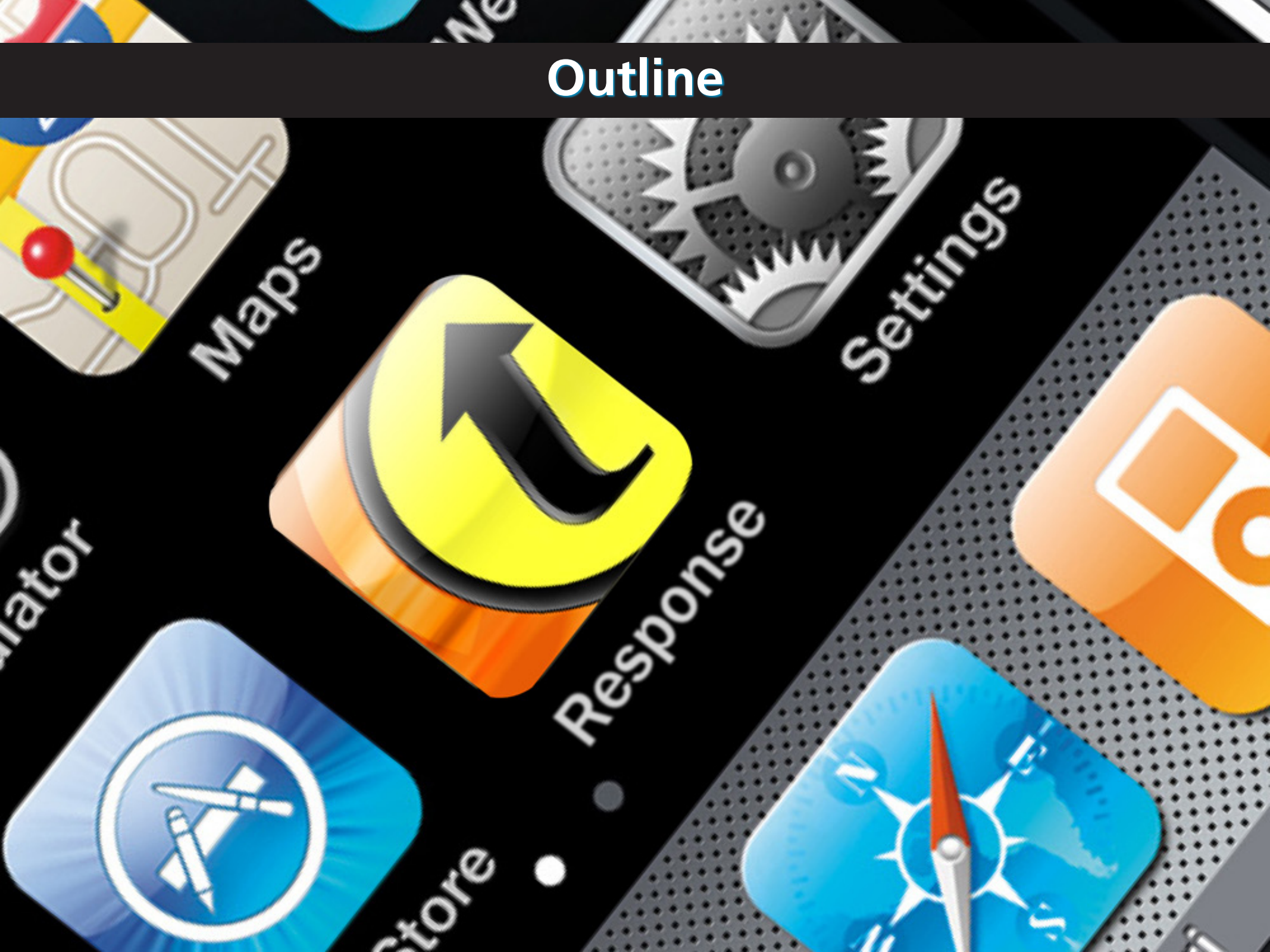
Engaging Students One-on-One, All At Once
Session 2

