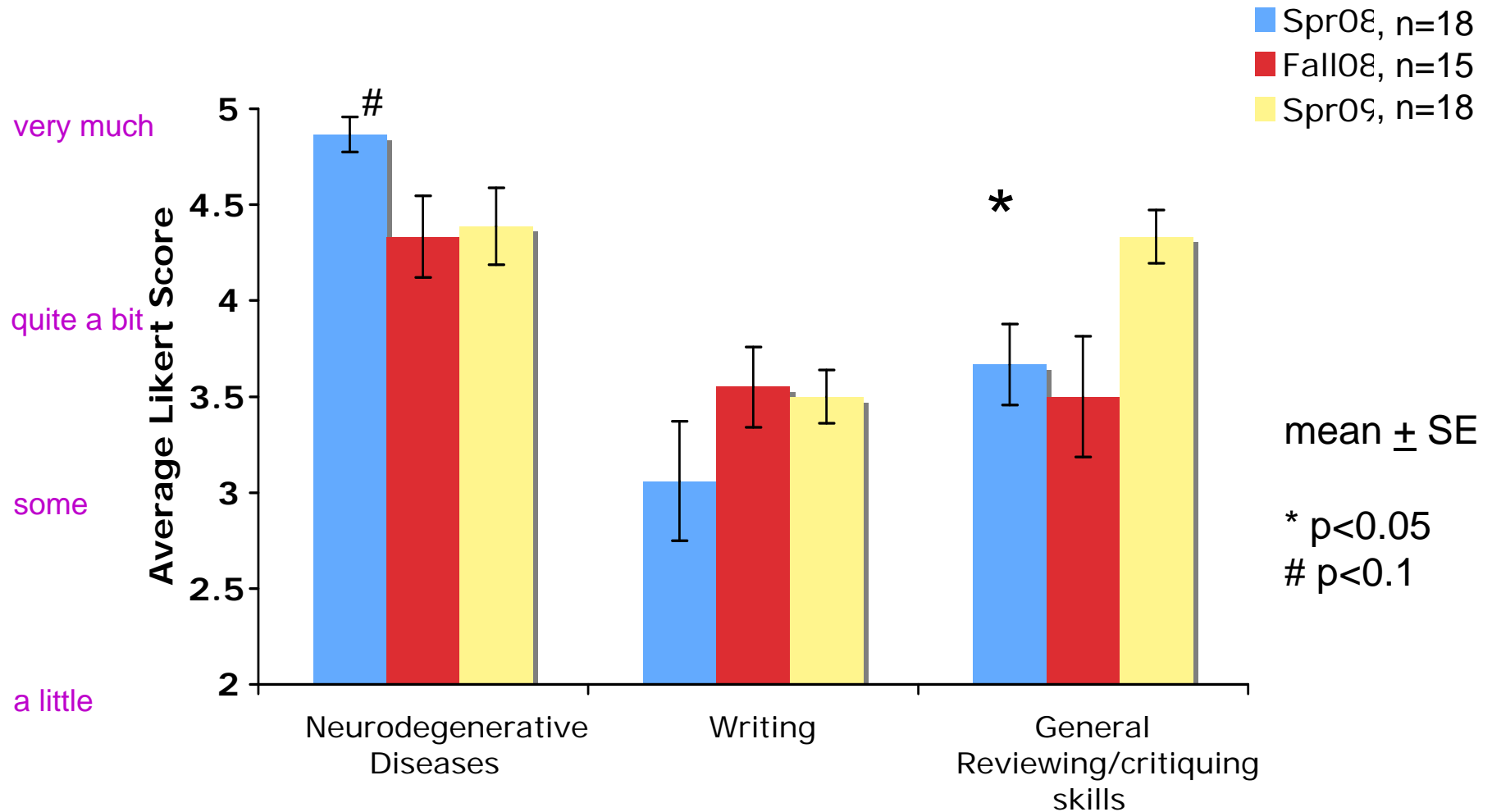


# Which type of feedback is most helpful in passing calibrations?

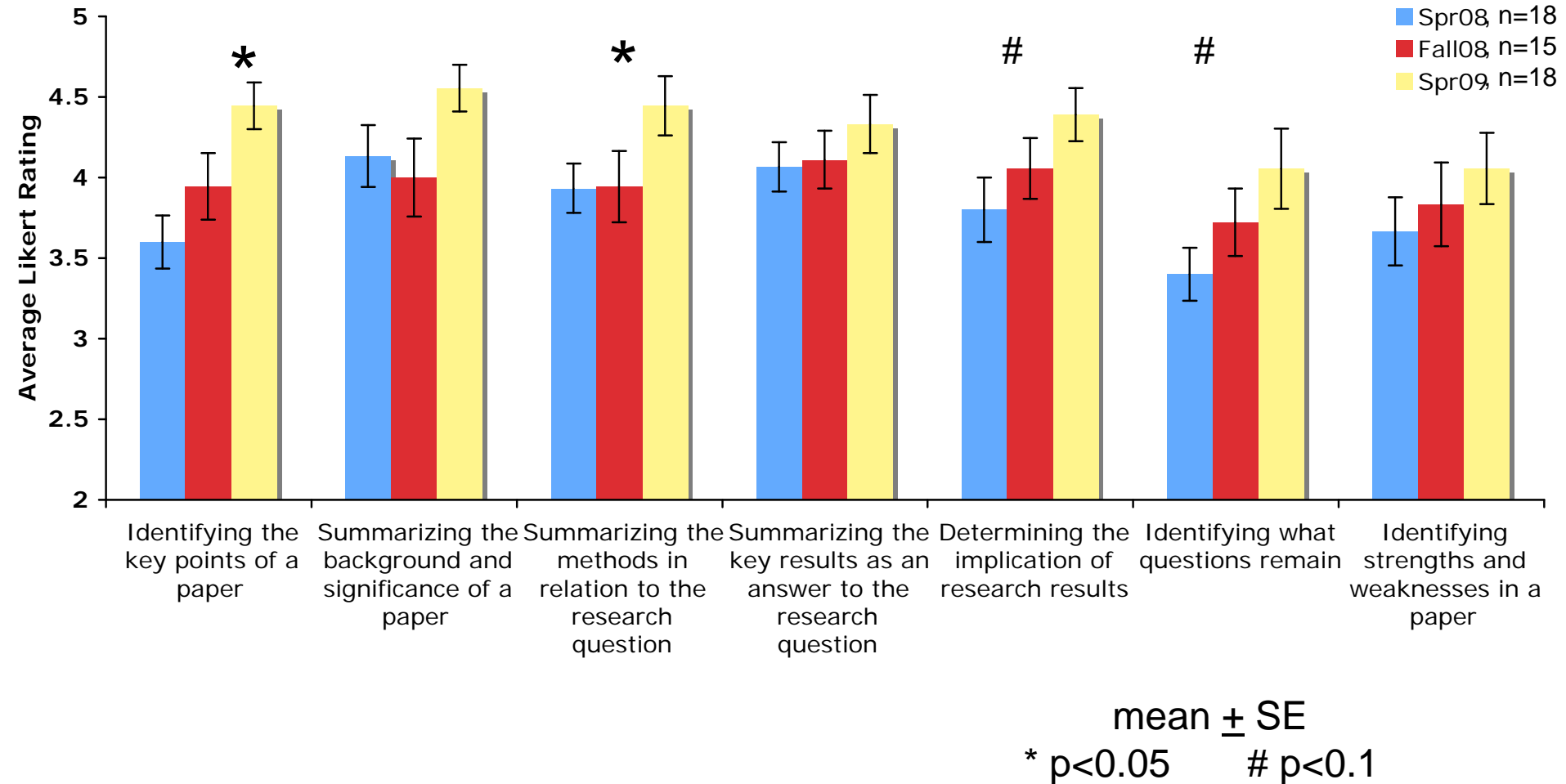
- 72% chose some form of peer discussion:
  - *classroom discussion* (small group discussion with some instructor feedback) (39%)
  - or *partner discussion* (33%)



# Focusing on content led students to feel they acquired more general skills



# Focusing on content helped students feel they learned more about how to read & interpret primary literature



# Other observations...

- When students worked with partners:
  - significant improvement in whether they felt CPR was worth their time
  - performed better on last 2 calibrations (for results, & significance and implications)

# What's Next?

- Critical Thinking
  - Independent reviewers rating answers to rubric summary questions & overall score for final papers to assess performance
- Potential COLTT workshop on CPR in August

# Acknowledgements

## Critical Thinking

### – Attitude surveys

- Dr. Kate Semsar, STF
- Franny Benay, M.S., STF

### – Performance

- Dr. Teresa Foley, STF
- Dr. Kate Semsar, STF

# Acknowledgements

## Neurophysiology

### – Attitude surveys

- Franny Benay, M.S., STF

### – Bloom's rubric

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# Evolution of Critical Thinking Course

Primary literature review

need practice



2 practice assignments (write portions)  
(teacher feedback)

need more practice



Small group discussion of articles  
(write portions - practice)  
In-class critique of examples  
need more practice,  
but grading overload

**Student Problem:** understanding how to read primary literature & what it means to look at data

**Instructor Problem:** limit to feedback can provide