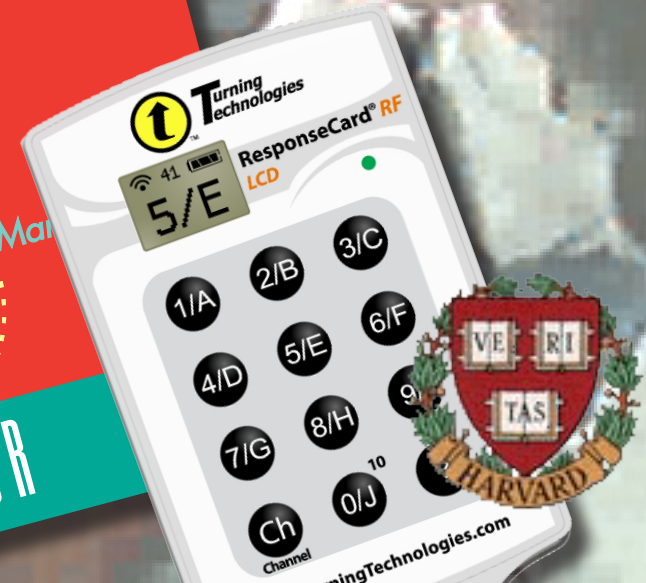


Engaging Students One-on-One, All At Once Session 2



LASPAU/IDIA
Online short-course, 22 August 2011

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

“Must students always complete a pre-class reading?”

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)**

Your questions

Question categories:

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

Administering ConceptTests

“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 you prevent students copying each others’ responses (or exchanging clickers)?”

Administering ConcepTests

“How to strike a balance between giving them too much and too little information?”

Administering ConceptTests

“How do you promote active/fruitful discussions?”

Administering ConceptTests

*“Students are converging on the right answer,
but is their reasoning improving?”*

Administering ConceptTests

“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 too 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

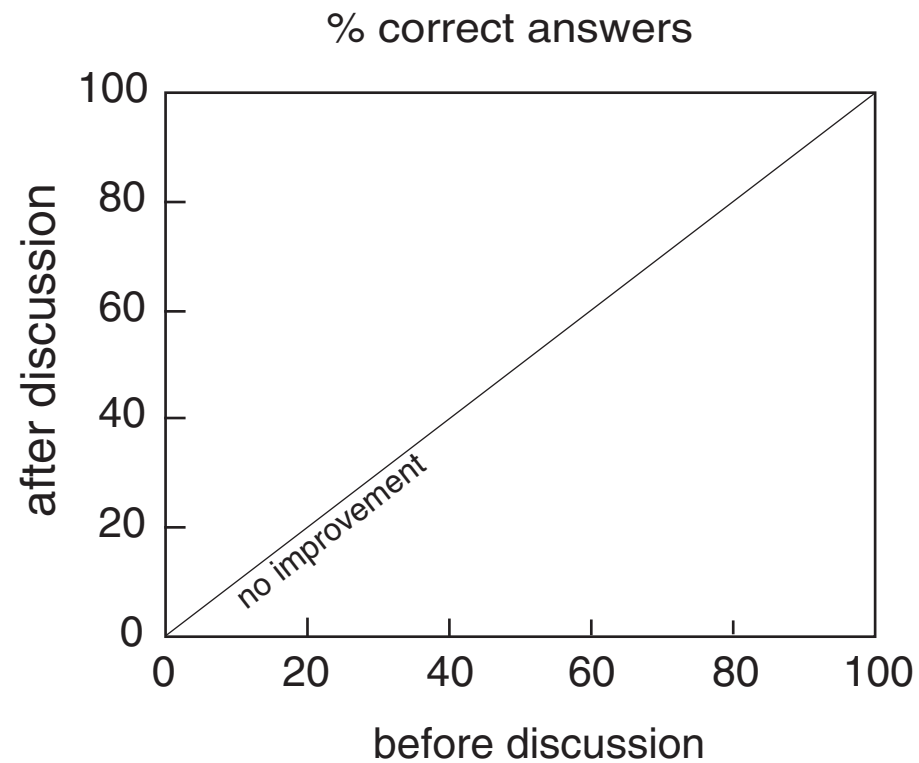
“How do I create a context to evaluate a concept?”

