LectureTools:

A Powerful Web-Based Alternative to Clickers

Presented by

Perry Samson — samson@umich.edu

My Agenda

- Demonstrate what Lecture Tools does
- Show what's been learned
- Guide you to set up your own course
- Where's this going?

Answer Questions

My A...

- Der...

QuickTime™ and a
MPEG-4 Video decompressor
are needed to see this picture.

QuickTime™ and a
MPEG-4 Video decompressor
are needed to see this picture.

QuickTime™ and a
MPEG-4 Video decompressor
are needed to see this picture.

Instructor's View :: Image Quiz

QuickTime™ and a
MPEG-4 Video decompressor
are needed to see this picture.

Student's View :: Social Networking

LectureTools

Username: [ ]

Password: [ ]

[Login]

Forgot your password?

Not Registered?

Student Registration
Instructor Registration

WELCOME TO LECTURETOOLS

Learning in large introductory classes is a challenge in today's college environments. Students in these classes often feel anonymous and disconnected from the class experience, which may affect their ability and/or motivation to learn. Instructors likewise grapple with the low degree of interaction and inability to reach students individually.

LectureTools is designed to provide a class experience by:

1. Enabling note-taking synchronized to lecture slides,
2. Providing opportunities to pose questions electronically during lecture,
3. Including a complete personal responder system to participate actively in class activities and
4. Tools for self-assessment of confidence of understanding.

OUTCOMES: *Current semester students report they feel more attentive, more engaged, and learn more with LectureTools and vastly prefer it to clicker systems! [refresh page to see additional plots]*

Do you feel that the use of your laptop in this class has affected your learning?
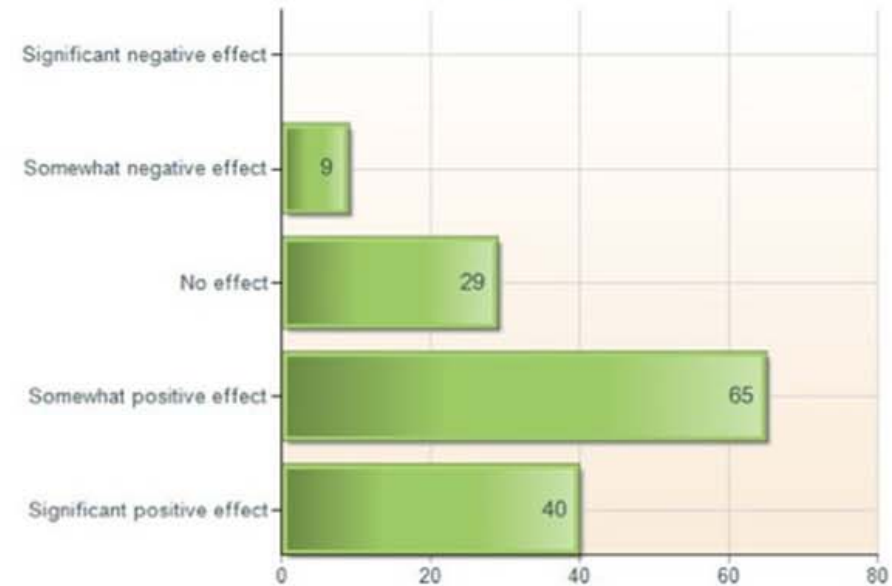
LectureTools in the News

Current	Want LectureTools in YOUR classes this fall? Submit classes you think would benefit at the student-run LectureTools Facebook page.
4 May, 2009	University of Michigan offers workshop "**LectureTools: A Web-Based Alternative to Clickers**" as part of *Enriching Scholarship '09*
22 April, 2009	Instructors can now search and add Learning Objects from MERLOT and the National Science Digital Library from within LectureTools.
13 April, 2009	University of Michigan selects Prof. Perry Samson, lead designer of LectureTools, as recipient of "2009 Teaching Innovation Prize."
24 Feb, 2009	Software & Information Industry Association (SIIA) selects LectureTools as finalist for CODiE Award in categories of "Best Educational Use of a Technology Device" and "Best Postsecondary Instructional Solution."

2009 SIIA
//CODiE//
FINALIST

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Change in class

- Students voluntarily bring laptops to class

Change in class

- Students ask more questions
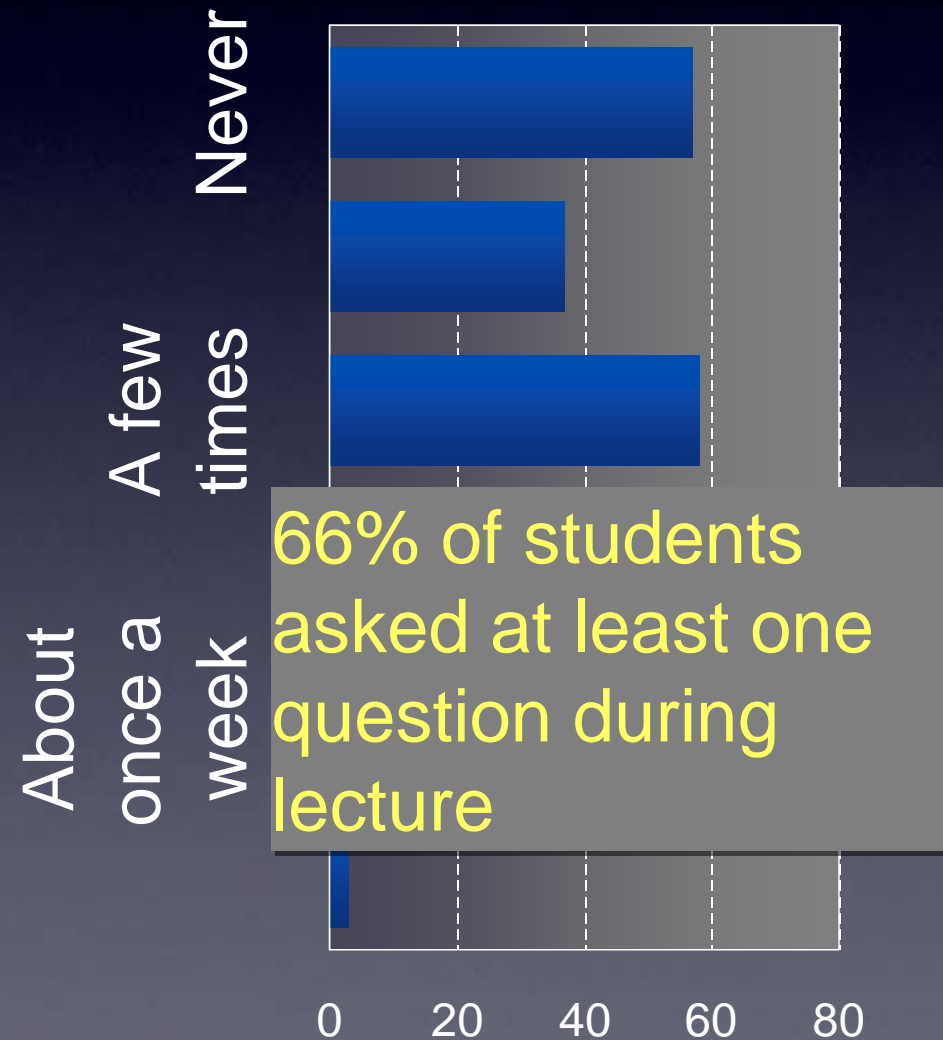
An Alternative to Clickers

Have you used 'clickers' (like Qwizdom) in other classes?

