SLAM MICHIGAN

Symposium on Learning Analytics at Michigan
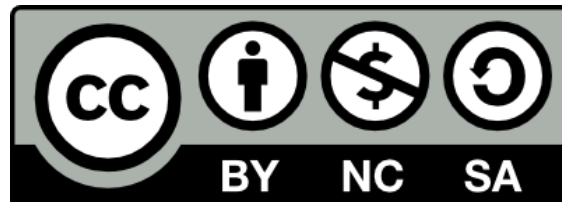
Damn These Data!

The More I Know About Student Effort
The Less I Understand Student Outcomes

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April 4, 2012

Driving Questions

1. How can I, as an instructor, increase student engagement?

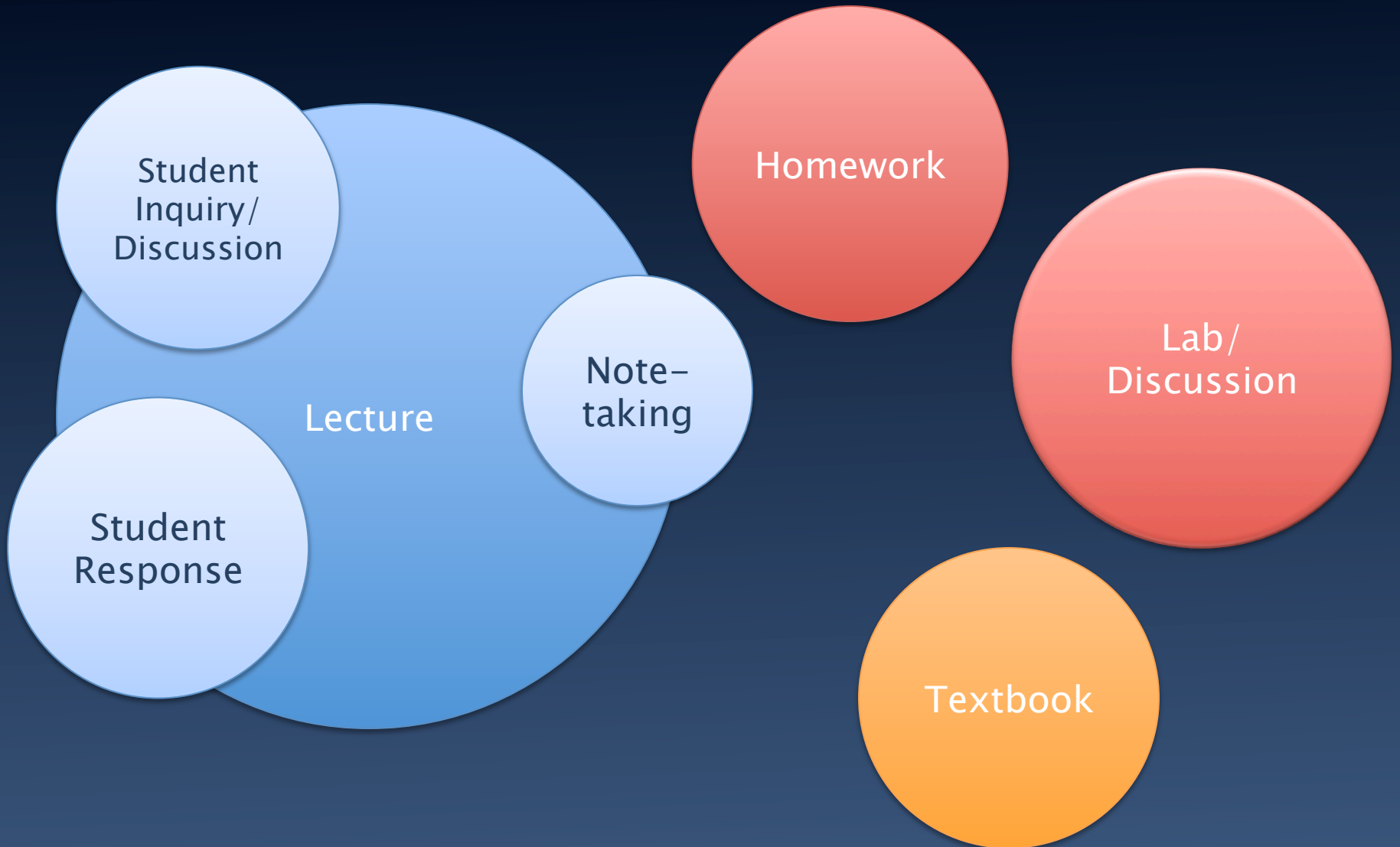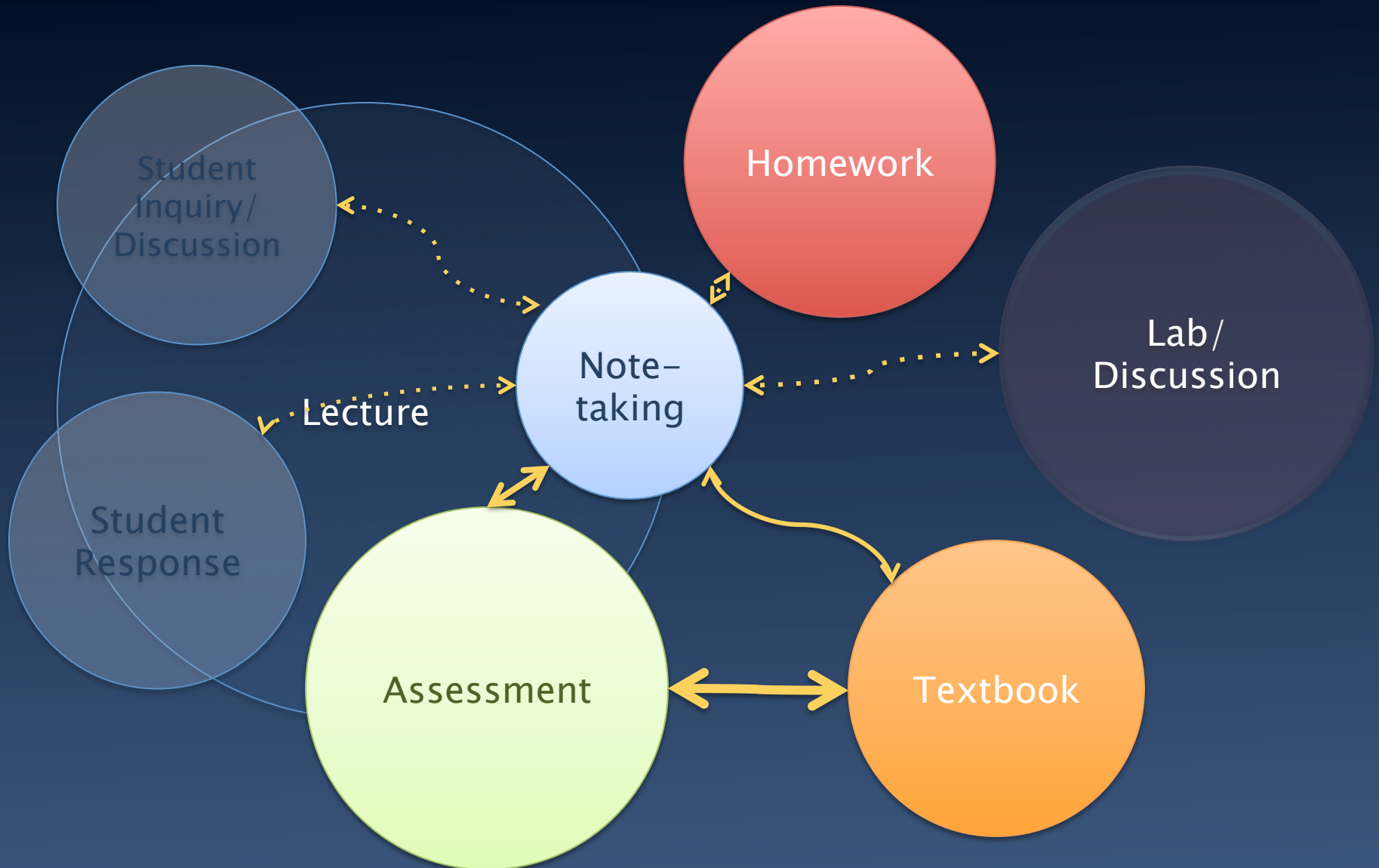   …and to what degree does this affect student learning?

2. How does a switch from traditional to hybrid lecture format affect engagement and learning?

3. What signals exist that identify students at risk of failure earlier?

The Student Learning Environment

How Students Prepare for Exams

New tools for teaching and learning

New tools for teaching and learning

AOSS 101-2 ▾   Perry Samson ▾   Help

Notes | Questions | Social Posts | Show All | Q Search

anyway, the point of this lecture is that there is stuff.

1/25/12 ▾

12:28pm

Culpa farm-to-table commodo cardigan fixie, VHS nulla. Stumptown voluptate quis pariatur farm-to-table irure, velit keffiyeh pitchfork magna incididunt adipisicing nesciunt.

Trust fund eu nihil, **#keytar** craft beer accusamus laborum readymade brunch. Aliqua food truck wolf master cleanse artisan, echo park veniam high life vegan labore. VHS leggings exercitation fugiat marfa incididunt. Lomo irure nisi tumblr, locavore readymade dreamcatcher farm-to-table. In single-origin coffee deserunt, aliquip blog magna twee scenester.

#homework1 #midterm

12:30pm

Hmm, I think I need to ask the TA about this. **#asklater**

2 notes hidden. Click here to expand.   1/30/12 ▸

2/1/12 ▾

+ Click here to add a note
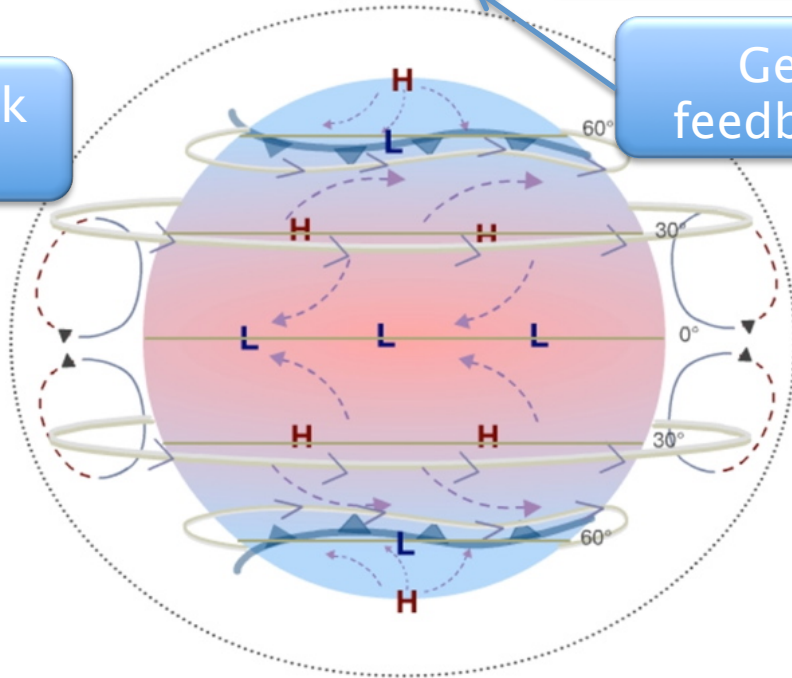
4   Chapter 1

Normally, our atmosphere is a sheltering and stable environment that has sustained and nurtured life for millions of years. It protects us from the bitter cold of space and from most of the sun's dangerous radiant energy. Its gases trap a portion of the radiant energy emitted by the earth, and this energy warms the lower atmosphere. Precipitation that falls over large areas helps support a wide variety of life, which over time, has adapted to the normal range of weather and climate we find on earth.