Developing PI/JiTT questions

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

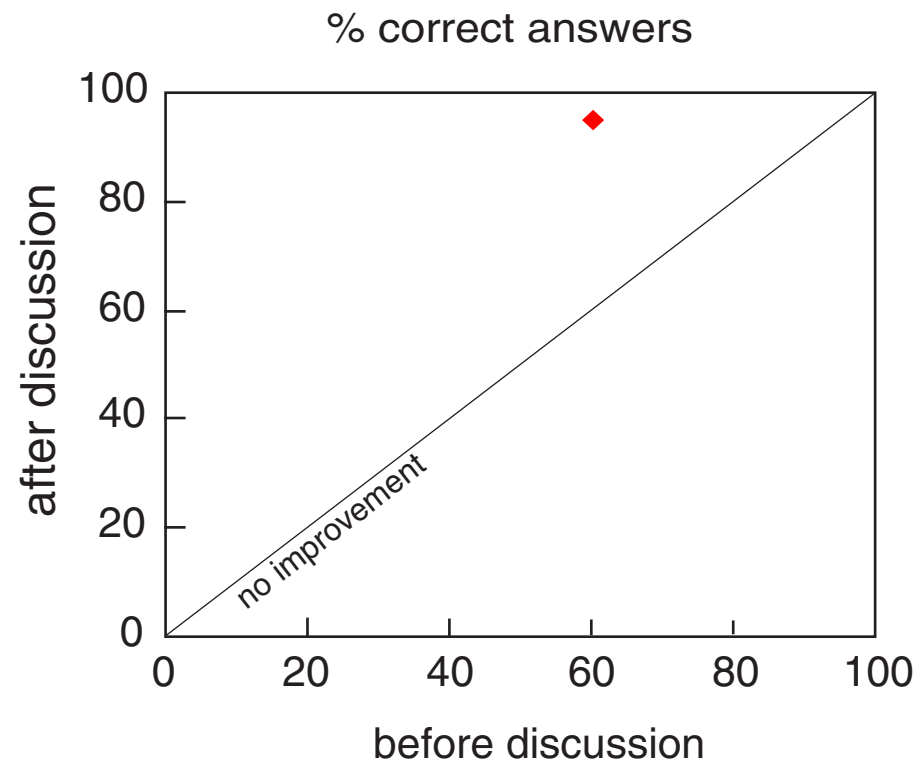
Developing PI/JiTT questions

ConceptTest data



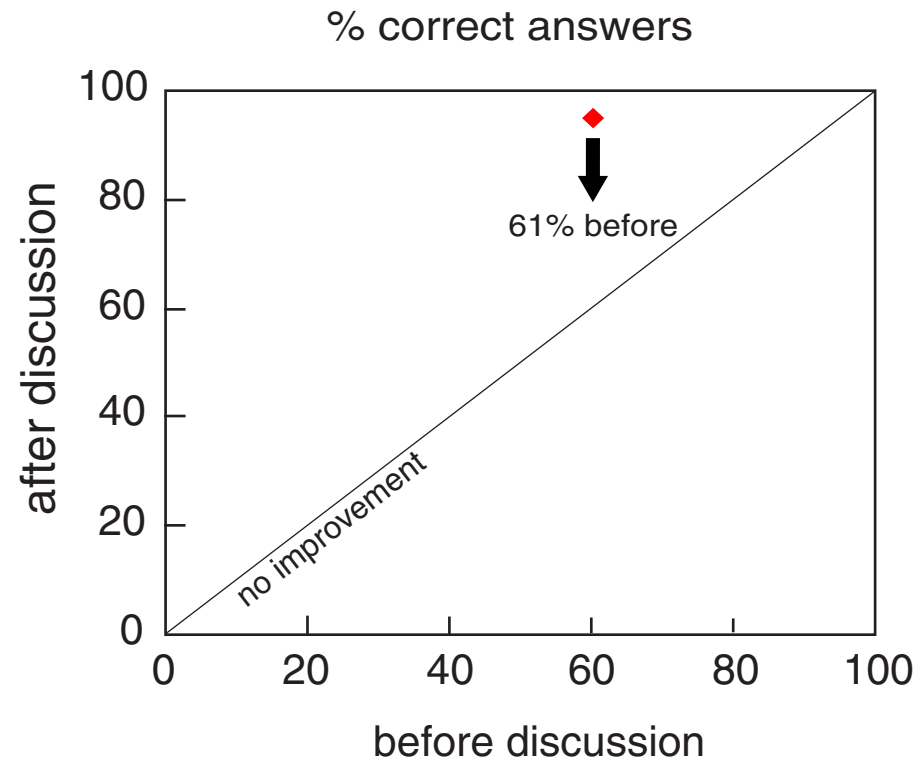
Developing PI/JiTT questions

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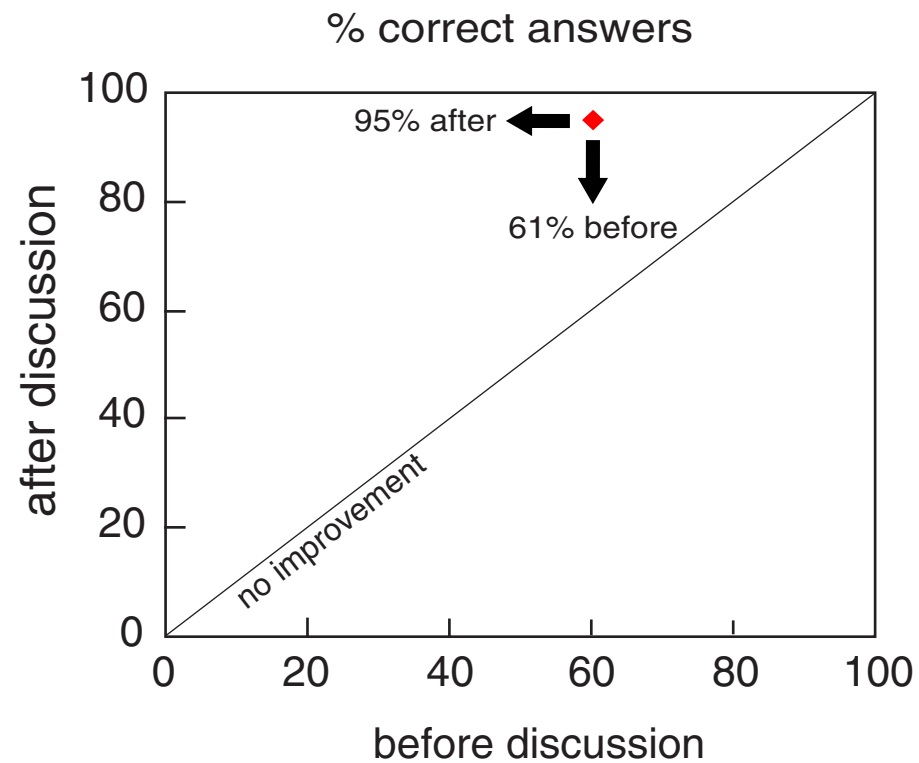