46%

54%

Yes
No
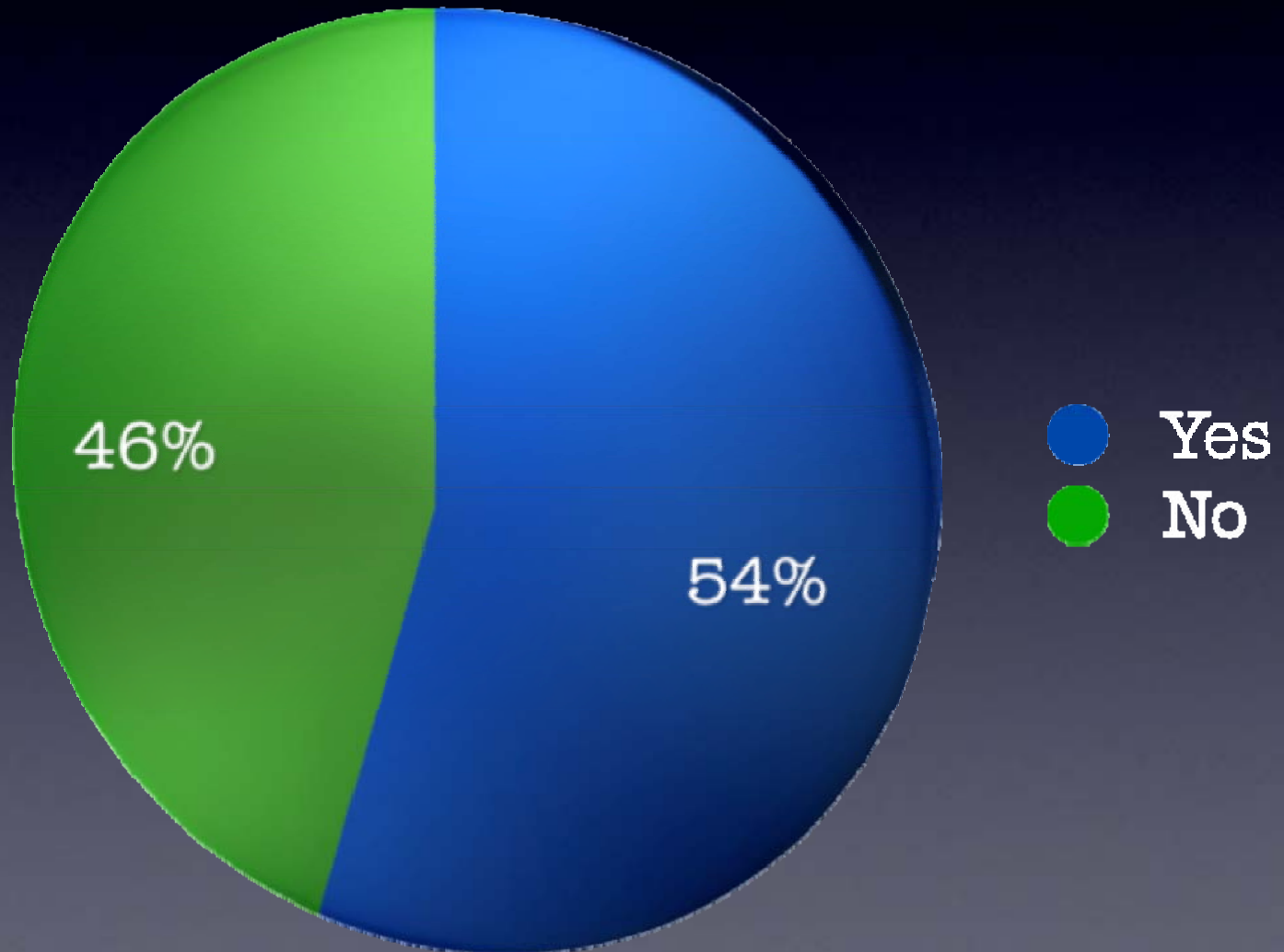
Critiquing Clickers

- Design

  - The scope of questions are limited

  - Students can't ask questions

  - Not integrated with other learning strategies

- Use

  - Students feel they're used mostly to take attendance

  - Question design is key.

An Alternative to Clickers

Given the option which would you prefer:
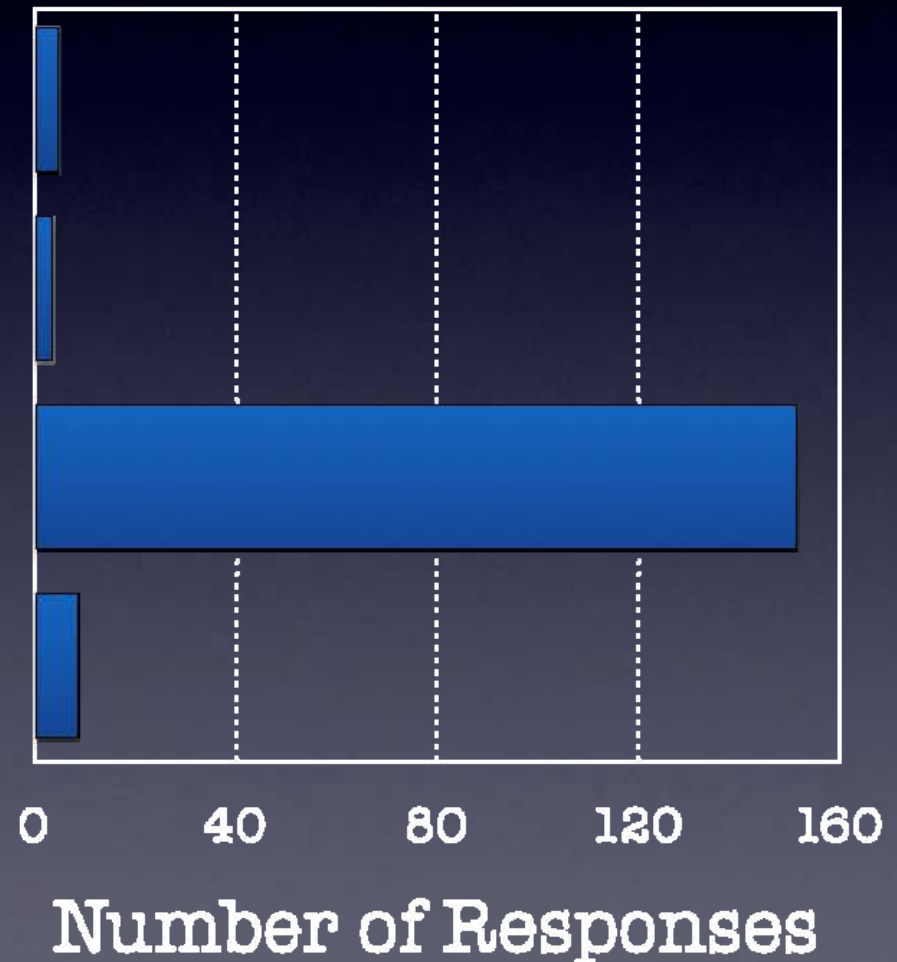
Student Feedback:

1. I really prefer the use of lecturetools compared to "the clicker".

2. I feel that lecture tools is very efficient and really helps me stay organized.

3. I feel that lecturetools is a much more interactive system than the clicker. It is very easy to access and use, and provides a multitude of note taking options.