LASPAU/IDIA
Universidad de Los Andes
Online short-course, 17 January 2012

Session 2 slides

http://mazur.harvard.edu

Outline



Outline

- Your questions
- Developing PI/JiTT questions
- Strategies for assessment

Your questions

Question categories:

- Creating/finding ConcepTests
- Moving information transfer out of classroom
- Administering ConcepTests
- Student resistance
- Assessment

Your questions

Question categories:

- Creating/finding ConcepTests (part 2)
- Moving information transfer out of classroom
- Administering ConcepTests
- Student resistance
- Assessment (part 3)

Your questions

Question categories:

- Creating/finding ConcepTests (part 2)
- **Moving information transfer out of classroom**
- Administering ConcepTests
- Student resistance
- Assessment (part 3)

Moving information out of classroom

“How to make students read before class

if they are not used to it?”

Moving information out of classroom

My approach:

- do not deliver information in class
- offer a reward
- use reading feedback as opportunity to help

Moving information out of classroom

"Besides JiTT, what other ways exist for motivating students to read ahead?"

Moving information out of classroom

My approach:

- Reading quizzes (1991)
- Reading summaries (1994)
- Just-in-Time Teaching (1999)

Moving information out of classroom

"I worry Conceptests take too much time and then the class covers a smaller amount of material."

Your questions

Question categories:

- Creating/finding ConcepTests (part 2)
- Moving information transfer out of classroom
- **Administering ConcepTests**
- Student resistance
- Assessment (part 3)

Administering ConcepTests

“How can you use open-ended questions?”

Administering ConcepTests

"Is implementation of PI possible without clickers?"

Administering ConcepTests

Yes! (And the learning gains are the same)

- show hands (on chest)
- flash cards

Administering ConcepTests

"How do I get students to take this seriously

if there is no grade involved?"

Administering ConcepTests

"For a class that is 60 minutes,

how many questions should I ask?"

Administering ConcepTests

"How do I get the question to generate discussion and not just a short answer?"

Administering ConcepTests

"Is it important that the professor read the ConcepTest, or must the students read the question themselves?"

Administering ConcepTests

"Should I give my students additional CTs as homework?"

Your questions

Question categories:

- Creating/finding ConcepTests (part 2)
- Moving information transfer out of classroom
- Administering ConcepTests
- **Student resistance**
- Assessment (part 3)

Student resistance

"How do I deal with students resisting the different approach to studying?"

Student resistance

"Students complain that a reading test and a pre-class reading quiz is too much. Drop the reading tests?"

Student resistance

Written on Wednesday Feb 16, two weeks into the course:

> Subject: concerns
>
> Professor Mazur,
>
> Here are a few concerns. I speak for many of my classmates.
>
> 1) You are giving us WAY to much work. After spending multiple hours on the problem set, and not being able to figure out many of the questions, I now see that we have an additional 6 or 7 pages or homework in the workbook. I just spent 4 hours on the lab, and I am not confident on almost half of the questions. This is more work than I have had all semester in all of my other classes combined.
>
> 2) If you are going to give us this much work, I would suggest re-structuring the lectures. I find the readings very difficult to understand. I am not a bad student (I got a solid A in physics 1a), but it is very difficult to internalize the readings. You should spend most of the lecture going over, point by point, the readings in their entirety. While the PRS clickers are fun, they do not help me understand the complex material.
>
> I am extremely flustered by the incredibly large amount of work, and my inability to understand it, and I am strongly considering dropping the course.

Student resistance

Written on Monday May 23, just after the final exam:

> Subject: Thanks!
>
> Professor Mazur,
>
> First of all I want to thank you for a great semester. You are an excellent professor, and it is clear that you truly care about each and every student.
>
> The exam went well today. I'm not sure to what extent you will curve the final grades (if at all), but it looks like I may be right around the cutoff point between an A and an A-. I studied as hard as I could and I'm keeping my fingers crossed about the A, but no matter what happens with my grade you should know that you are one of the best professors that I have ever had at Harvard.
>
> Thanks again!