Over most of the earth, the atmosphere is quiescent, with a mix of blue skies and white clouds enveloping the globe (see ❭ Fig. 1.1). However, there are times when the sky turns ominous and the power of the atmosphere becomes focused on specific areas in events of wild fury that often last for short periods of time. These days of "extreme and unusual weather" are the focus of public fears, and are often the impetus behind our quest for knowledge about the atmosphere. While atmospheric scientists must understand the processes that govern the atmosphere even on the relatively quiet days, it is

the ability to foretell the extreme and unusual weather events that ultimately prove the greatest challenge, as well as the greatest value, to society. It is these extreme weather events that attract the largest portion of our attention.

Threats from the Sky

Extreme and severe weather captures our imagination because of its sheer power and potential to cause personal injury, destruction, and death. In the United States, the risk of death due to a weather event is relatively small (about two per million people) when compared to other risks (see ❭ Table 1.1). Violent weather, however, deserves and demands study because it delivers its damage both unexpectedly and in catastrophic ways.

Even though the risk of losing one's life due to a weather event is low, such deaths, and the fact that weather-related events cause an estimated $10 billion

New tools for teaching and learning

New Methods for Student Assessment/Feedback

Image Quizzes

Where would you expect the ligament to tear?

Image Map Question

Free Response

Defend your previous answer.

Free Response Question

Ordered Lists

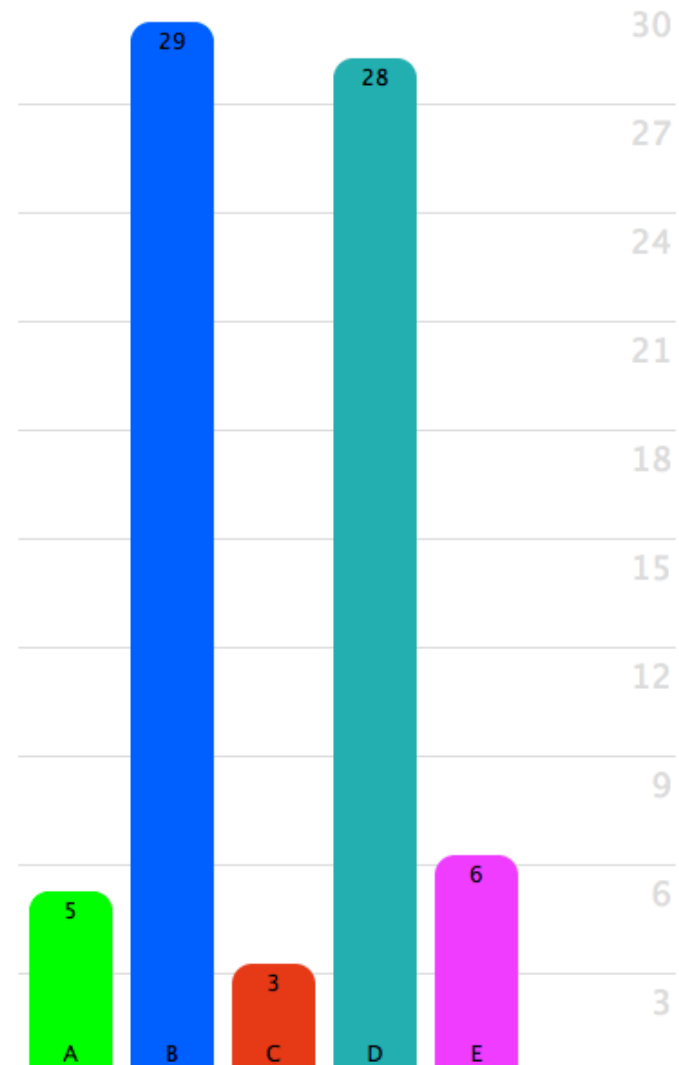Rank these environments from greatest to least species.

Ordered

List

Question

New Methods for Student Assessment/Feedback

New Methods for Student Assessment/Feedback

Free Response

Name one thing that is similar and one thing that is different between tendons and ligaments

80 responses

similar: both consist of fibrocartilage different: tendon --> mostly of collagen ligament --> more elastin

Both tendons and ligaments are dense regular connective tissue. However, ligaments contain more elastin fibers than tendons.

ligaments connect bone to bone, while tendons connect muscle to bone. both of them are help you move

similar: they attach things different: what they attach together and their structures

tendons attach to muscle and ligaments do not

tendons are made of more collagen and ligaments are made of more elastin

They are made of the same material. But they both have different structures.

collagen in tendons vs. elastin in ligaments

tendons are muscle to bone ligaments are bone to bone

similar–both attach to bone difference– ligaments do not attach to muscle

Ligaments are more elastic than tendons. Both are used to keep bones in place/secure.

Both connect to bone Ligaments are more elastic like

they are both connective tissues. ligaments connect bones to bones while tendons connect bones to muscles

Ligaments attach bone to bone, where as tendons attach muscle to bone.

they both have transitions. their function is different

They are both connective tissues Ligaments are more stretchy

tendons bind muscle to bone, while ligaments bind bone to bone

Similarity– Both made from fibroblasts Difference– Ligaments are bone to bone tendons are bone to muscle

Tendons and Ligaments both attach to bone Ligaments do not attach to muscles and Tendons do.

To text in your answer send '44857 [your answer]' to (734) 666-0004

80 of 137 (58%)

Finish

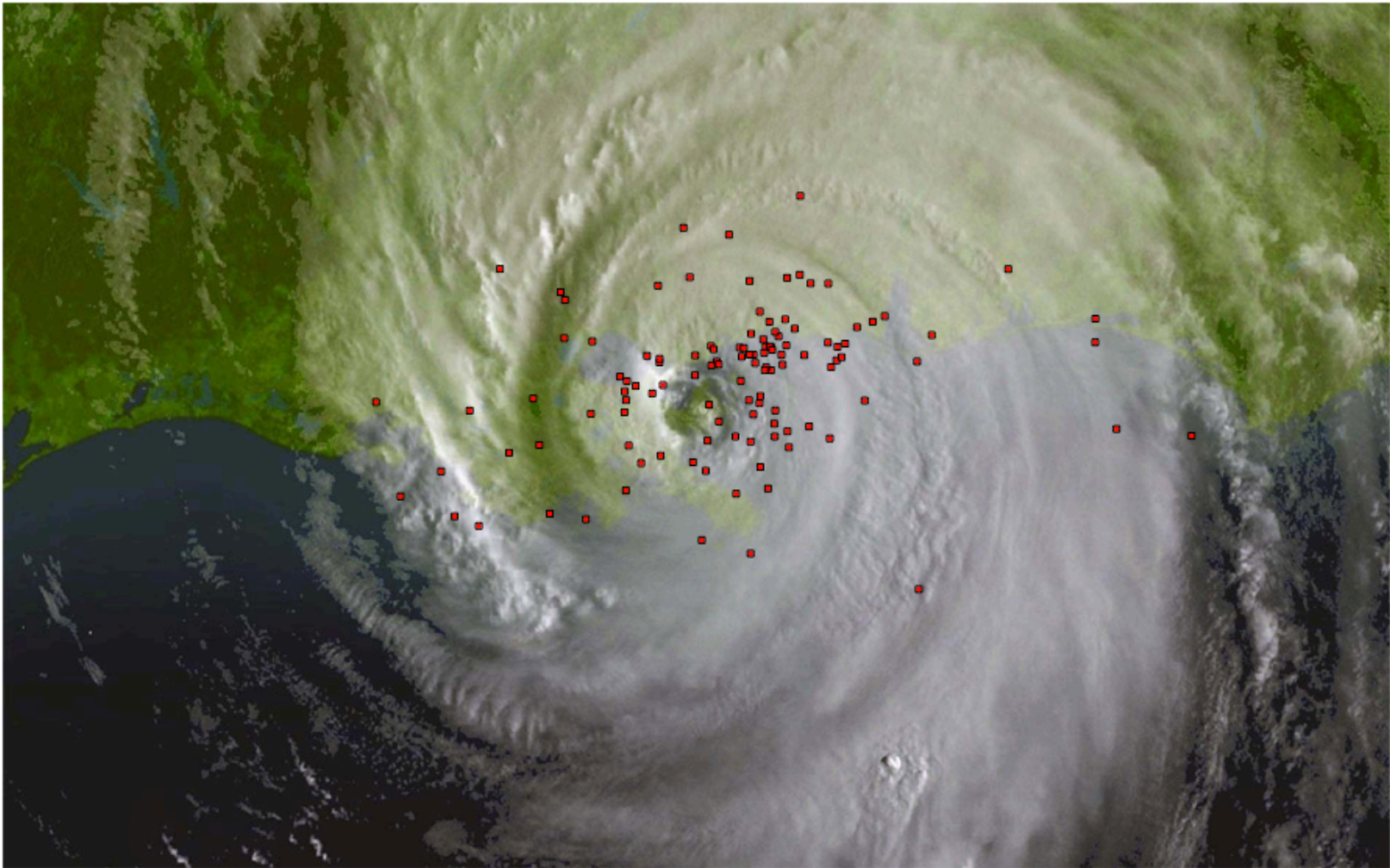**Polling Closed** Results Visible Answers N/A

Polling

Result

Answer N/A

Reset

New Methods for Student Assessment/Feedback

New Methods for Student Assessment/Feedback

Feedback

eTextbooks

Create Homework/Link to eTextbook

Choose the statement that best describes your instructor's use of the assigned textbook

The instructor treats the book as reference, you can do very well in the class without

You can get by in the class without reading the book.

The instructor uses the book extensively, you must read it to do the required work.

Other

0% 10% 20% 30% 40% 50% 60%

eHomework

Create Homework/Link to eTextbook

Does anything else matter?

Learning Analytics

Number Correct • Number Answered • Comprehension • Questions Asked • Attendance

Design Goals

1. What data are important measures for learning, motivation & engagement?

2. Who is the audience?

   a. Students (pull –or- push?)

   b. Instructors

   c. Advisors

   d. Administration(!)