4. Printing out 10 pages of slides for every class is a horrible waste of paper. This system is extremely efficient and very well put together.

Student Feedback:

5.   I only wish that I had more classes using this system as it would save me a lot of money and a lot of headaches.

• I find the fact that I can ask questions directly to a GSI and get an immediate answer (or read others' questions and see those responses) to be really helpful

• My favorite feature, however, is the fact that this is all available online, and for free, which is $35 less than "the clicker."

• I think it's far superior to Quizdom. I've found that most people seem to use Quizdom only as a way to check attendance.

Faculty Concerns:

1. To what degree will the introduction of laptops into class introduce distractions?

2. To what degree will the introduction of laptops into class change attentiveness?

3. To what degree will the introduction of laptops into class change engagement?

4. To what degree will the introduction of laptops into class change student learning?

"How do you feel that your use of laptops in this class has changed the time you spend on tasks unrelated to the lecture?"
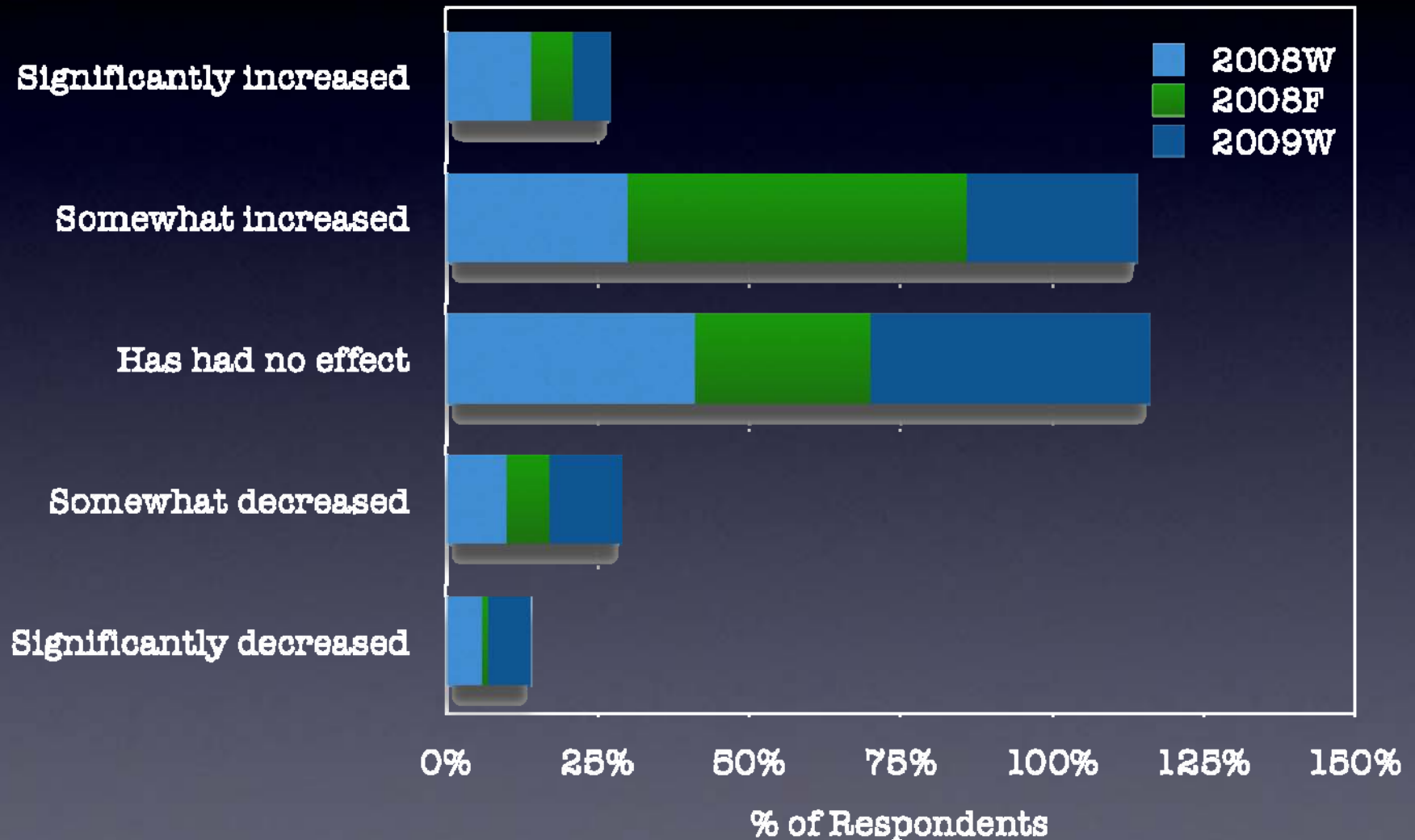
"In classes where you do not use a laptop, what percentage of time do you estimate you are engaged in tasks not pertaining to that course?"