Outline

- Your questions
- **Developing PI/JiTT questions**
- Strategies for assessment

Developing PI/JiTT questions

Best way to learn how to create CTs: try it out!

Developing PI/JiTT questions

“How do I select which concepts to evaluate?”

Developing PI/JiTT questions

"How do I create a context to evaluate a concept?

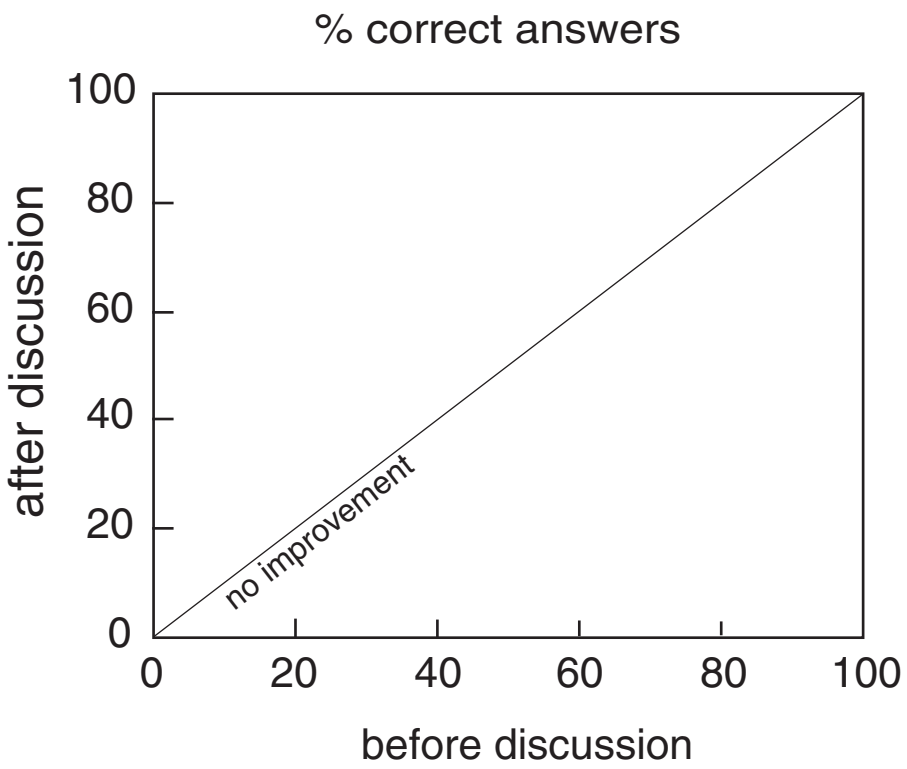
(and how long should the context be?)"

Developing PI/JiTT questions

"How do I make sure the CT is not too easy/hard?"

