# SLAM MICHIGAN

# SYMPOSIUM ON LEARNING ANALYTICS AT MICHIGAN
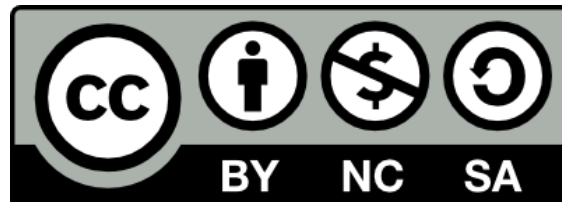
# STUDY HABITS IN INTRO TO COGNITIVE PSYCH

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# Introduction to Cognitive Psychology

- The class: Intro to Cognitive Psychology
  - Topics: Perception, Attention, Memory, Problem Solving, Reasoning, Decision Making

- Questions
  - Which study techniques are associated with good class performance?
  - Are laptops in the classroom helping?
  - Are podcasts helping?
  -

# The Study Habit Survey

- The survey

- Lecture 3:  How to study and Learn: Desirable Difficulties (Robert Bjork and colleagues)
    1. Generating material
    2. Vary the conditions of learning
    3. Provide "contextual interference" during learning (e.g., interleaving rather than blocking practice)
    4. Distributing or spacing study or practice sessions (i.e., don't cram).
    5. Using tests (rather than presentations) as learning events.

- Every week thereafter: Friday survey
    - 8% of class grade

# Study Habit Survey

- Items on study habits
    - Notes: recopying, re-reading, highlighting
    - Self testing, flash cards
    - Outlines, diagrams
    - Desirable difficulties: generate material, interleave topics, vary conditions
    - Self-regulation: minimize distractions
    - Time spent, cramming vs. not
- Use of resources
    - podcasts
    - Powerpoint downloads
    - PDF readings
- Motivation
- Demographics

# Measures available

- Survey results

- Clicker/Lecturetools responses

- Ctools usage statistics

- Cognitive tests
  - Working Memory, Attention
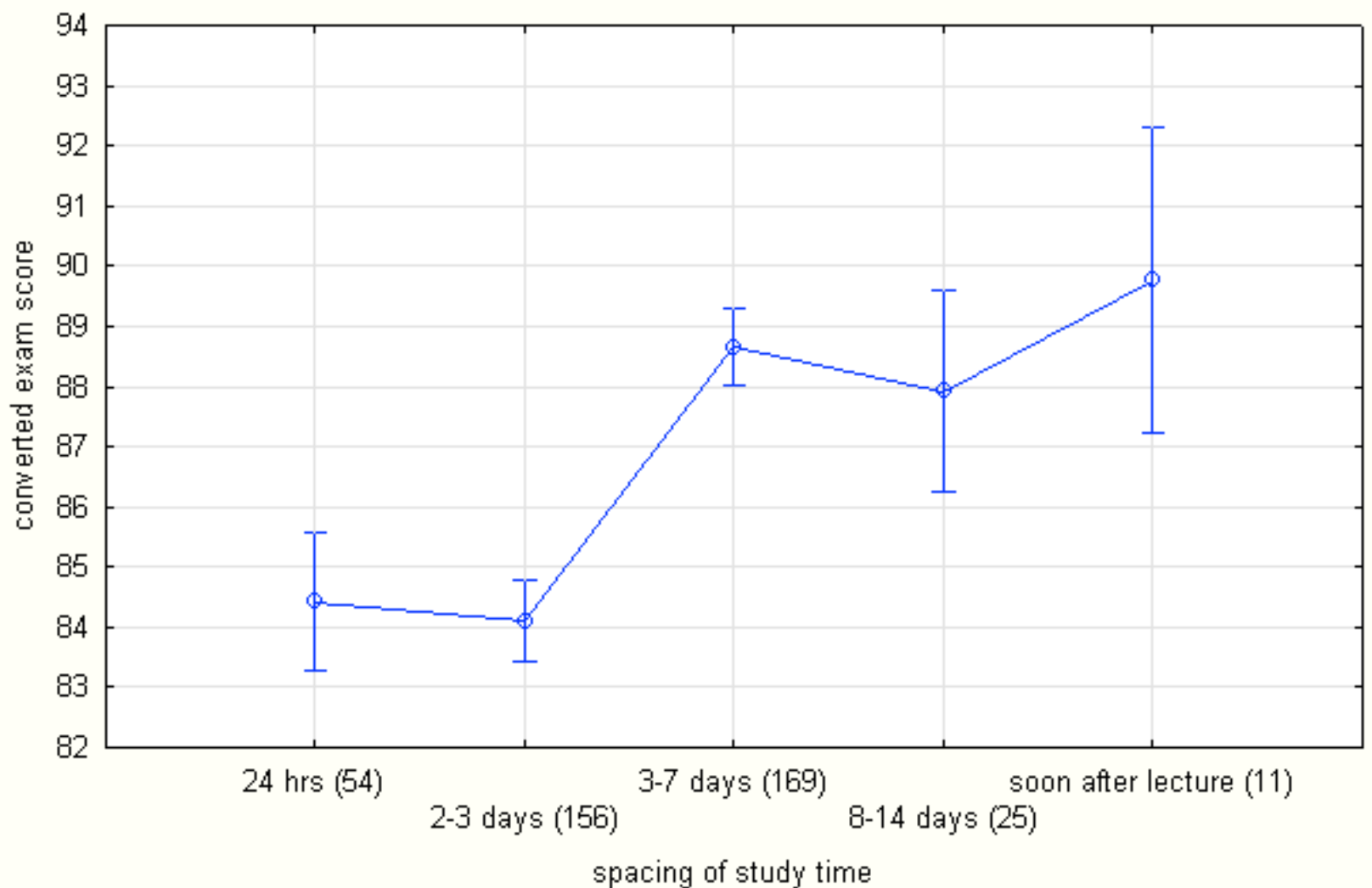
# Some predictors of Exam 1 Score*