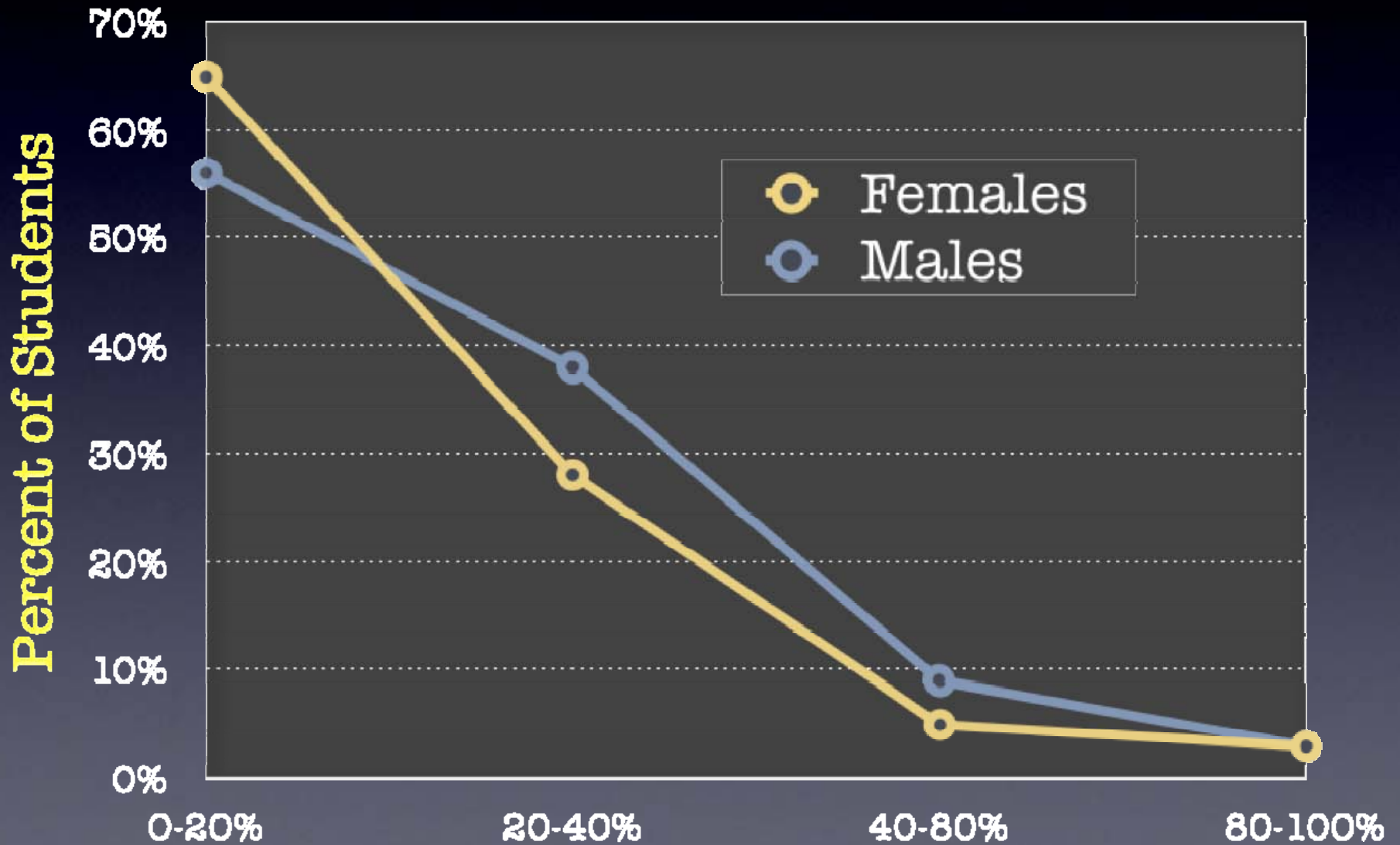
"How do you feel that your use of laptops in this class has changed the time you spend on tasks unrelated to the lecture?" {Fall, 2008}
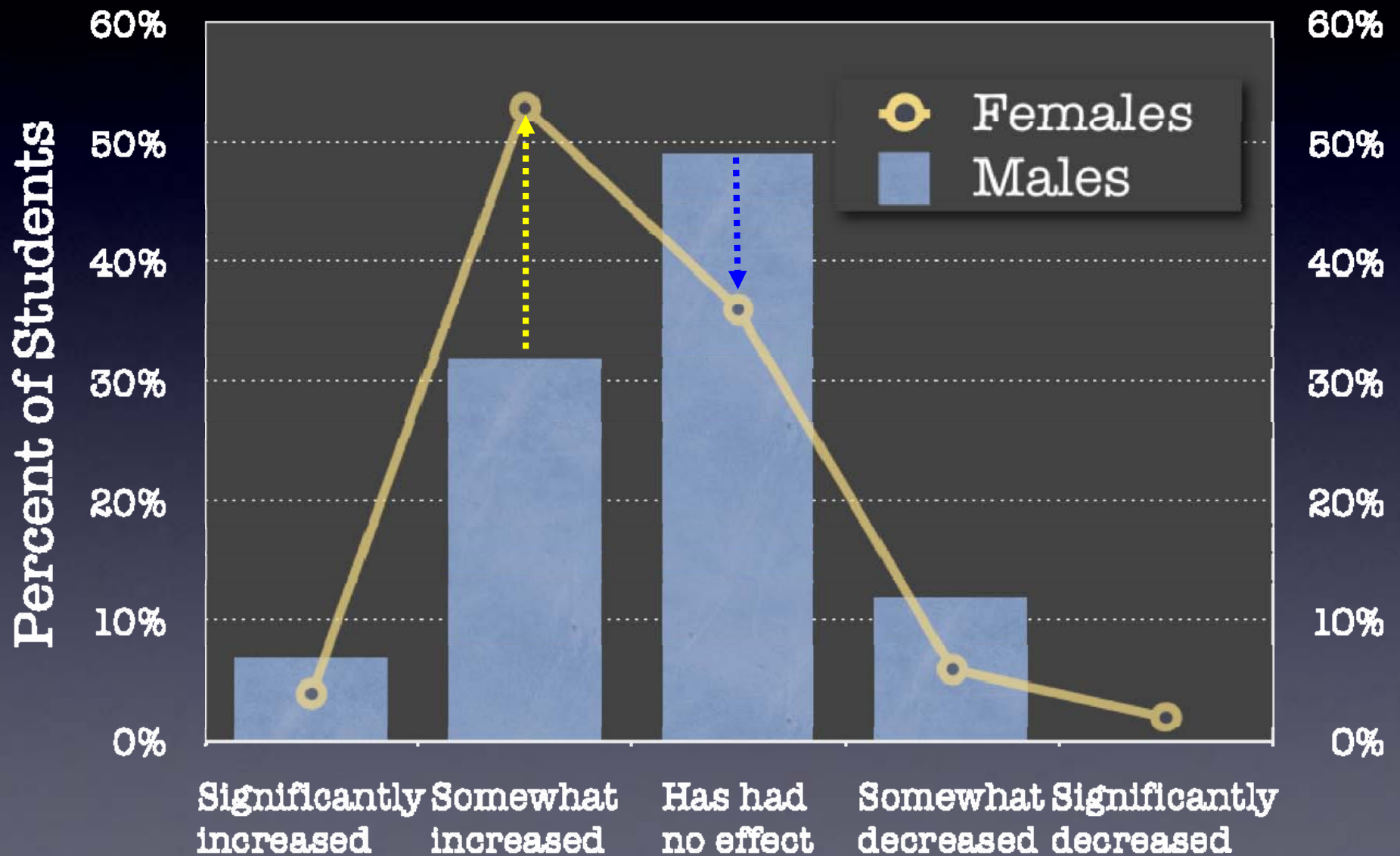
"How do you feel that your use of laptops in this class has changed the time you spend on tasks unrelated to the lecture?" {Winter, 2009}
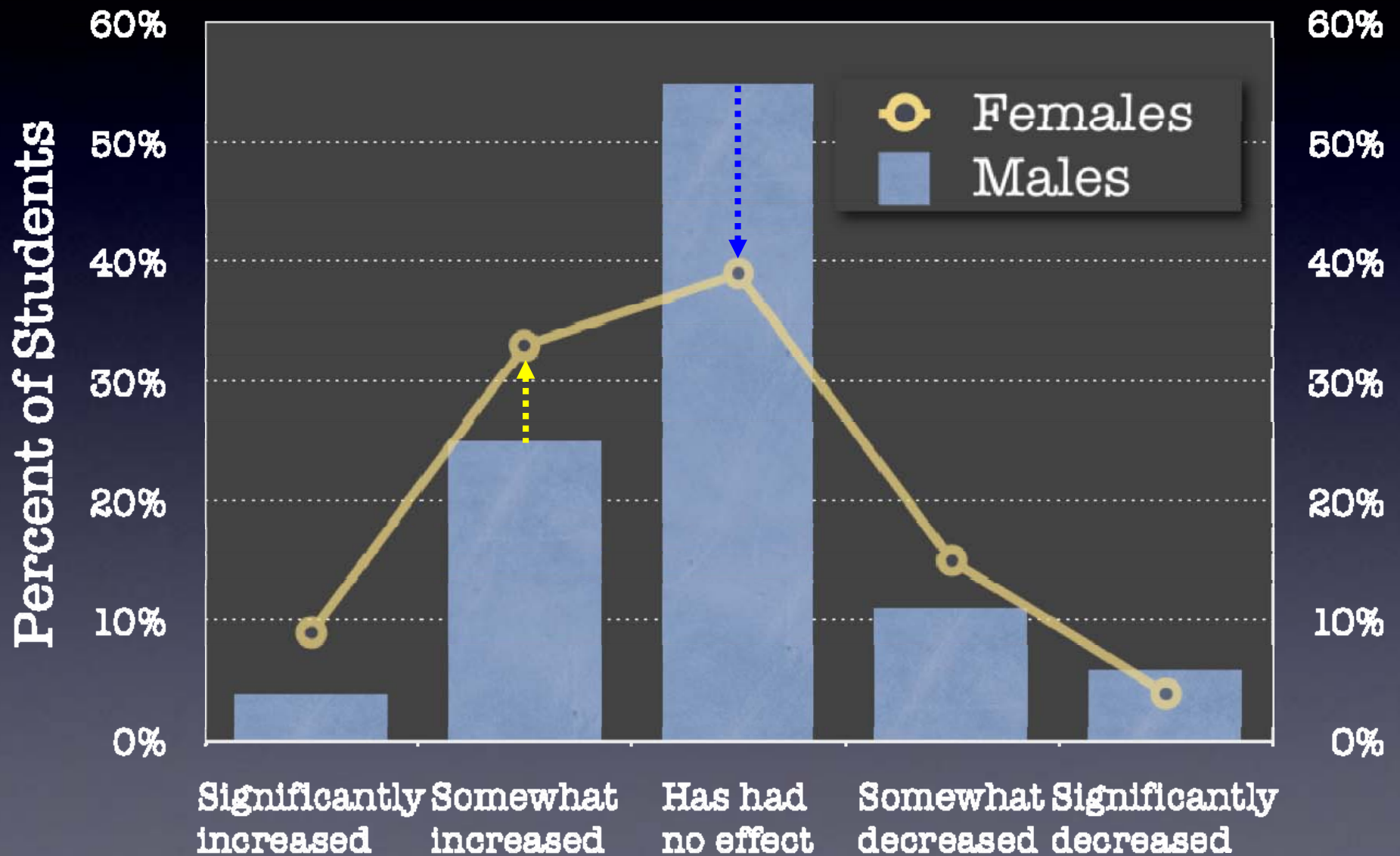