Developing PI/JiTT questions

ConcepTest data



Developing PI/JiTT questions

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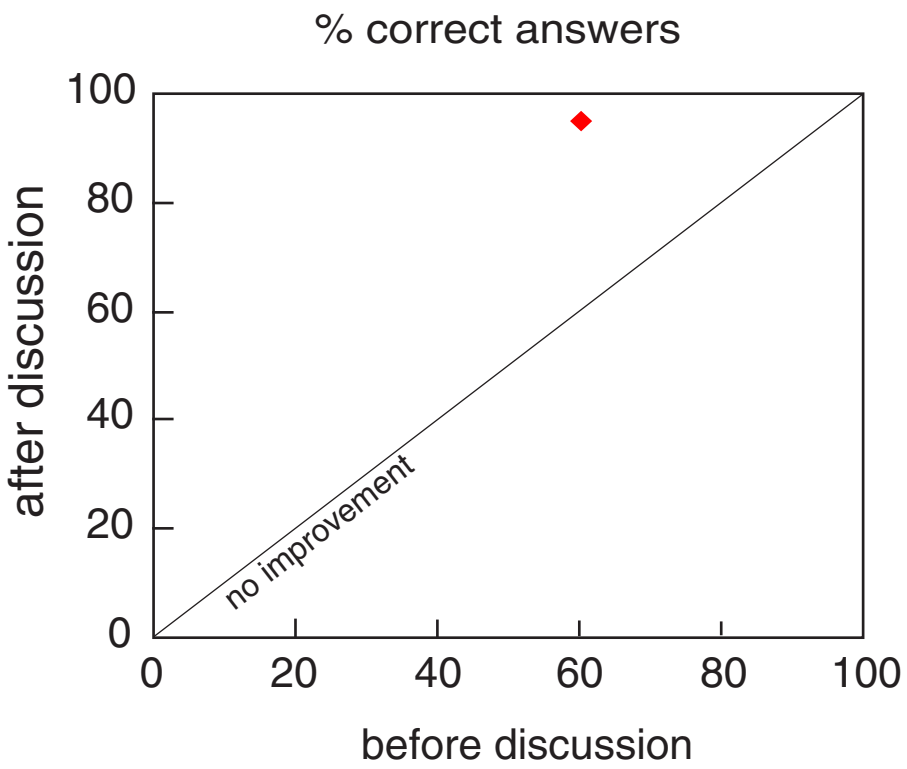

Developing PI/JiTT questions

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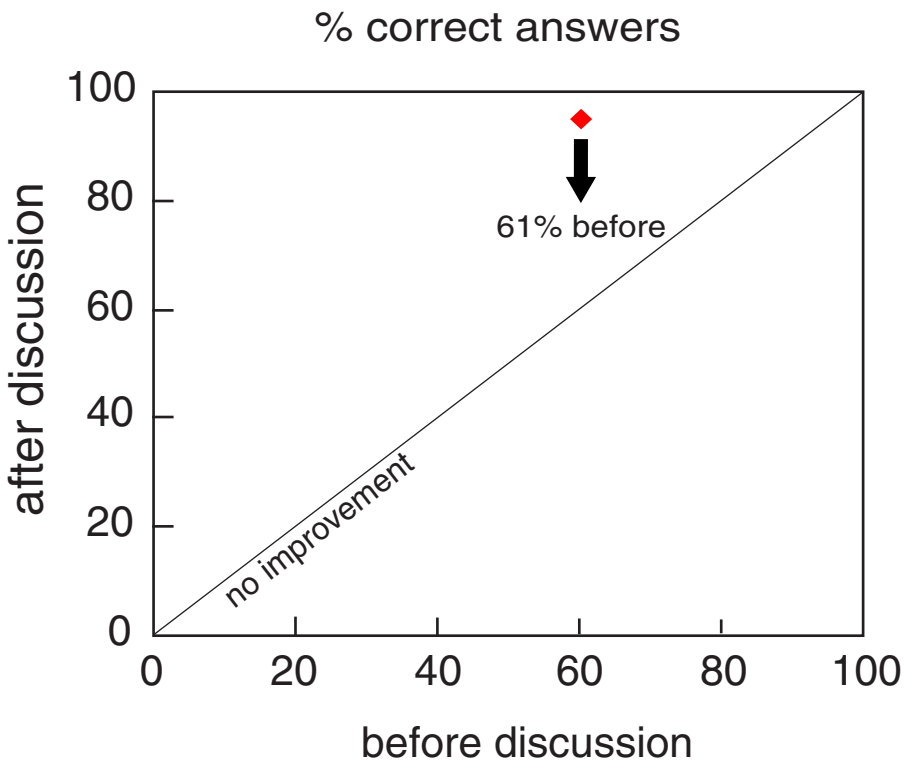