3. What options are desired for the presentation of these data?

GPA vs. 1st Exam Grade
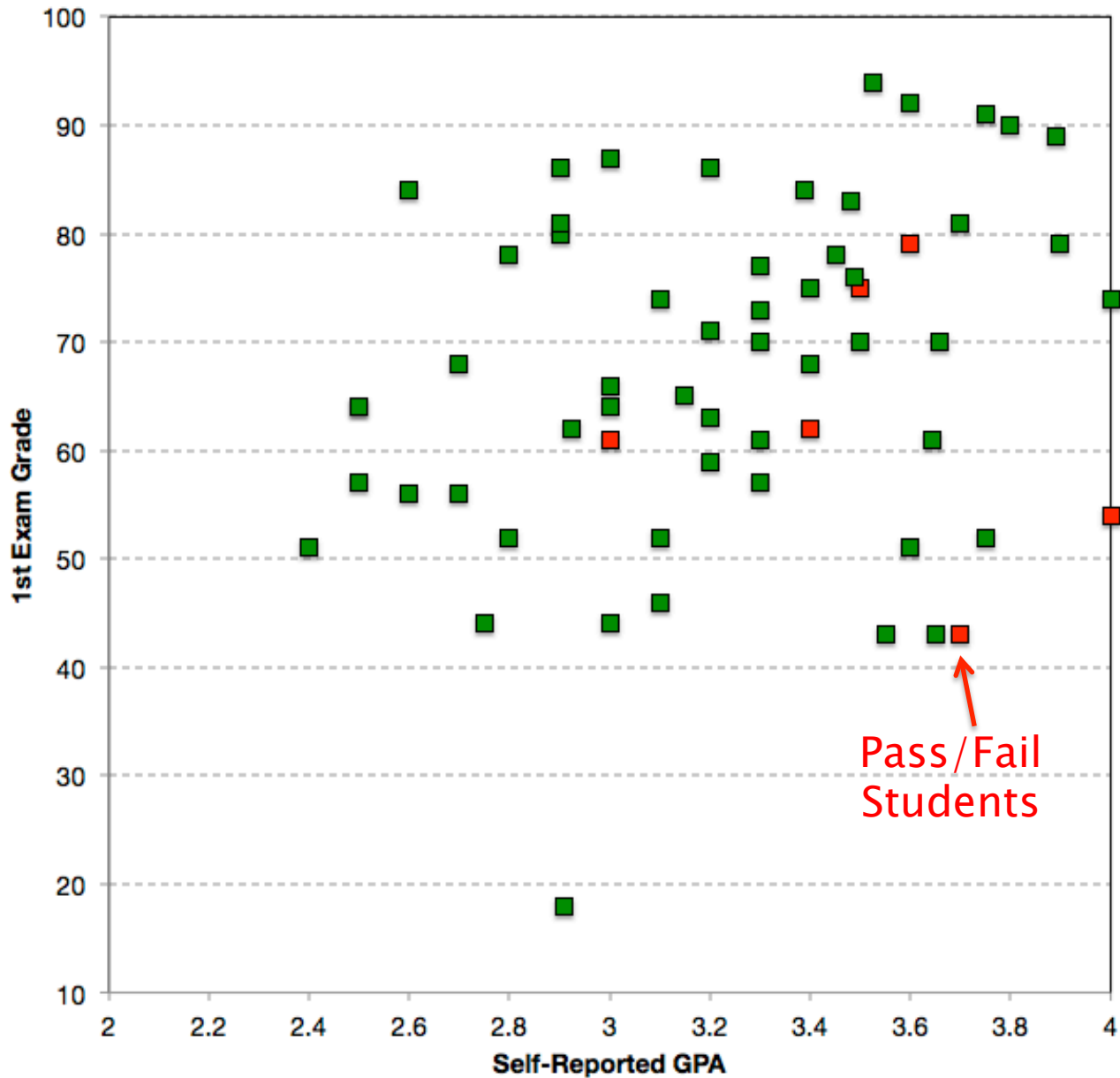
Self Improvement

What is it that students know?

Self Assessment of Preparation

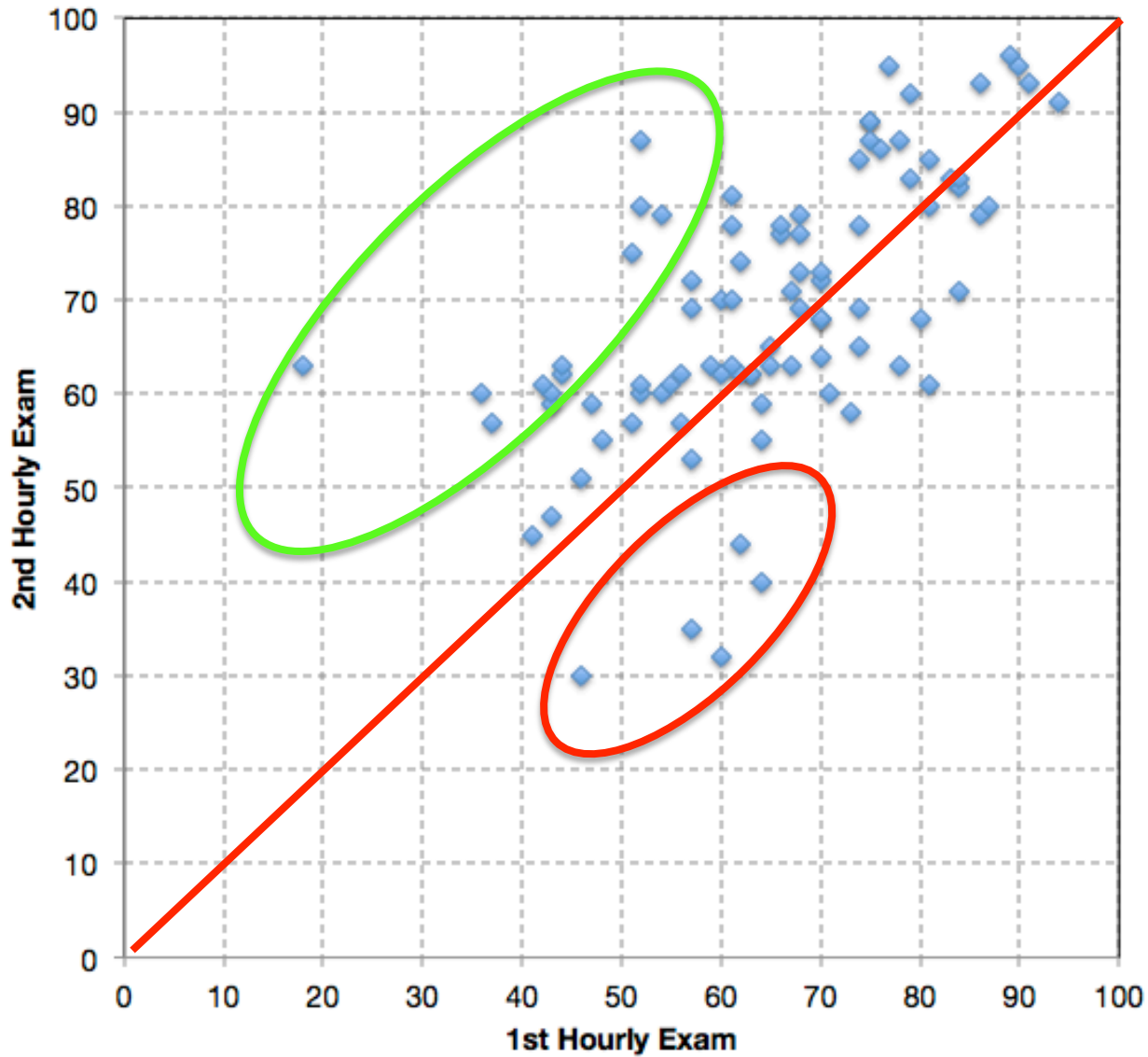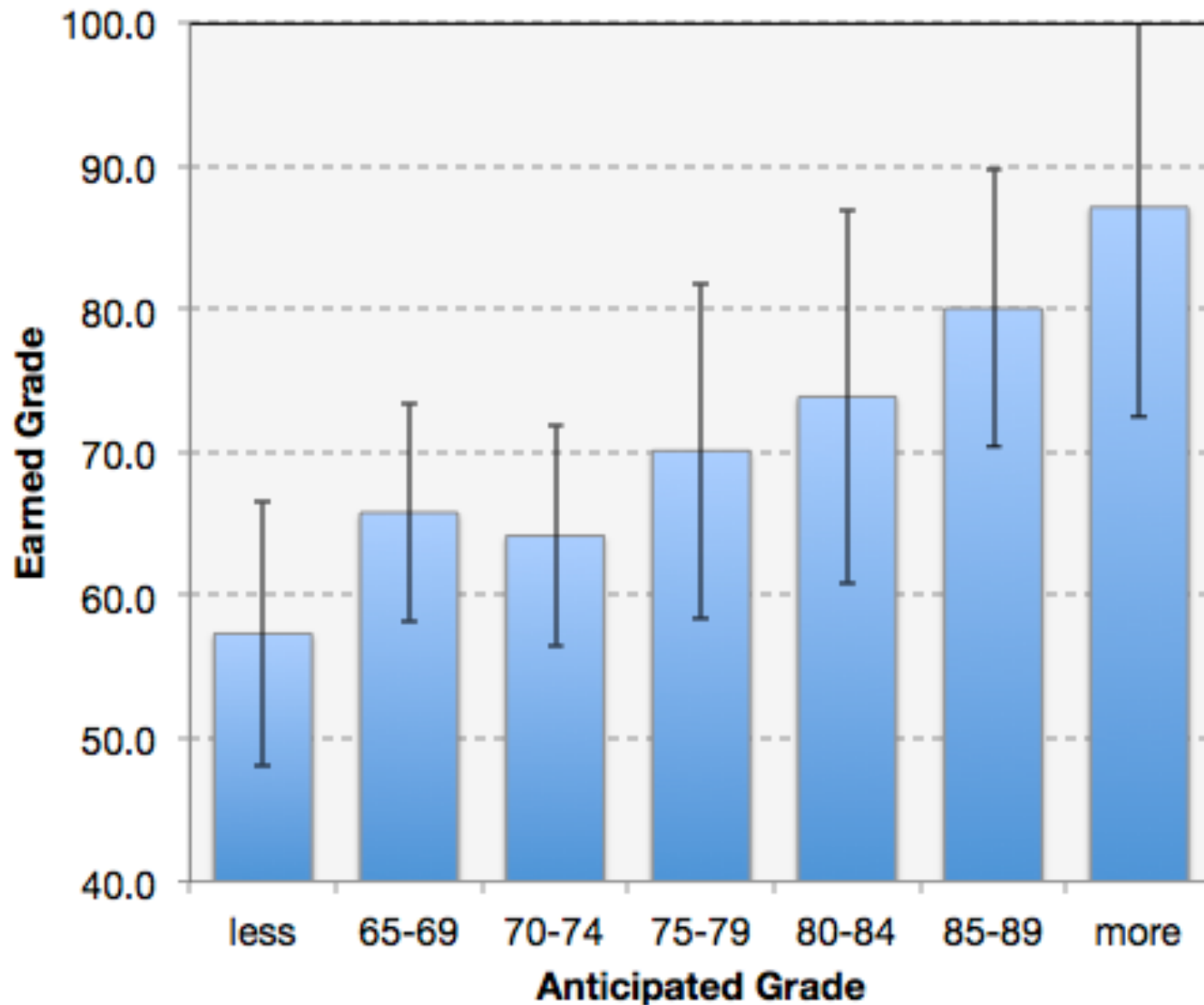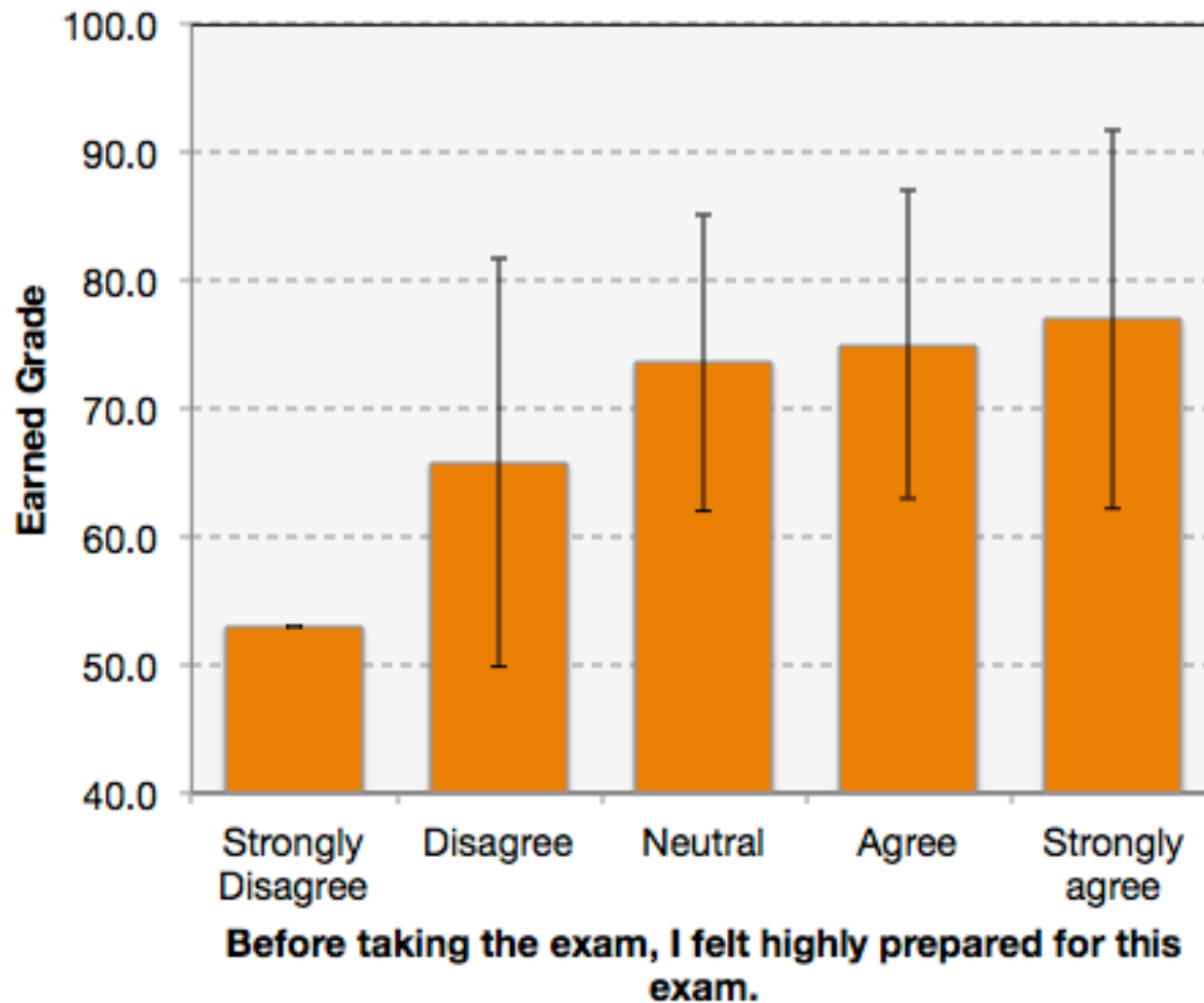# Self Assessment vs. Reality
Does "Preparation" include attending class?