What's Changed?
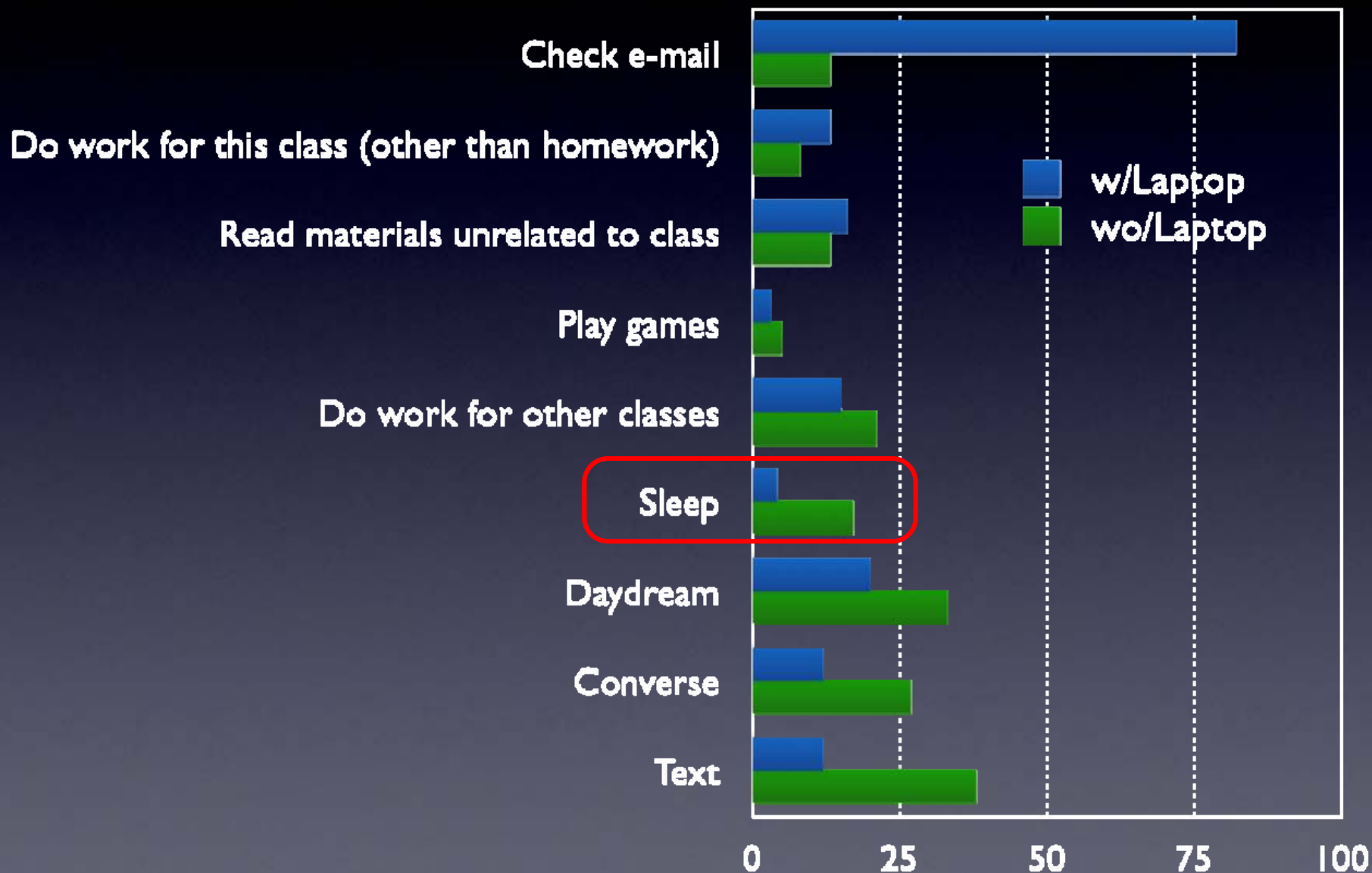
What's Changed?
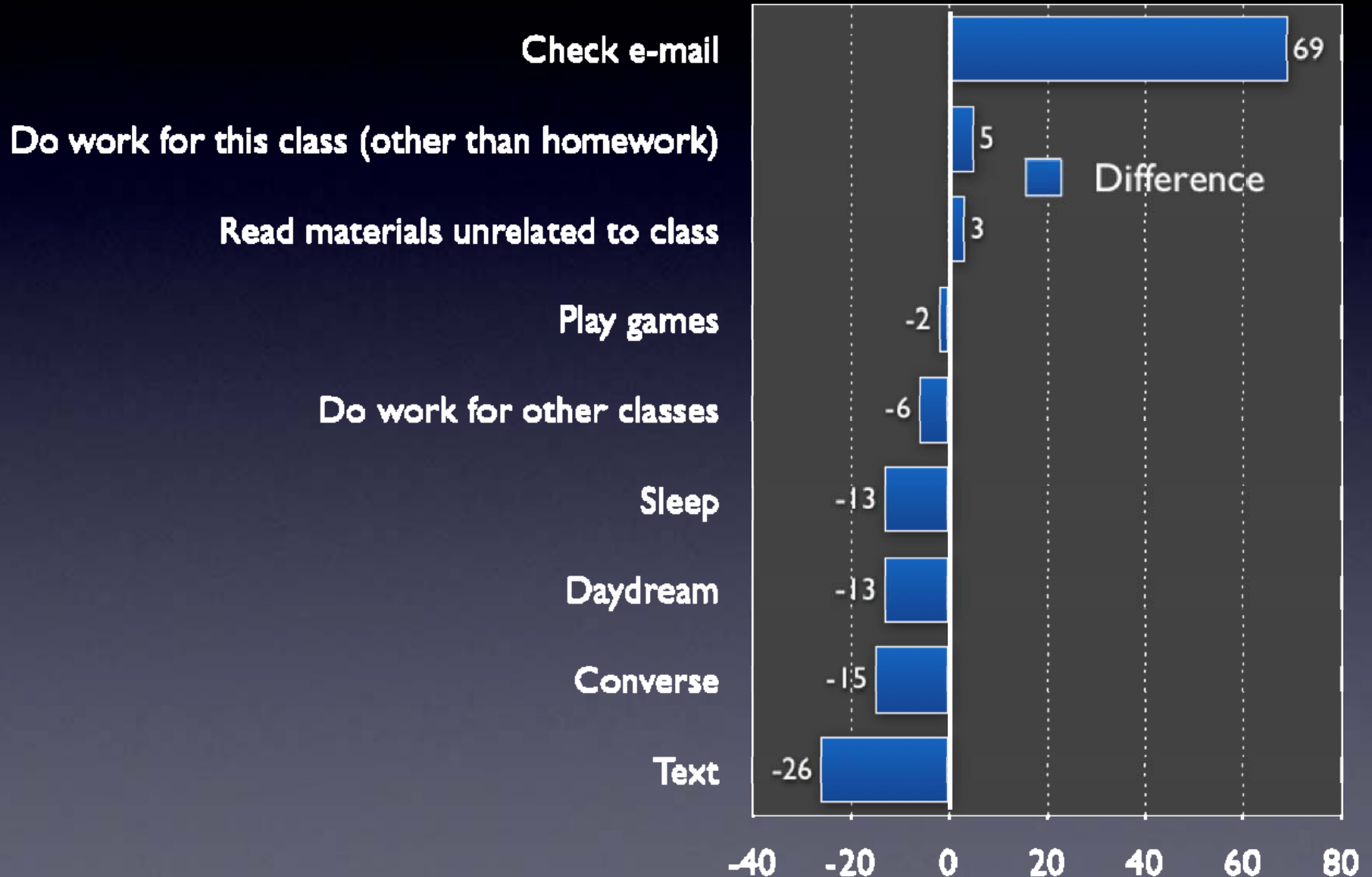
"My attentiveness in this class has increased due to laptop use"
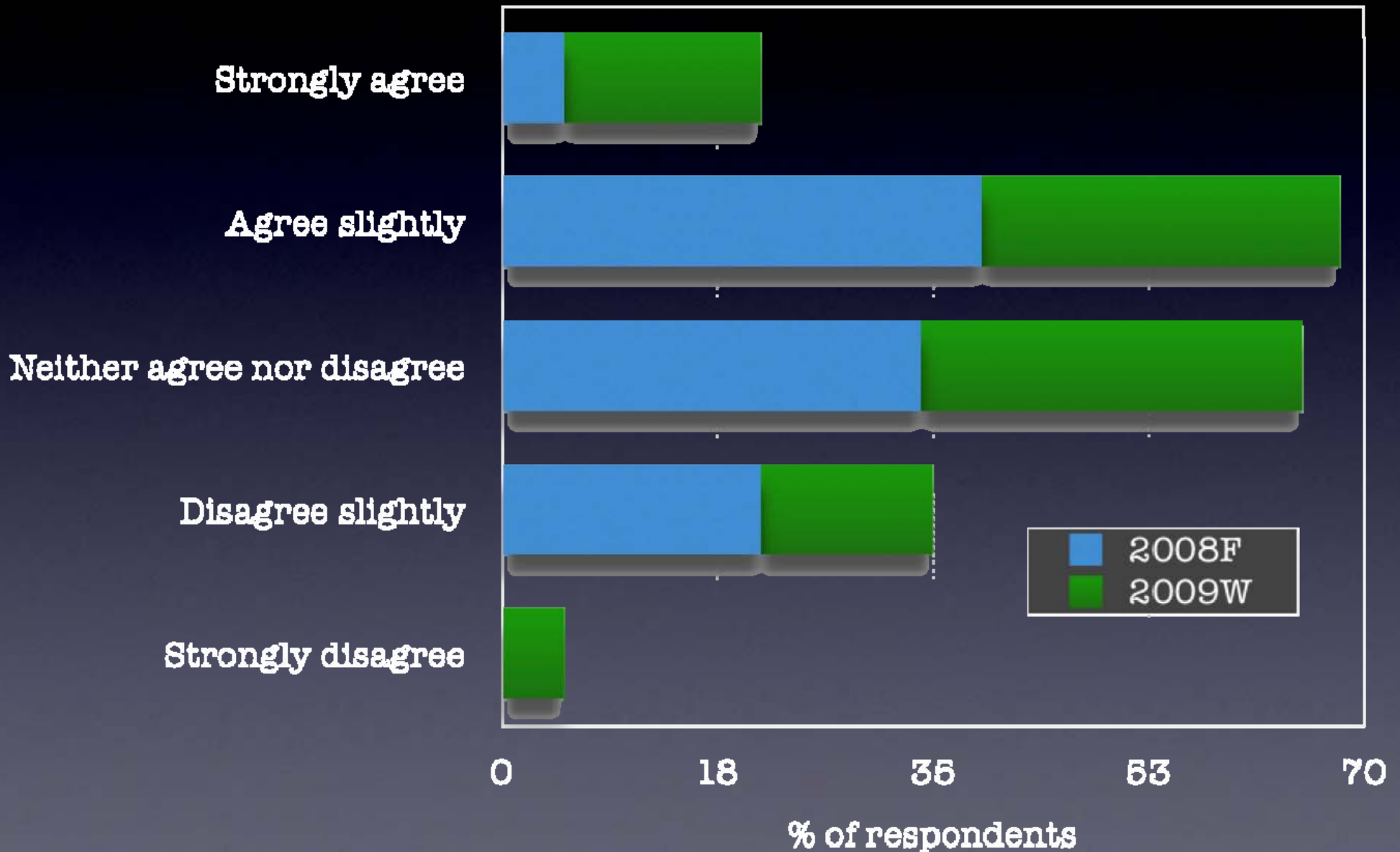
"In this class laptops help me to be engaged during lecture"
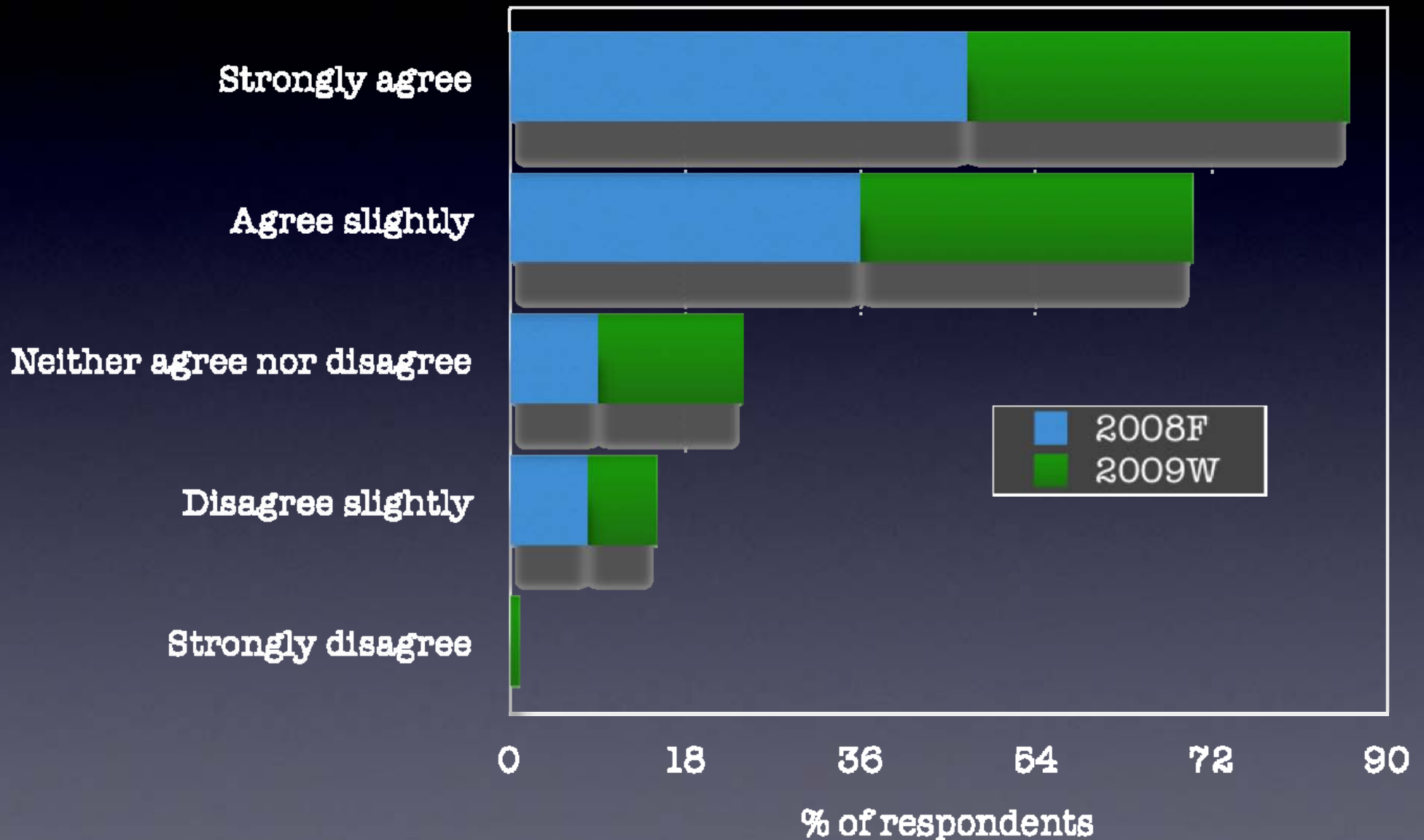
"Do you feel that the use of your laptop in class has affected your learning?"
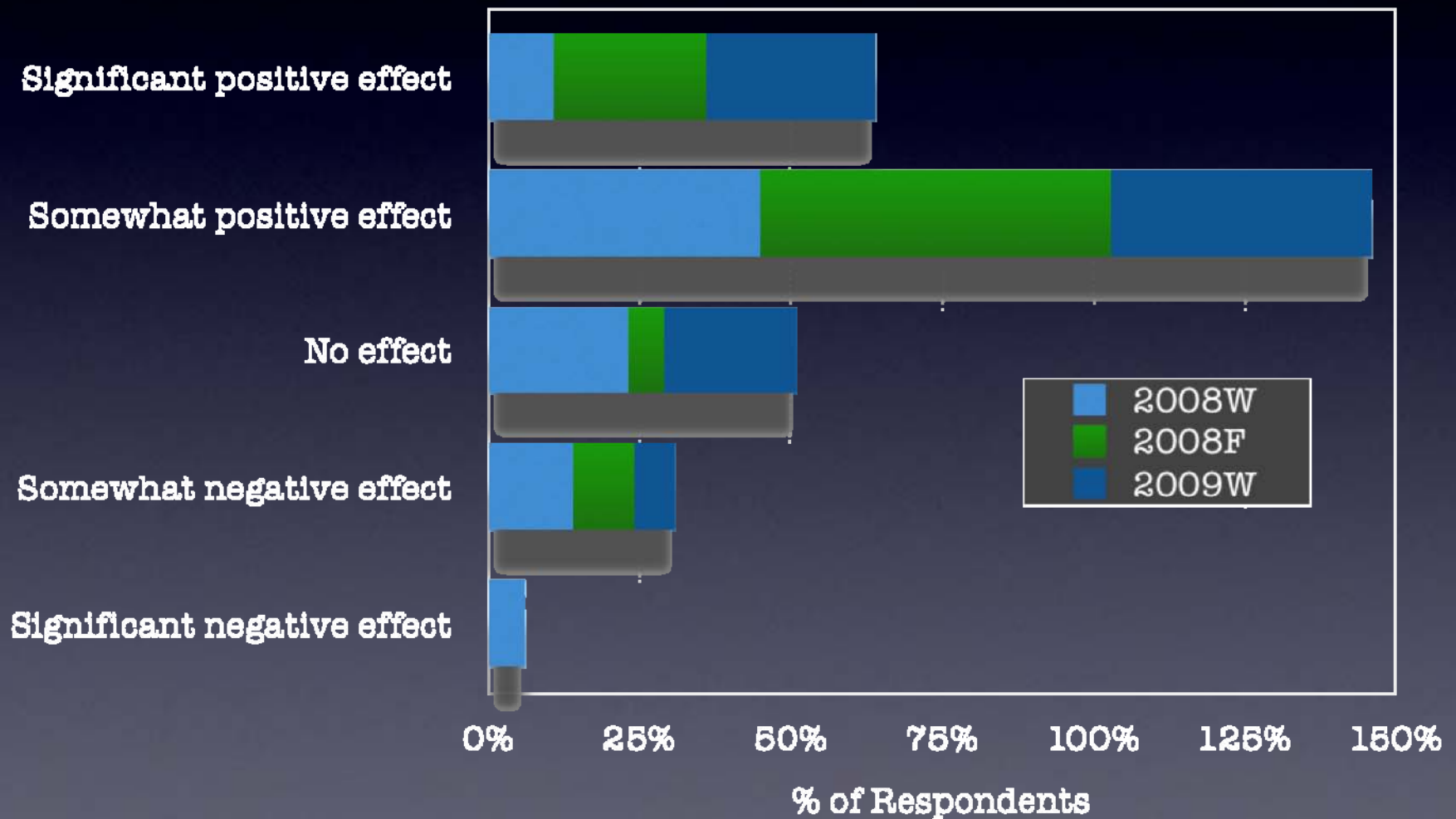
Summary