Developing PI/JiTT questions

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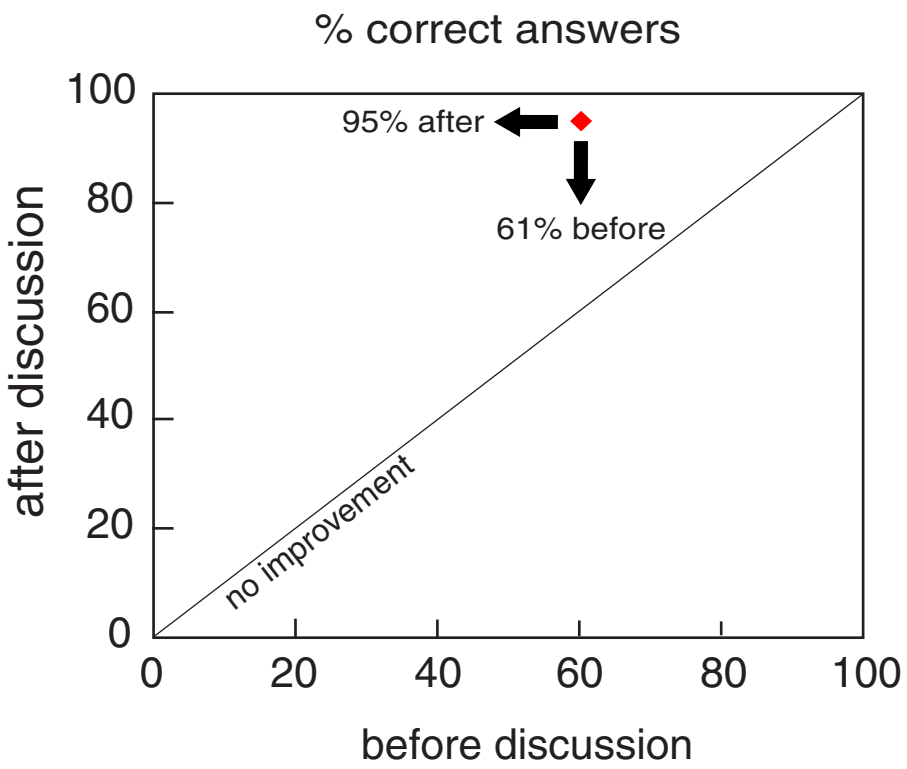

Developing PI/JiTT questions

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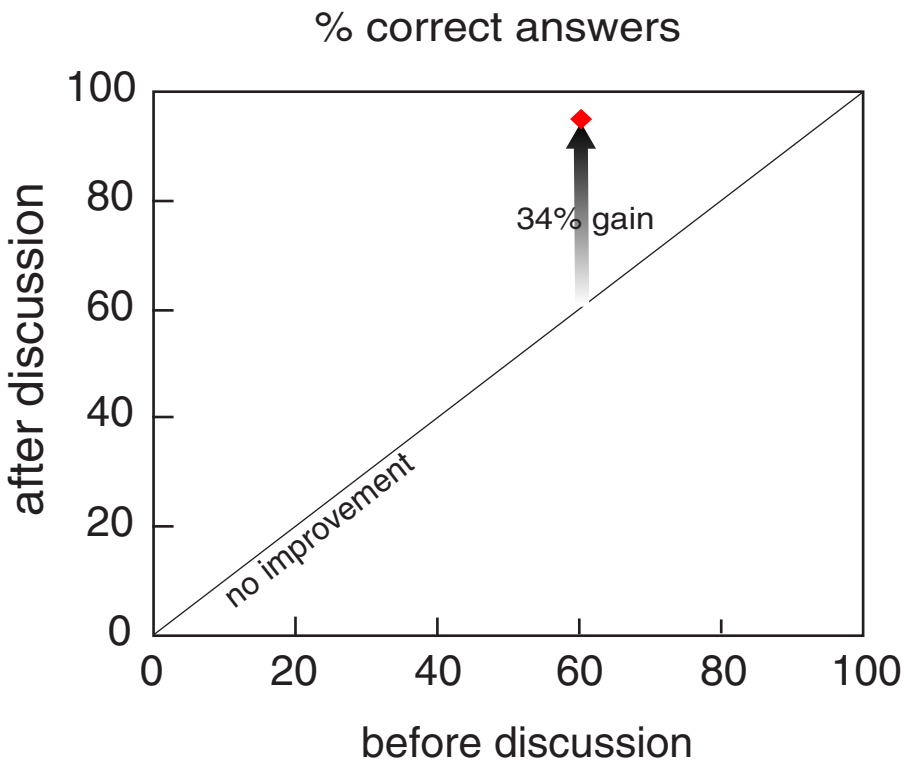