Before taking the exam, I felt highly prepared for this exam.
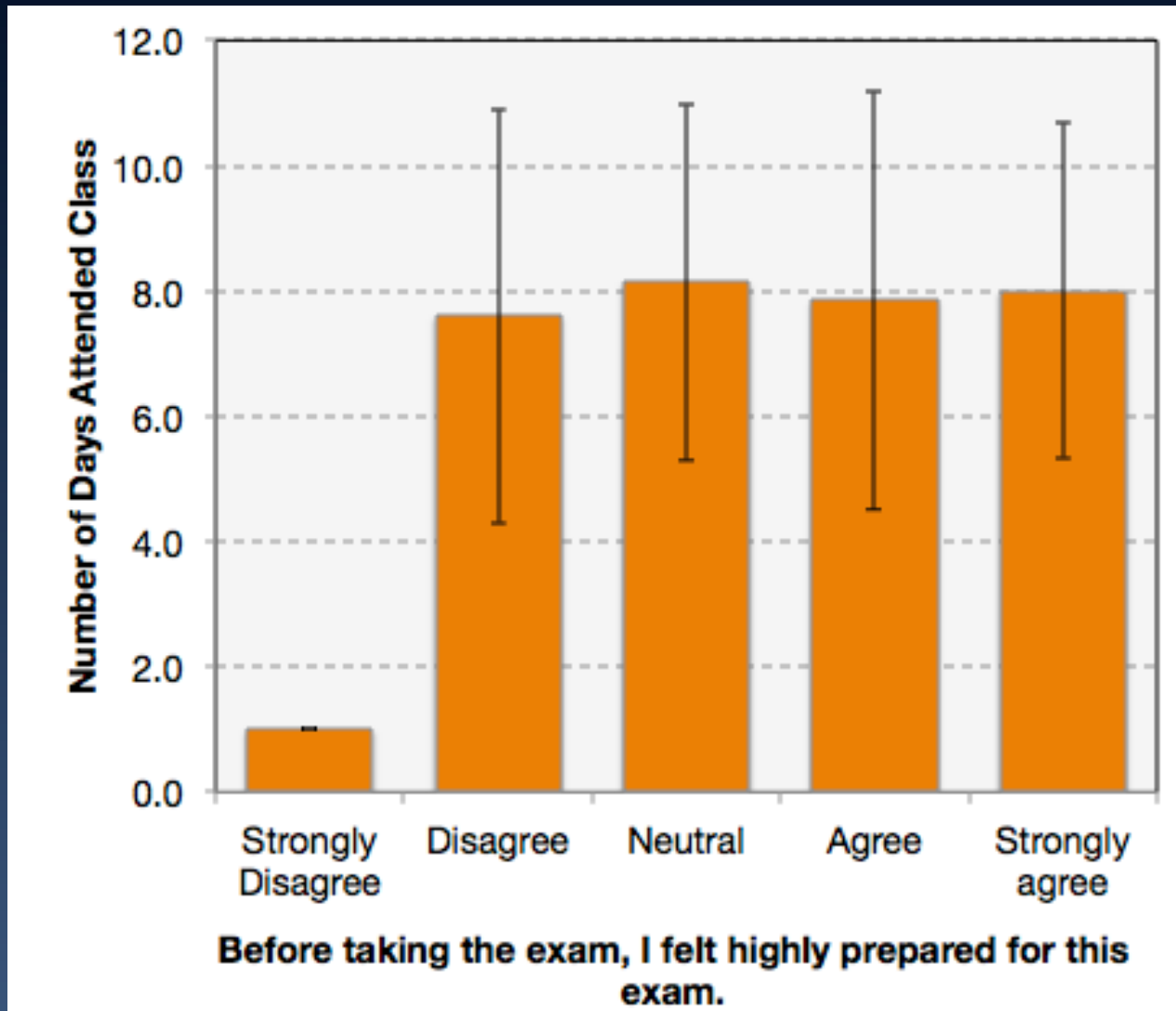
Self Assessment vs. Reality

Does "Preparation" include asking questions?

Before taking the exam, I felt highly prepared for this exam.
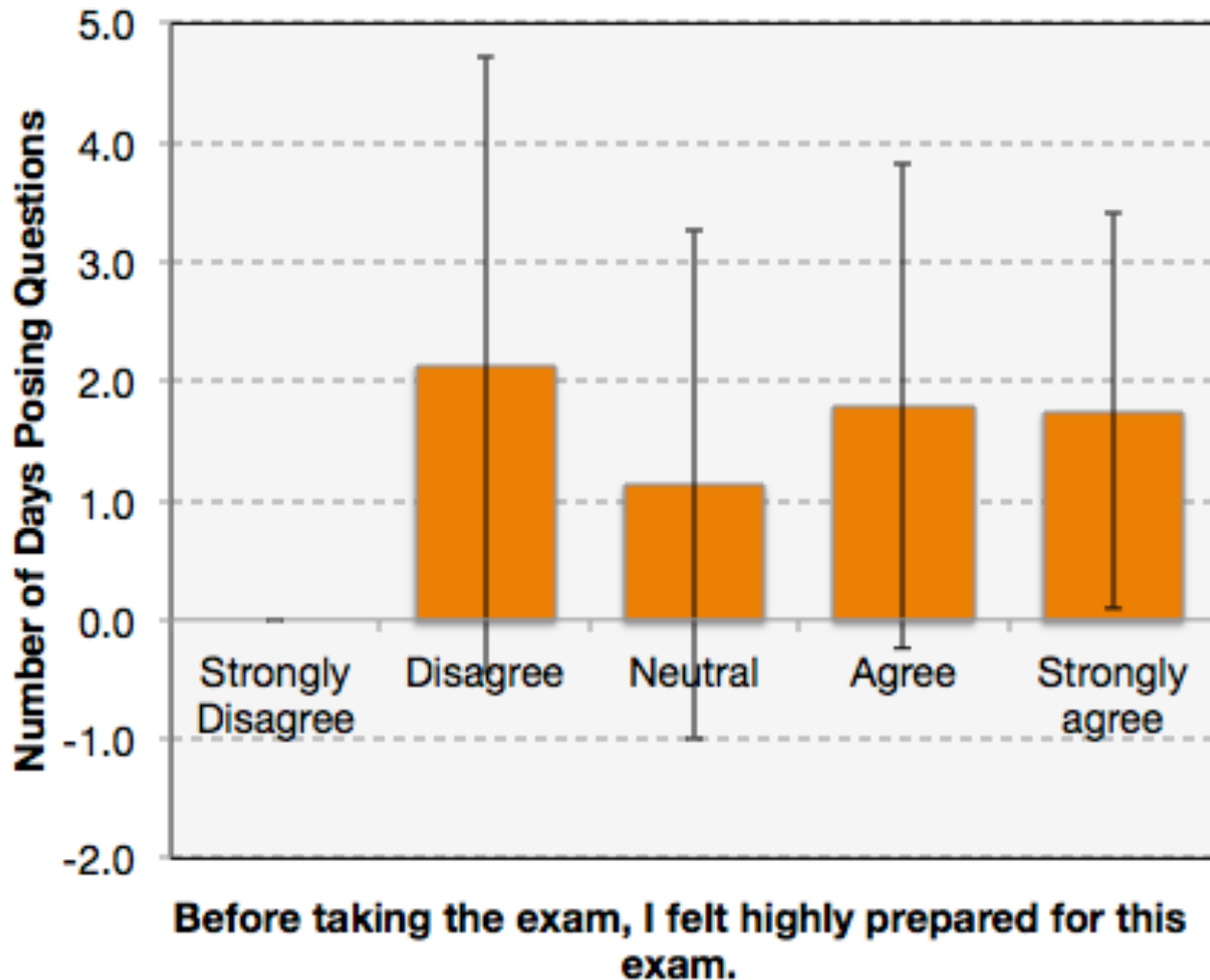
Student Preparation