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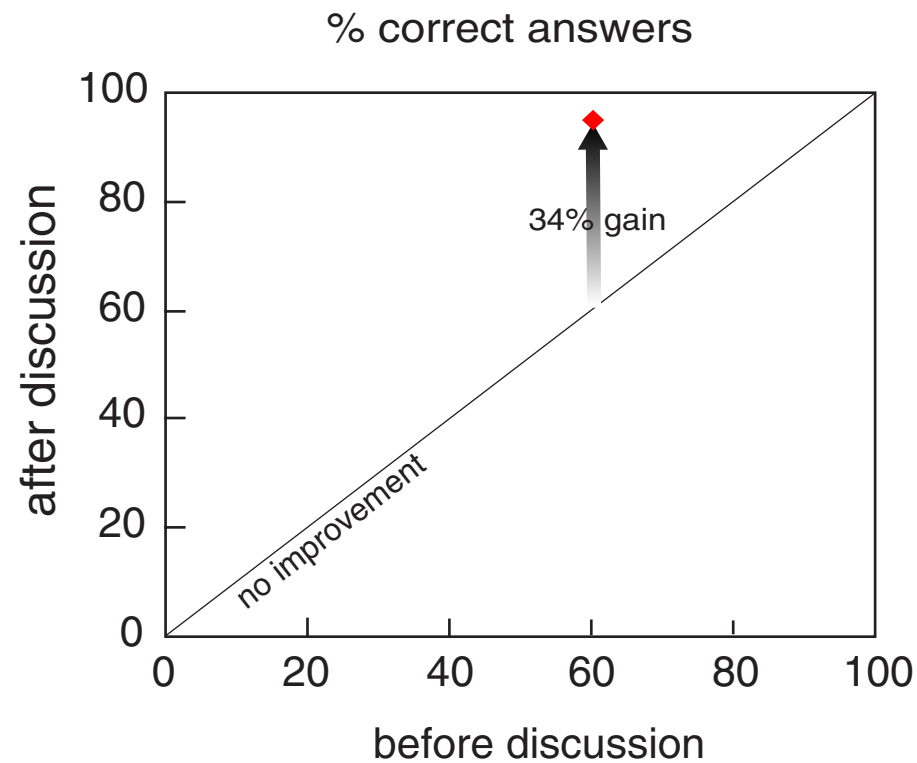
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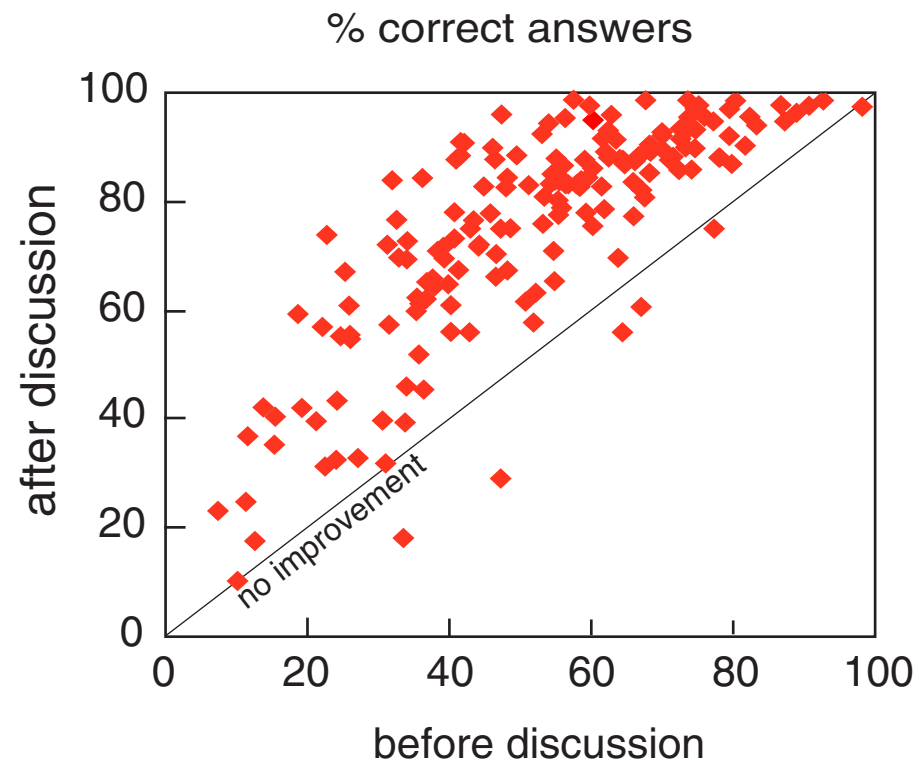
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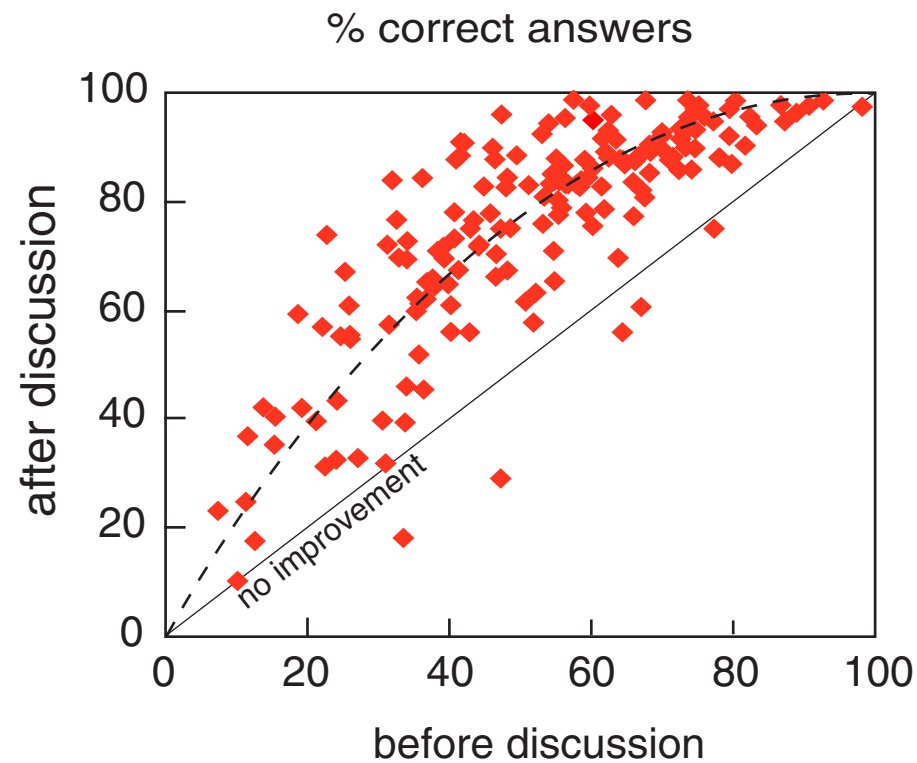
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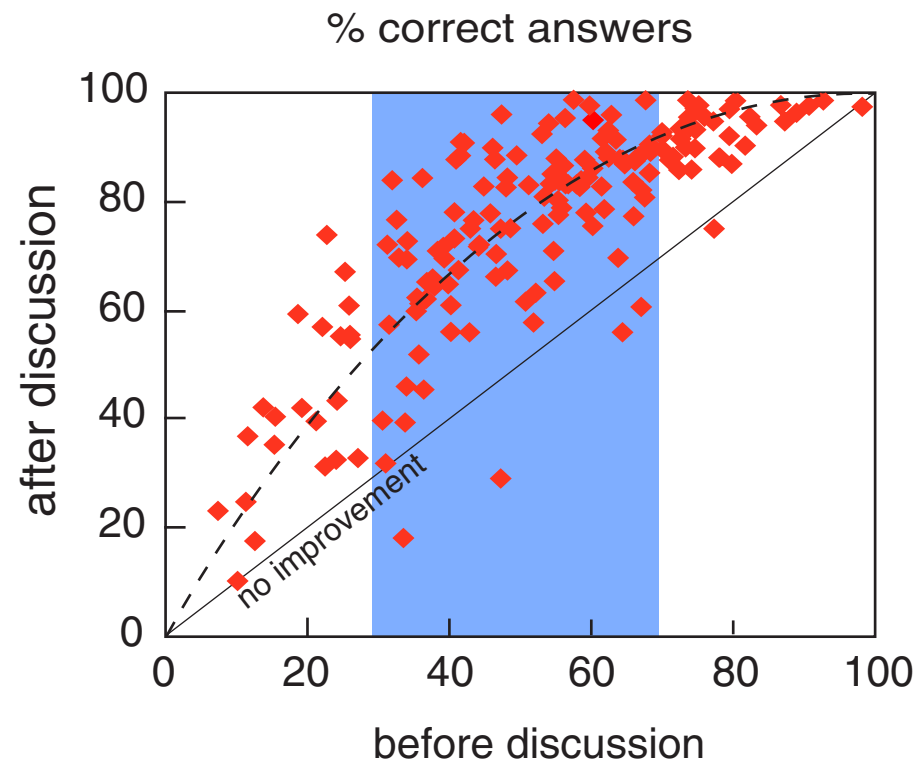