- GPA (r = .57)

- Good things to do *(significant correlations from the week prior to exam 1)*
    - "Test yourself with questions or practice questions."
    - Do exercises that require generating information (*Fall 2011)*
    - Don't wait until the last minute to study
    - Study a lot

- Bad things to do
    - "Underline or highlight while reading"
    - Listen to podcasts
    - "Use flashcards to test yourself"
    - Study with friends

- Not significant
    - Re-copy/re-read notes
    - Varying conditions of learning, interleaving topics

*Generic disclaimer about how this is all a preliminary, first-pass look at data, violates many statistical assumptions, lots of intercorrelated variables, no corrections for multiple tests, I really shouldn't even be talking about this yet, yikes, etc., etc.*

For this exam, I did most of my studying....
Current effect: $F_{(4, 410)}=7.3765$, $p=.00001$
Vertical bars denote +/- standard errors

converted exam score

94
93
92
91
90
89
88
87
86
85
84
83
82

24 hrs (54)
2-3 days (156)
3-7 days (169)
8-14 days (25)
soon after lecture (11)

spacing of study time

Best Estimate for Number of Hours Spent Studying During the Week Prior to the Exam
Current effect: $F(7, 409)=3.4495$, $p=.00134$
Vertical bars denote +/- standard errors
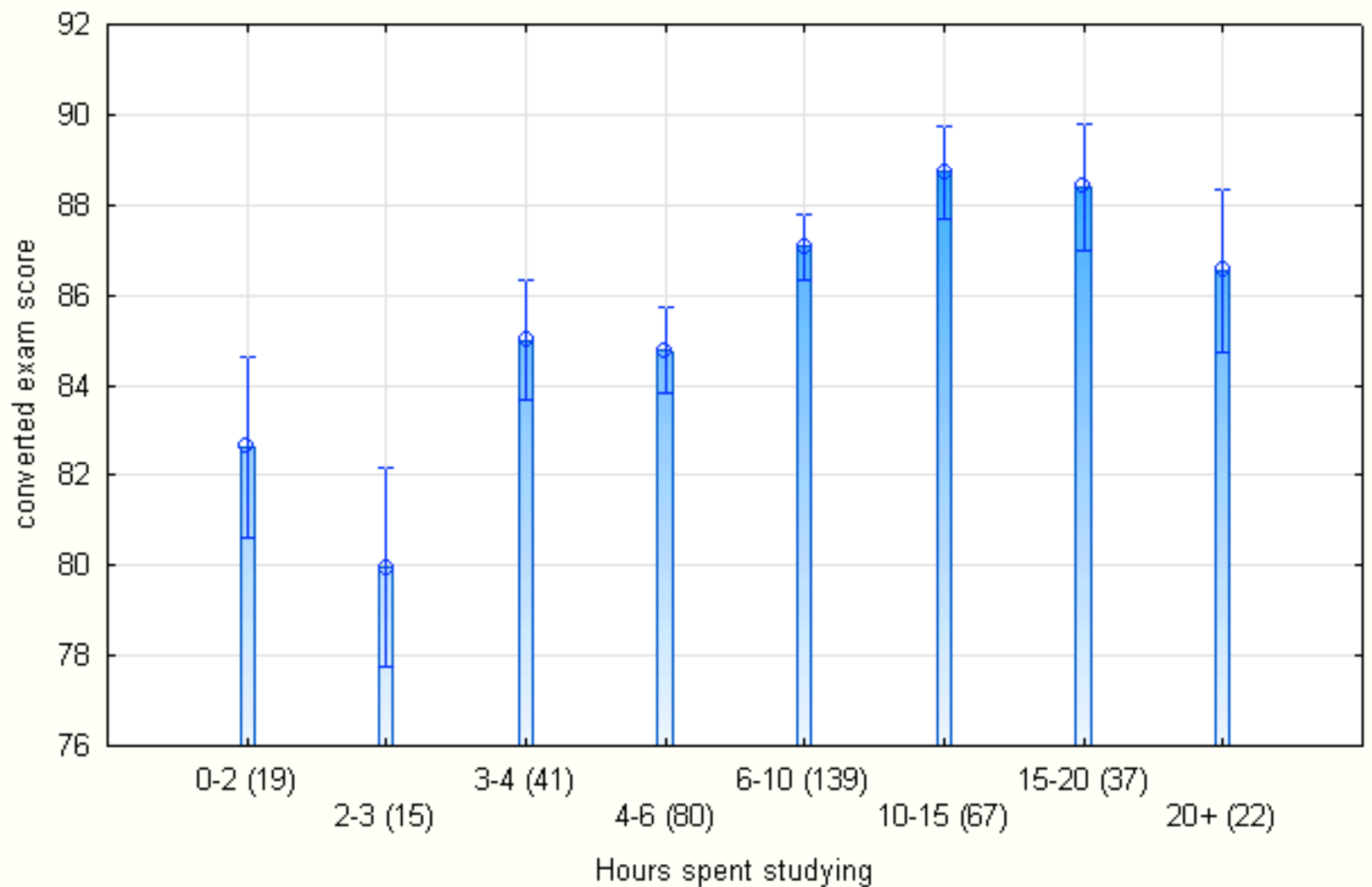
# Among those who used laptops consistently

- People who endorsed these items ("Almost Always") did poorly:
  - When I brought my laptop to lecture this week, I took notes on my laptop.
  - When I brought my laptop to lecture this week, I did non-class activities (Facebook, surfing the web, email, etc.)
  - When I brought my laptop to lecture this week, I looked at websites related to the class (such as googling a concept or looking it up on Wikipedia).
  - When I brought my laptop to lecture this week, I missed something that the professor said because I was doing something on my laptop.
  - When I brought my laptop to lecture this week, I brought it for purposes other than taking notes.

- However, these items were not related to exam score among non-laptop users:
  - In lecture this week, I missed something that the professor said because I was distracted by things other people were doing on laptops.
  - In lecture this week, I found the use of laptops by others distracting.

# Other items of interest

- Higher exam scores:
  - I enjoy natural science classes (e.g., biology, chemistry, physics).
  - One of my highest priorities in life right now is academic success.
- Lower exam scores:
  - I enjoy humanities classes (e.g., literature, languages).
  - I enjoy studying the creative arts (e.g., art, music).
  - During class I often miss important points because I'm thinking of other things
  - I often feel so unmotivated when I study that I quit before I finish what I planned to do.
  - I tend to procrastinate when studying.
  - There were things that came up that prevented me from studying for this exam as thoroughly as I usually do.
  - Exams make me anxious and/or worried.