Q: "What is your best estimate for the number of hours you spent studying for this class in the past week?"
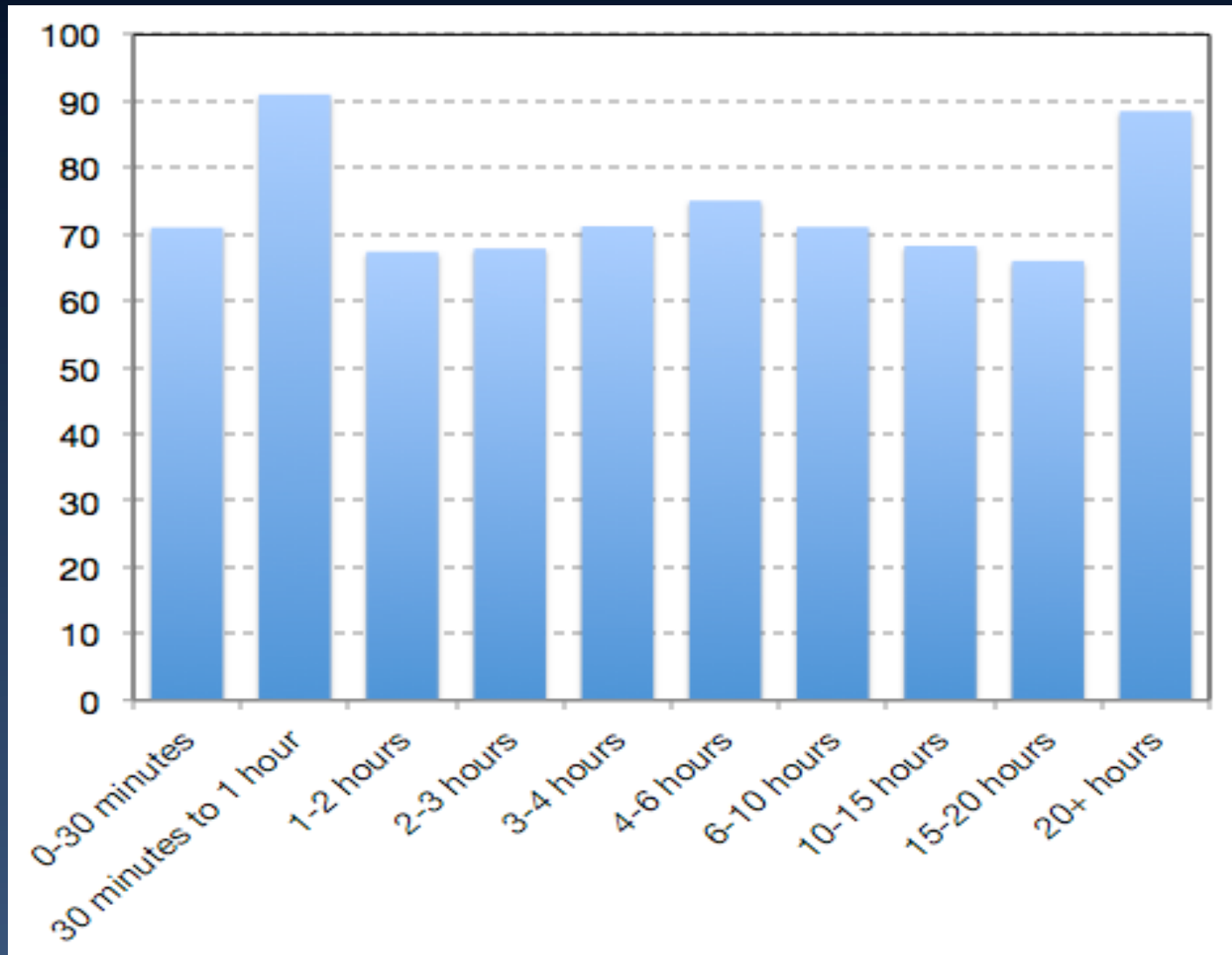
Student Motivation
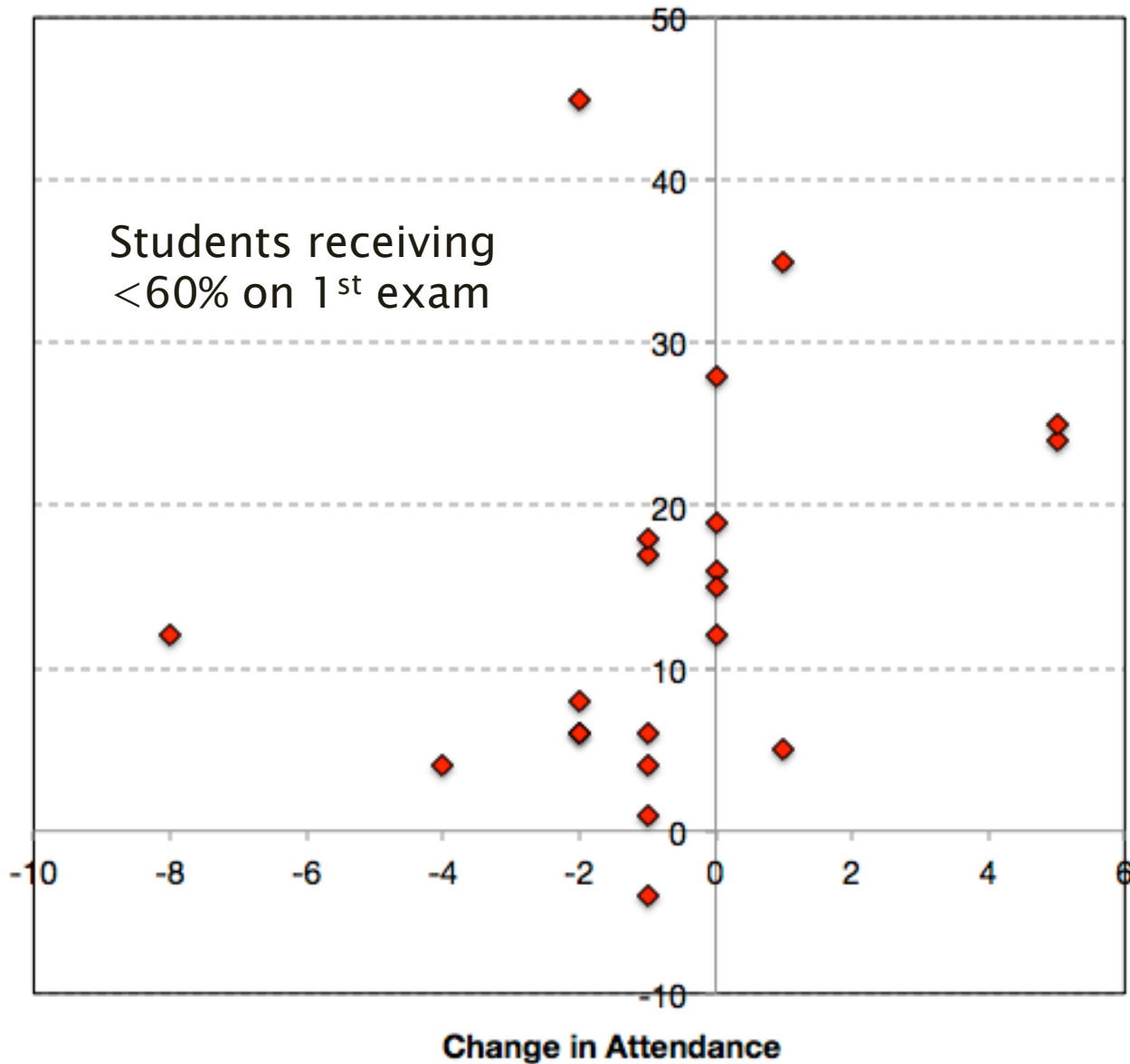
Student Motivation
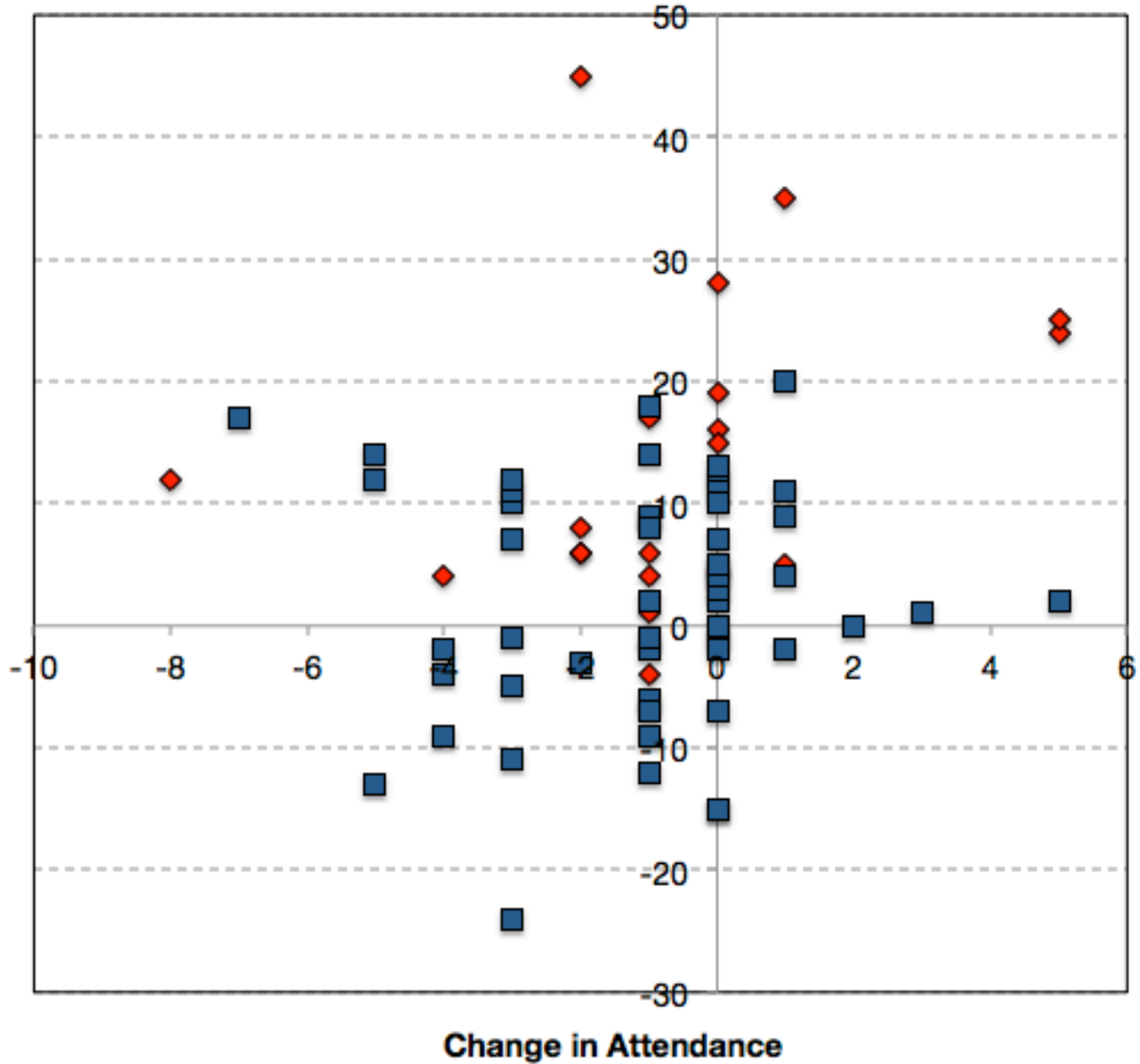
Diagnosing the Assessment
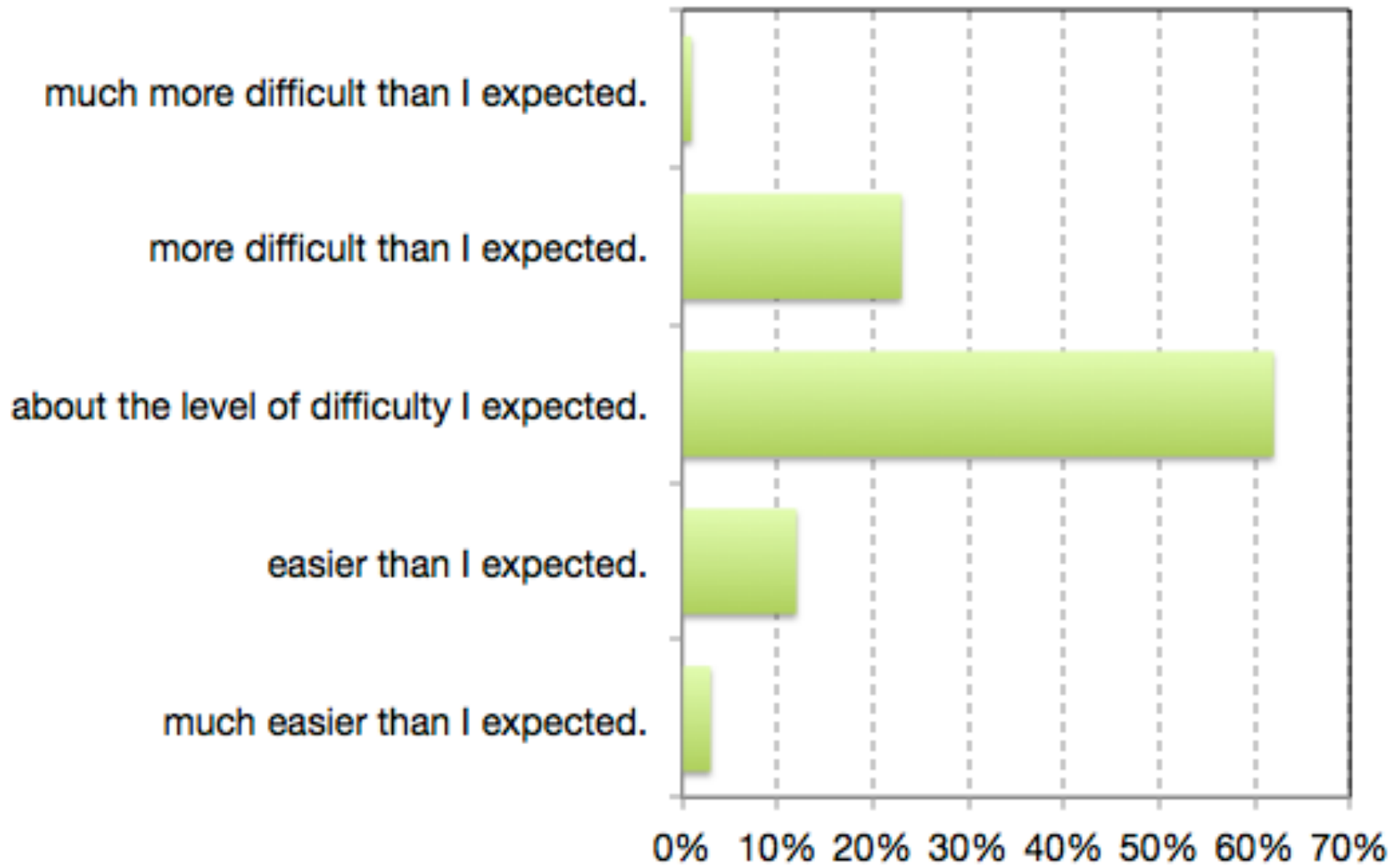
Student Preparation