Developing PI/JiTT questions

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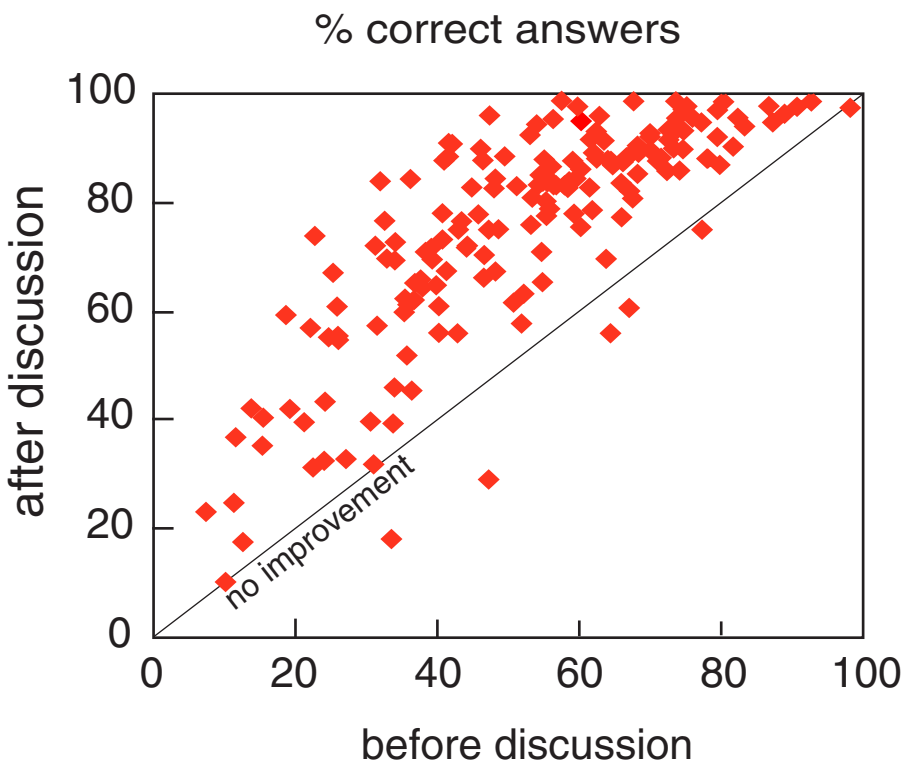