Laptops are a source of distraction:

1. Students admit that the presence of laptops in class adds distraction.

2. Distraction appears to affect women more than men.

Regardless, laptops are viewed as positive

1. Students feel laptops help then be more engaged .

2. Students feel laptops help then be more attentive.

3. Students feel laptops have a positive affect on their learning.

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My Courses   **Lecture Selection**   **This Lecture**   **Links**   **Instructions**

Statistics *syllabus*
exams Gunderson
Handouts

Lecture Slides for: **Tuesday, May 5, 2009**	**My Notes**	**Slide Specific Resources**

Welcome to Stats 350 Winter 2009

Brenda Gunderson bkg@umich.edu

- **Please Pick up a Syllabus Handout**
- **Also up front: a few copies of lecture notes for today**
  (if you have your lecture notes coursepack – you don't need this!)
- We will turn on clickers **LATER** in class.
- **Today:**
  - Go through syllabus & course basics
  - Intro to Chapter 2: Turning Data into Information
  - Try some Clicker Questions along the way!
- **For next class: Read Chapters 1 and 2**

> "Statistical thinking will one day be as necessary for efficient citizenship as the ability to read and write."
> -- H. G. Wells

My Notes toolbar: B *I* U | Courier New | 4 (14pt) | A · ab

This is a note.

Statistics

...**the most important science in the whole world**: for upon it depends the practical application of every other science and of every art: the one science essential to all political and social administration, all education, all organization based on experience, for it only gives results of our experience." zzczxc dfgdg Zxx

Slide Specific Resources

Statistics

Draw on this ↑ slide

My Family ...

Ask a question

① ② ③ ④ ⑤ Understanding

toolbar: B *I* U | Font family | Font size | A · ab

LectureBook

My Courses	Lecture Selection	This Lecture	Links	Instructions

Class Notes	**Readings**

Perry Samson | **logout**

Chapter 4: Gathering Useful Data for Examining Relationships   Search the book [ ] Search

Course STATS 350

Select Section   4.1   4.2   4.3   4.4   **Exercises**

Name *Introduction to Statistics & Data Analysis*

Confounding variables are less likely to be a problem in the interpretation of randomized experiments. Because the treatments are randomly assigned to the units, the values of confounding variables should approximately even out across treatment groups. For example, the group of physicians that was randomly assigned to take aspirin and the group of physicians randomly assigned to take placebo in Case Study 1.6 should have had similar compositions in terms of other health-related variables. Therefore, health-related variables such as diet and exercise would not be confounded with the explanatory variable, which was whether a physician took aspirin or placebo. [...notes]

Term Spring, 2009

Instructor Gunderson

School UNIVERSITY OF MICHIGAN-ANN ARBOR

Example 4.1   What Confounding Variables Lurk Behind Lower Blood Pressure?

Book *Mind on Statistics, 3rd Edition*

THOUGHT QUESTION 4.2

Table of Contents

Choose a possible confounding variable for the situation in Example 4.1, other than the ones mentioned in the example, and explain how it meets the two conditions necessary to qualify as a confounding variable.

Hint: Think of something that would probably be different for people who attend church compared to those who don't and that might affect blood pressure.

Example 4.2   The Fewer the Pages, the More Valuable the Book?

As these examples illustrate, it is unlikely that any explanatory variable is the direct and sole explanation for the values of the response variable. There are almost always confounding variables. These confounding variables might be measured and accounted for in the analysis of the data, or they could be unmeasured lurking variables. In either case, always think about the possible effect of confounding variables when you consider the results of statistical studies. Confounding variables can be especially problematic in interpreting the results of observational studies. Randomized experiments are designed to help control the influence of confounding variables. [...notes]
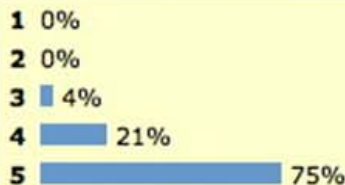
Your Answer to Question #2:

The radio waves produced by lightning are called:

- ● sferics
- ○ St. Elmo's fire
- ○ thunder
- ○ sonic boom
- ○ ball lightning

Your answer is **CORRECT**!

Please take a moment to affirm your answer by reading the highlighted section from the text.

Confidence Distribution for This Question from Your Course

1 0%
2 0%
3 ▌4%
4 ▬▬▬ 21%
5 ▬▬▬▬▬▬ 75%

AOSS 102 responses = 303

Still confused? — Search clarifications others have requested.

[Next Question]

Need clarification? — Search clarifications other have requested about this question.

Lightening Detection and Suppression

For many years, **lightning** strokes were detected primarily by visual observation. Today, **cloud**-to-ground **lightning** is located by means of an instrument called a **lightning** direction-finder, which works by detecting the radio waves produced by **lightning**. A web of these magnetic devices is a valuable tool in pinpointing **lightning** strokes throughout the United States, Canada, and Alaska. **Lightning** detection devices allow scientists to examine in detail the **lightning** activity inside a storm as it intensifies and moves (see Fig. 10.24). This gives forecasters a better idea where intense **lightning** strokes might be expected. In addition, when this information is correlated with satellite images, a more complete and precise structure of a **thunder**storm is obtained.

Each year, approximately 10,000 fires are started by **lightning** in the United States alone and around $50 million worth of timber is destroyed. For this reason, tests have been conducted to see whether the number of **cloud**-to-ground **lightning** discharges can be reduced. One technique that has shown some success in suppressing **lightning** involves seeding a **cumulonimbus cloud** with hair-thin pieces of aluminum about 10 cm long. The idea is that these pieces of metal will produce many tiny sparks, or corona discharges, and prevent the electrical potential in the **cloud** from building to a point where **lightning** occurs. While the results of this experiment are inconclusive, many forestry specialists point out that nature itself may use a similar mechanism to prevent excessive **lightning** damage. The long, pointed needles of pine trees may

HIGHLIGHTED PARAGRAPH

MARGIN NOTES

Click here to attach a margin note to the highlighted paragraph or click another paragraph to highlight.
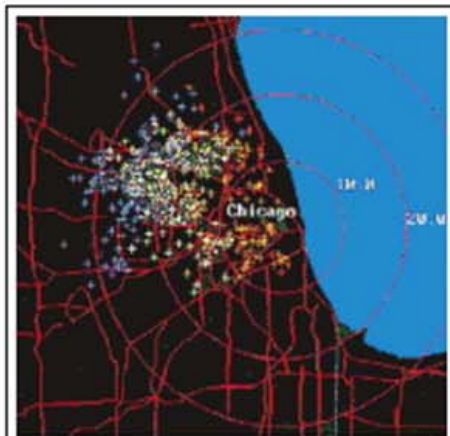
List My Margin Notes for this Chapter

VISUALS

Fig. 10.24   view 🔍

KEYWORDS

Cloud — A visible aggregate of tiny water droplets and/or ice crystals in the atmosphere above the earth's surface.

Next Steps

Try it!
http://www.lecturetools.org

Write me...
samson@umich.edu

Enjoy a BOTL...
Mahony & Sons: TODAY, 4:30 pm