Q: "How often do you make outlines while reading?"
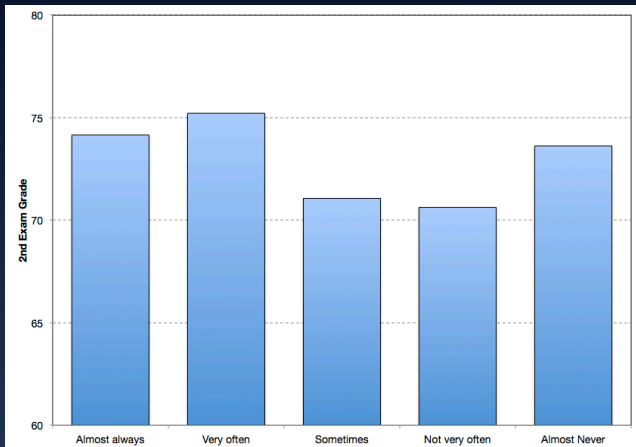
Q: "How often do you underline or highlight while reading??"
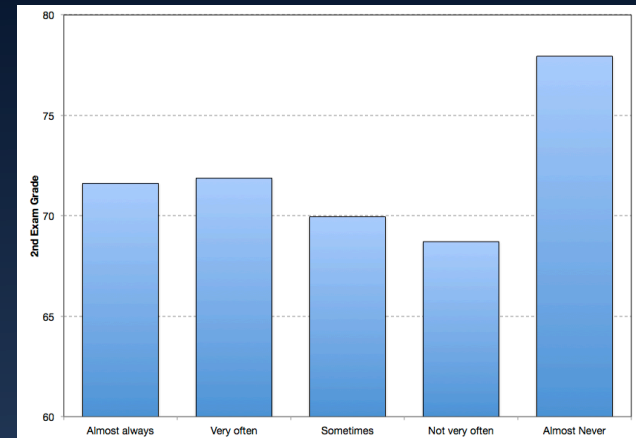
Q: "How often do you use flashcards to test yourself?"
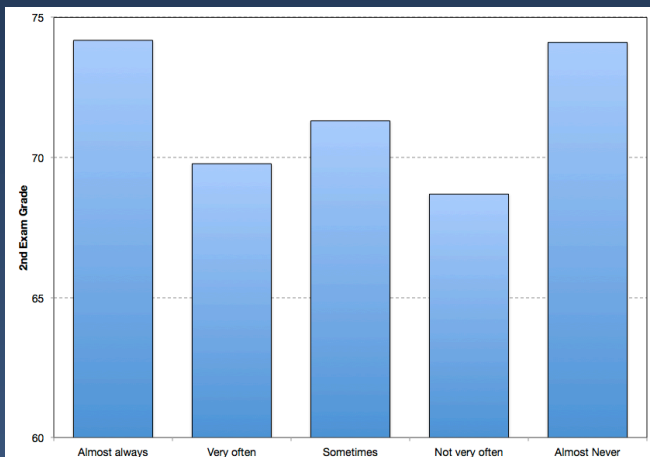
Q: "How often do you study with friends?"
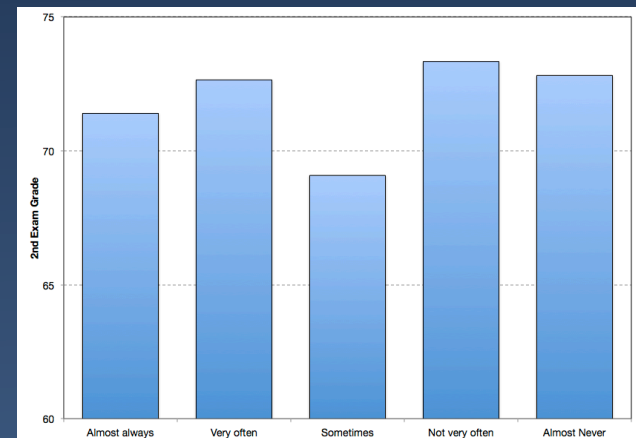
Student Preparation