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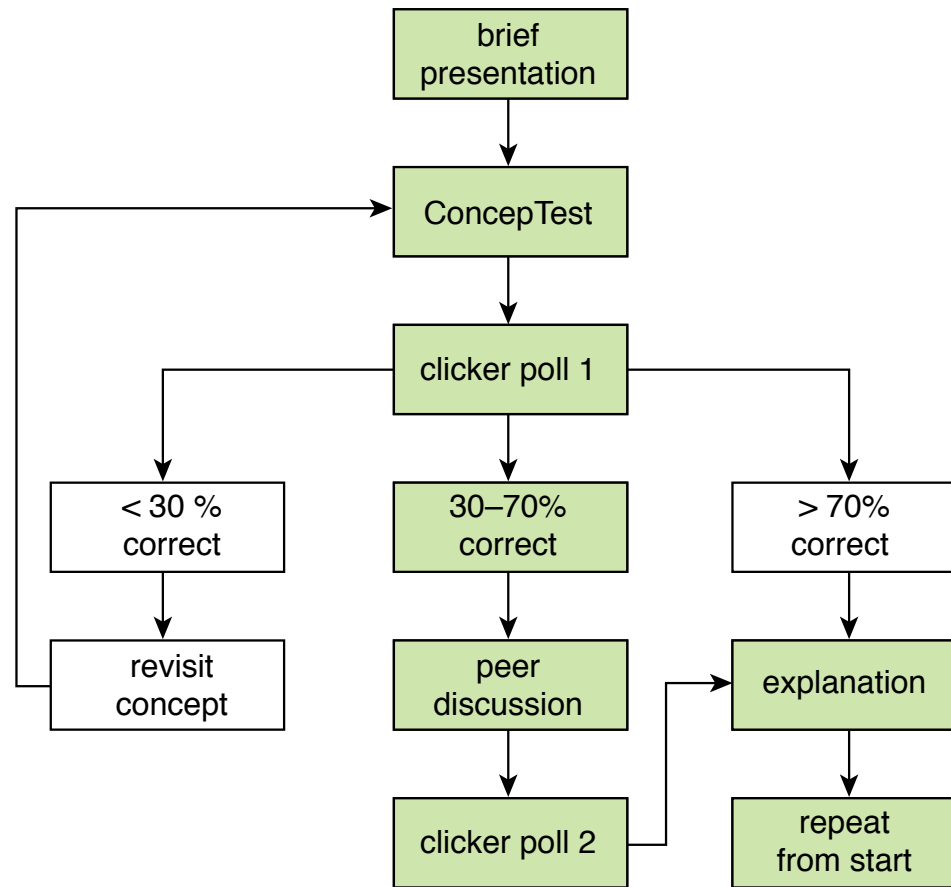


Developing PI/JiTT questions

ConcepTest data



Developing PI/JiTT questions



Developing PI/JiTT questions

“How do I find suitable (incorrect) alternative answers?”

Developing PI/JiTT questions

"I didn't find any CTs on <subject>. Do you know of any?"

Outline

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

Strategies for assessment

“As we try to engage students in active and thoughtful learning, it is hard to evaluate accordingly.”

Strategies for assessment

Some ideas:

- **Open book/computer**
- **Collaborative exam**
- **Multidimensional**

Strategies for assessment

“How do you assess a diverse student body? Essay questions are hard for the students and difficult to grade.”

Strategies for assessment

“What to do when a standard test is given to various sections of a course taught by different professors?”

Last, but not least...

Are you going to be implementing PI/JiTT?

If so, can you share your plans?

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