Developing PI/JiTT questions

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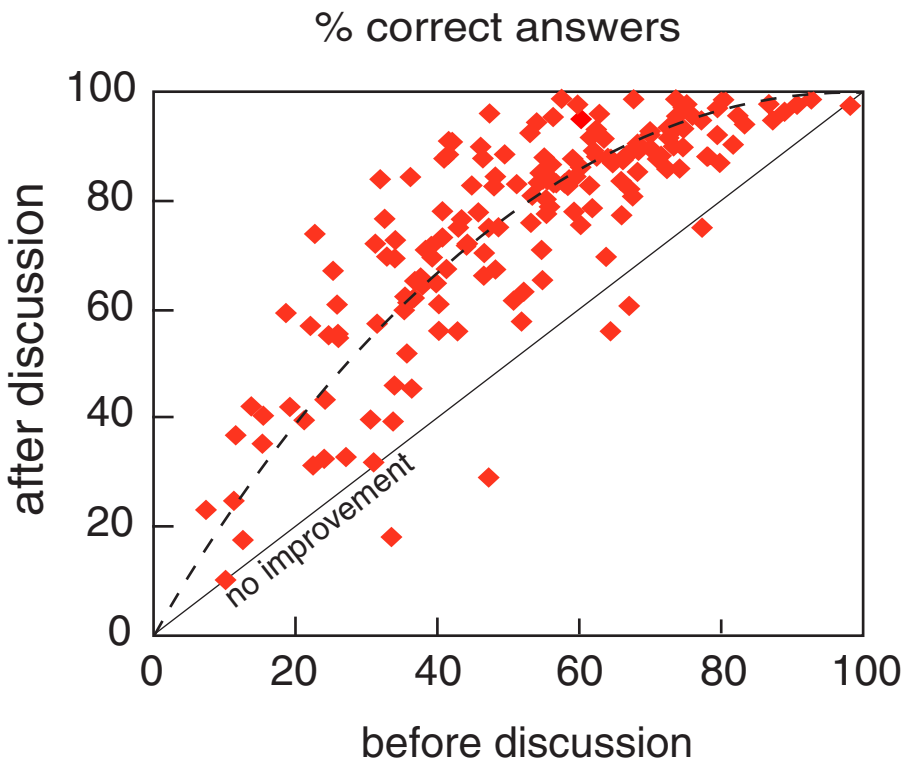