Q: "How often did you create review sheets for your studies?"
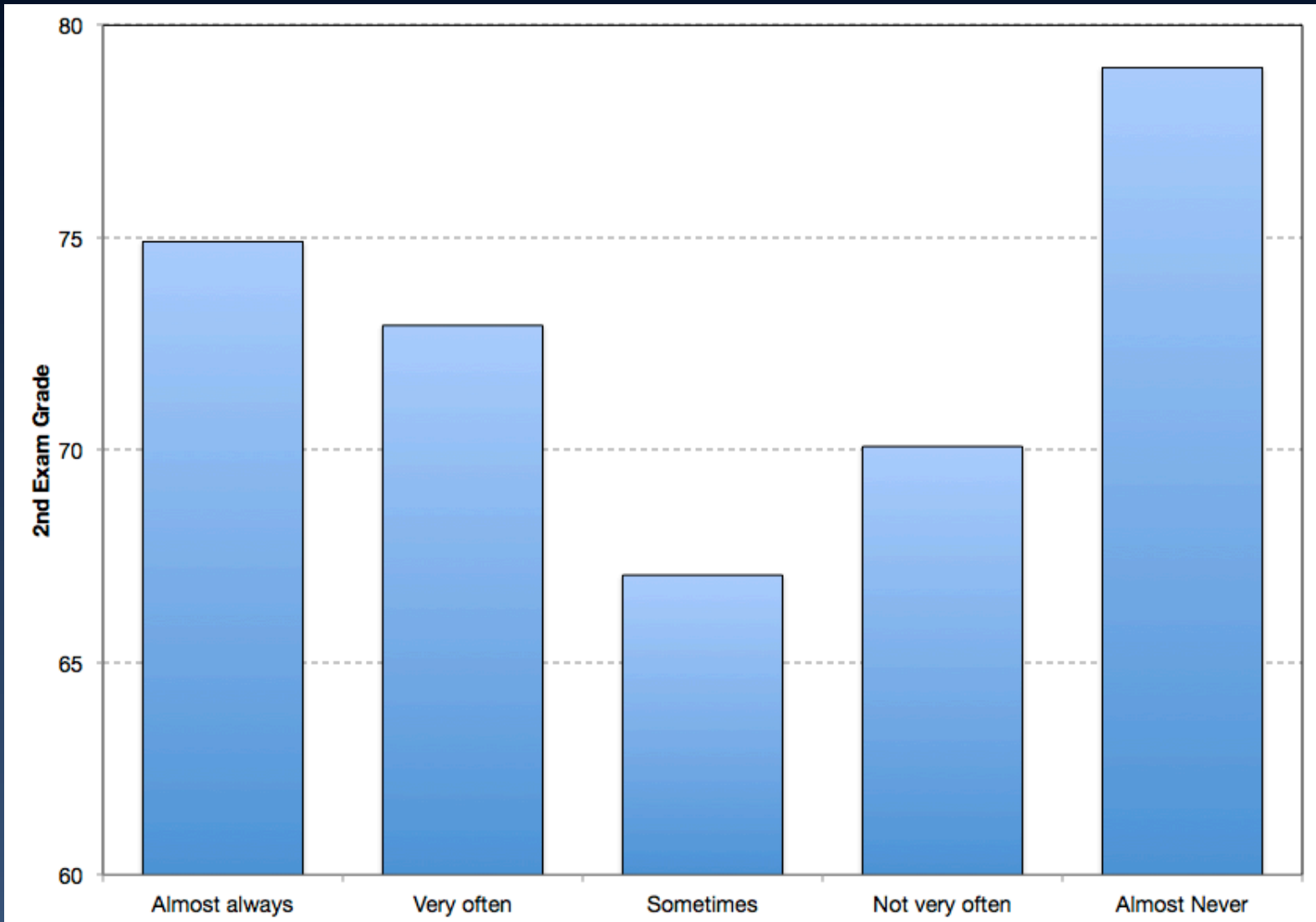
Student Preparation

Q: " I enjoy humanities classes"
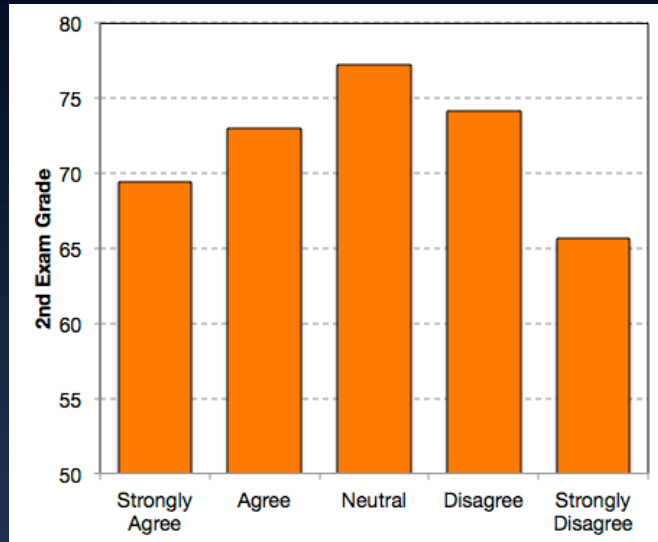
Q: " I enjoy natural science classes"
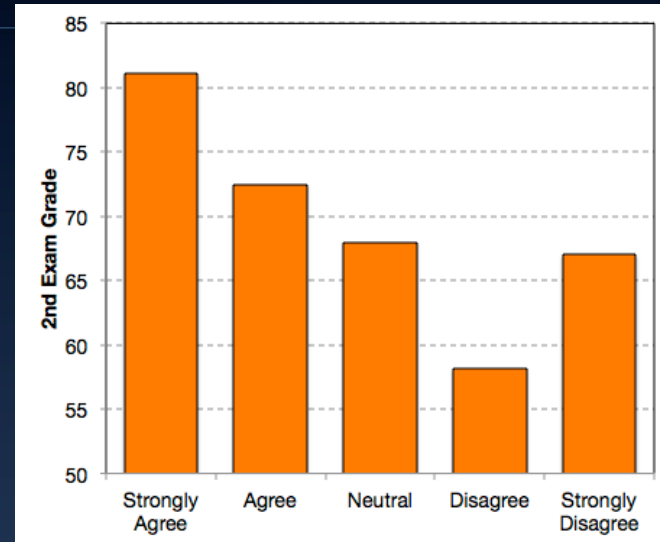
Q: "I enjoy social sciences courses"
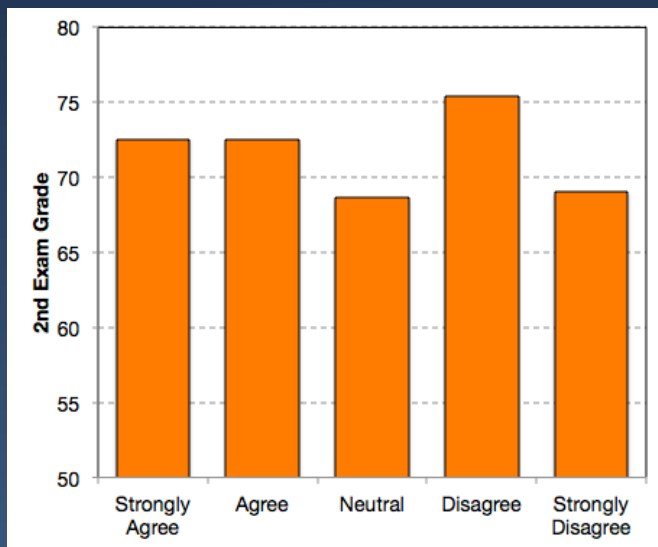
Q: "I enjoy creative arts courses"
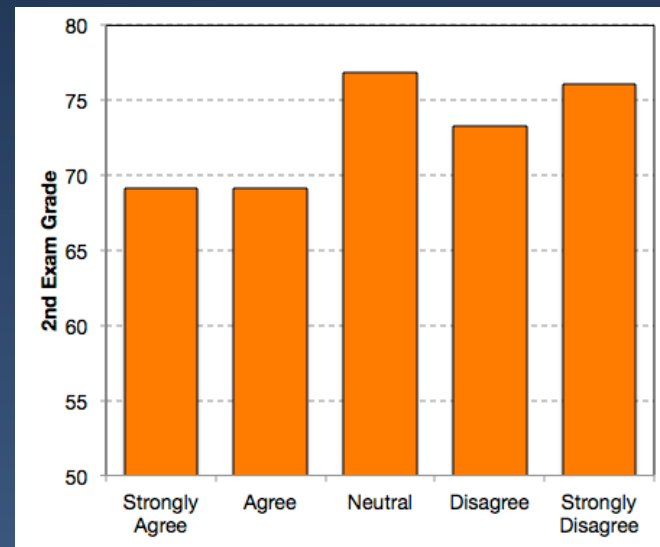
Student Preparation

"I feel that emotional issues have reduced my performance this semester"

"I feel that physical issues have reduced my performance this semester"

Student Preparation

Q: "How often did you review questions in LectureBook?"