Developing PI/JiTT questions

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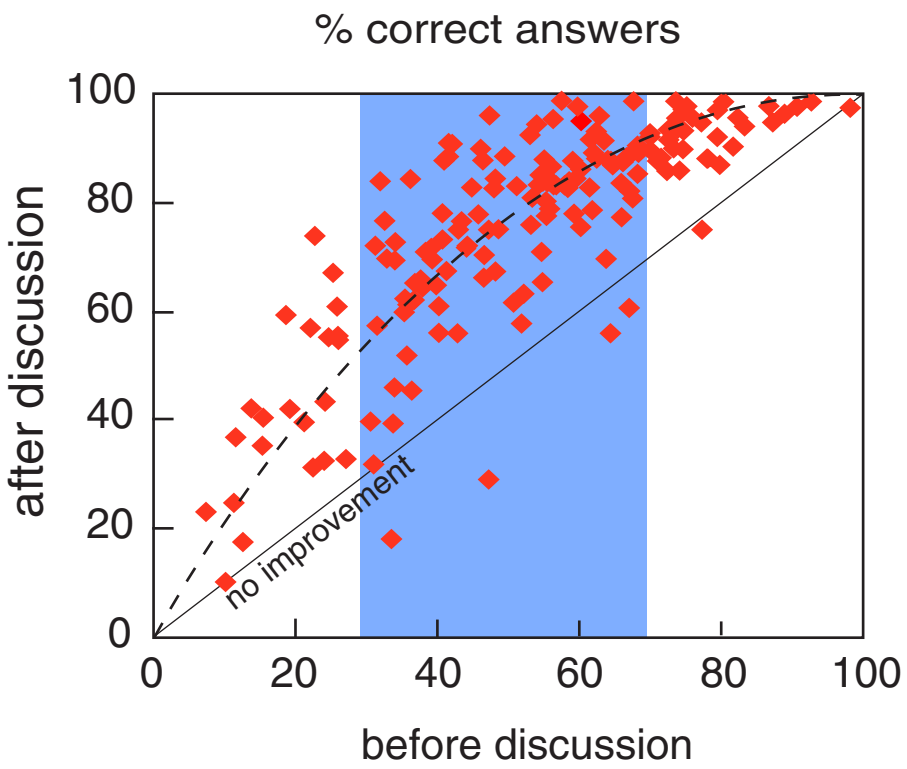
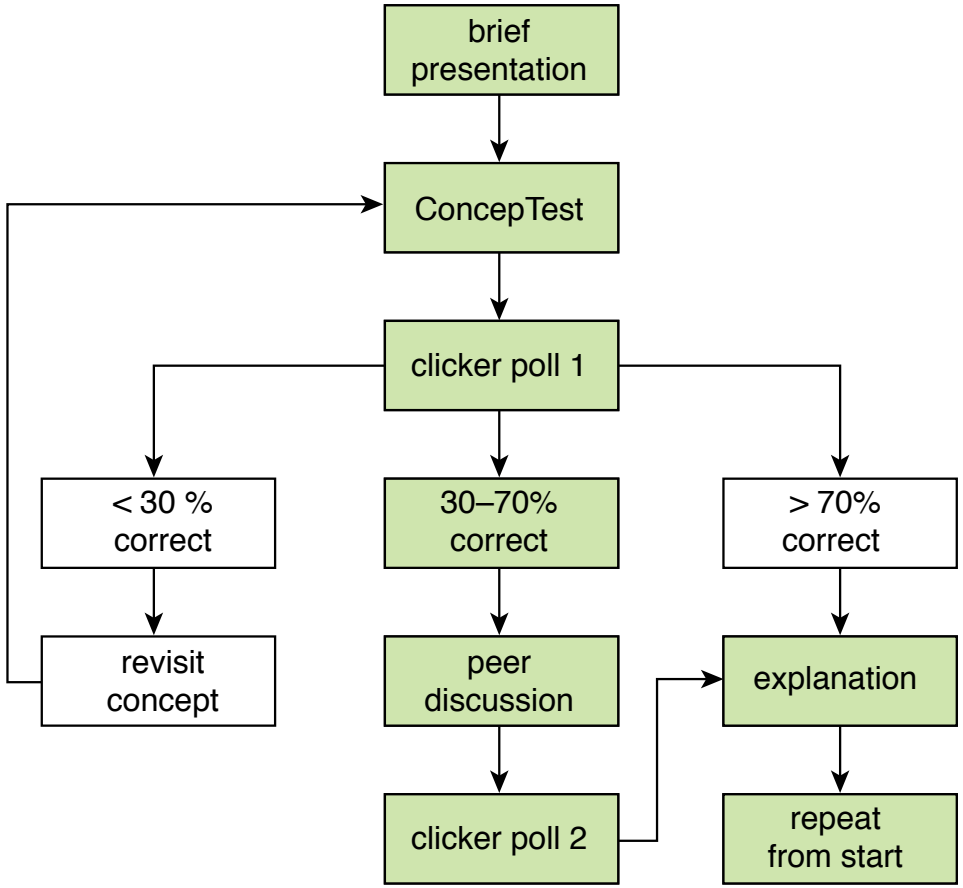


Developing PI/JiTT questions



Developing PI/JiTT questions

“It is difficult to find options that are not obvious.

How many options should we put, is four sufficient?”

Developing PI/JiTT questions

"I would like to see CTs on Algebra. Do you know of any?"

Developing PI/JiTT questions

"Do you know of any networks of users who share questions?"

Developing PI/JiTT questions

PeerInstruction.net

(join today!)

Developing PI/JiTT questions

"I would like to see a real class to see what the professor says…"

Outline

- Your questions
- Developing PI/JiTT questions
- Strategies for assessment

Strategies for assessment

"How can we use assessment to prevent proceeding if the students have not yet understood?"

Strategies for assessment

"How do we assess whether students have understood or whether they have memorized?"

Strategies for assessment

Some ideas:

- Open book/computer
- Collaborative exam
- Multidimensional

Strategies for assessment

How do you assess students of different abilities and keep them all motivated?

Last, but not least…

Are you going to be implementing PI/JiTT?

If so, can you share your plans?

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