eHomework

Grade Homework/Provide Feedback

Stats 250 HW 6

Go back to student list

Choose
Q. 1
Q. 2
Q. 3
Q. 4
Q. 5
Q. 6
Q. 7
Q. 8
Q. 9

Question 1 (Chapter 11)   <-- Click here to toggle grading view to AABBCC

The Freshman 15 is the name of a common belief that college students, particularly women, gain an average of 15 pounds during their first year of college. A study of 31 female first-year coll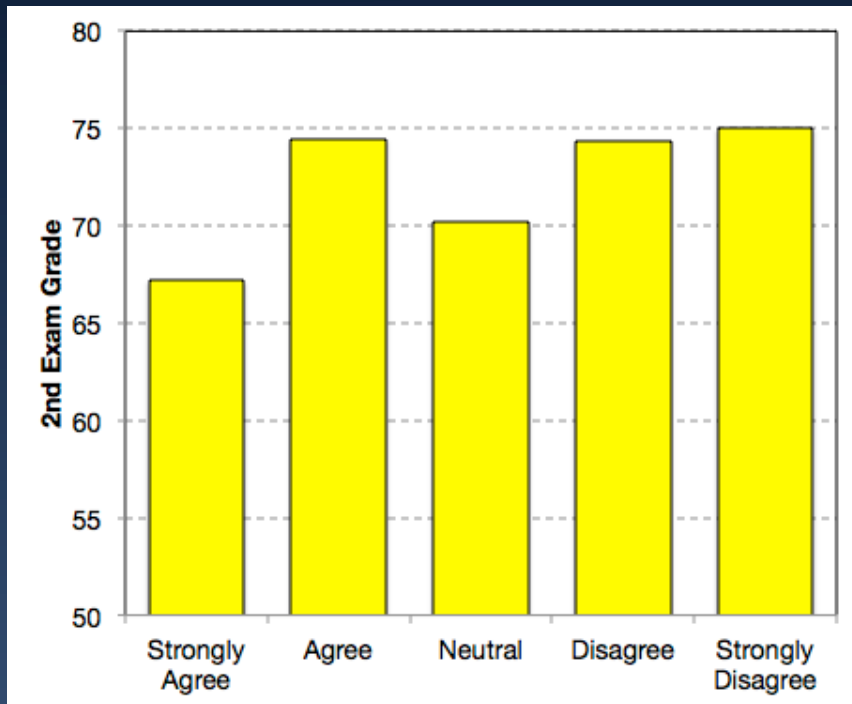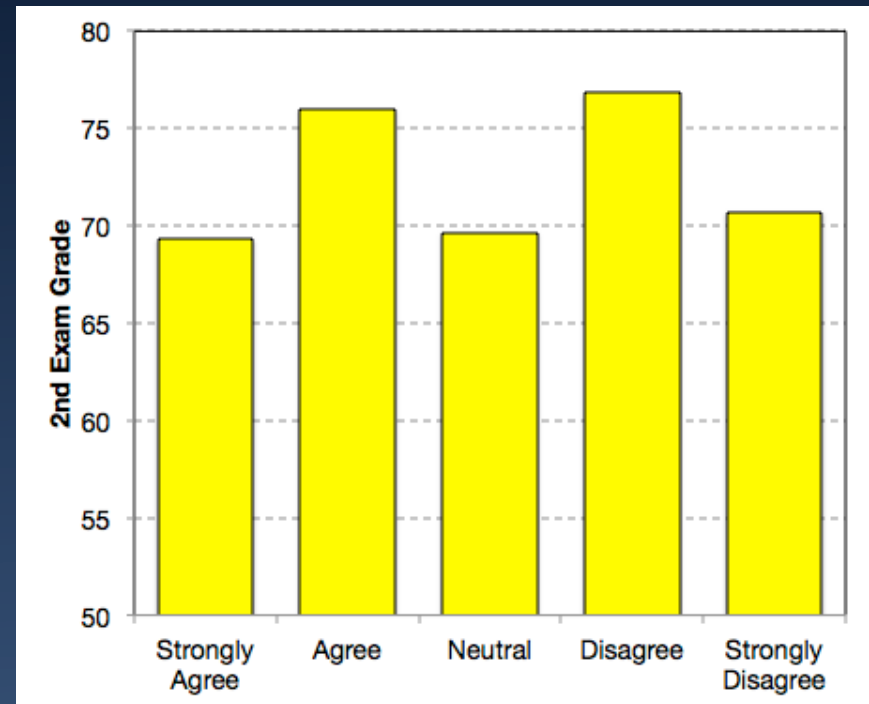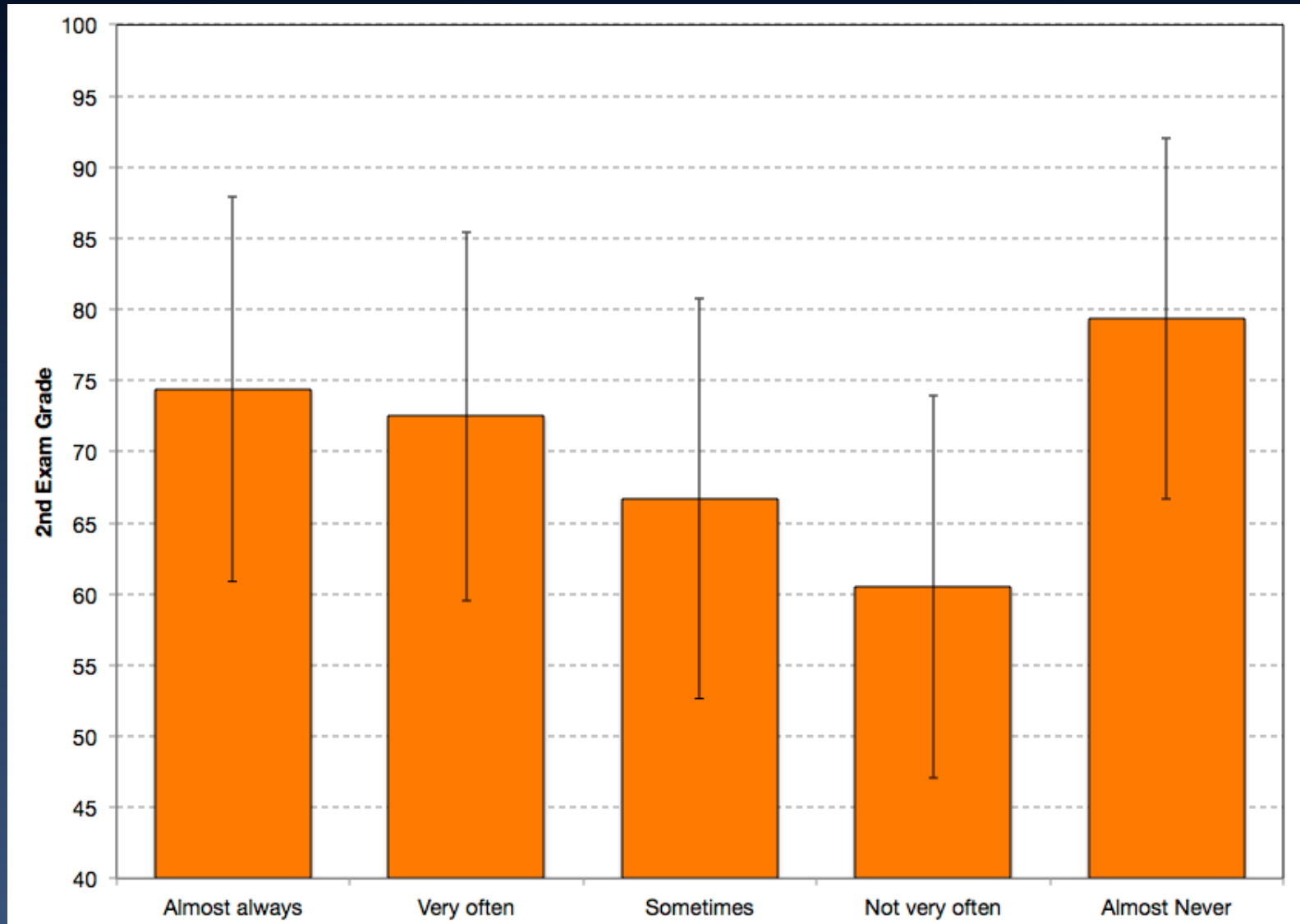ege students resulted in a 95% confidence interval for the population mean weight gain for all female first-year college students of (-1.84 pounds, 13.04 pounds).

a. Using just the confidence interval, at a 5% significance level, is it reasonable to conclude that first-year college women do in fact gain 15 pounds on average? Briefly explain why or why not.

> Answer   No, it is not reasonable to conclude that first-year college women do in fact gain 15 pounds on average as the value of 15 is not in the 95% confidence interval for the population mean difference.
>
> Student   No, because 15 pounds does not fall in our 95% confidence interval, so it is not reasonable.
>
> ○ 0   ○ 0.5   ● 1
>
> (+ Add Feedback)

b. True or False?
   About 95% of the female first-year college students will have a weight gain in the range -1.84 to 13.04 pounds.

   1. True
   2. False

Evidence of Effect

### Integrating homework with eTextbook

- **F09:** average grade = **3.09** (n = 1326)
  F10: average grade = **3.22** (n = 1395)
  Online HW Tool + eText only new innovation incorporated.

- **Buy-In:** ~ 25% F10 and > 50% W11

Source: Gunderson and Samson, 2011, Online Homework + eTextbook = Integrated Online Learning, Sloan–C Symposium on Emerging Technologies for Online Learning, July, 2011.

Student Preparation

"I often feel so unmotivated when I study that I quit before I finish what I planned to do."
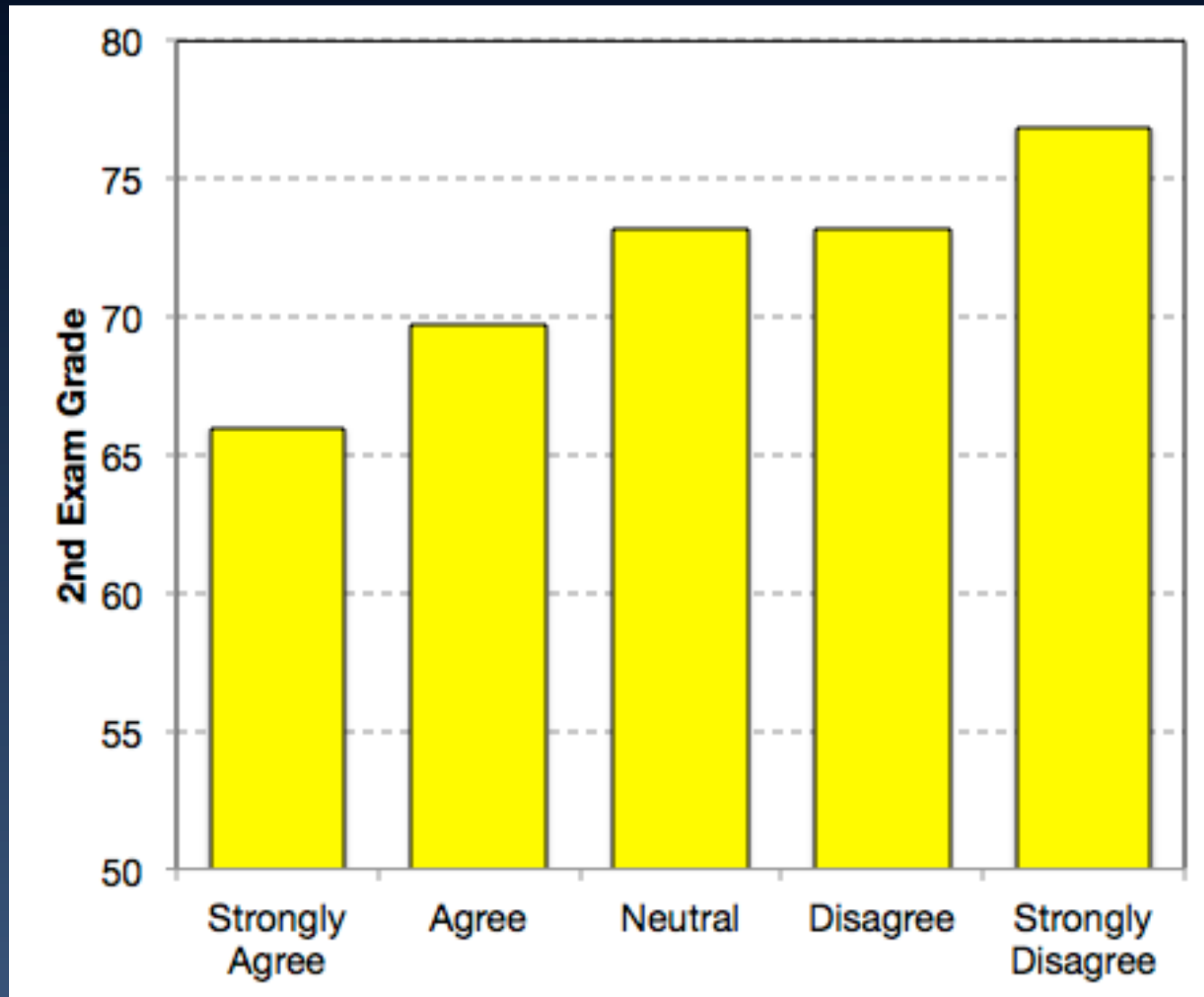
What matters?

- Possible Cause/Effect

  - Motivation.

  - Practice with representative problems.

- Unclear Cause/Effect

  - Class attendance

  - Use of textbooks

  - Participation in student response activities

  - Flashcards/highlighting/annotations

  - Note-taking

MPathways

Third-Party

CTools

SLAMS db
(APIs)

1. Development of API's

2. Definition of data structure

3. Protocols for maintaining anonymity.

4. Terms of use

5. IRB issues