

Why Do Faculty Try Research Based Instructional Strategies?

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Research Questions

How do faculty learn about research-based methods?

What motivates faculty to try research-based methods?

What motivates faculty to try Peer Instruction?

Category and Description	Sample Comment	N
INTUITION: Peer Instruction was consistent with the interviewees' sense about how students learn best.	"Even with the best faculty so I think I just always had an inherent belief that [lecture is] not really how people learn physics. They really learn by doing problems or doing things or seeing things. That there has to be more than sitting and listening."	12
DISSATISFIED WITH LECTURE: the interviewee felt that the lecture method was unsuccessful and wanted an alternative.	"Something that I think that when you are up there lecturing you are vaguely always aware of, but never really want to admit to yourself is that after about 15 minutes or so they are not really listening to you anymore. Or they are not really actively thinking anymore."	9
CONVINCING DATA: Interviewee was motivated by evidence of effectiveness.	Quite a bit of the physics education research about, you know, some of the data, if you look at some of those force concept inventory data on what happens when people aren't actively engaged in learning, I think it's become pretty clear over the years that my instincts are right that people don't learn physics that way. You know, they have to confront some of their misconceptions."	8
EASY: It was easy to integrate PI into the traditional format.	"I hate to sound bad, but it seemed like the least work. It seemed like the most doable, ... just pausing a few times during lecture to ask a conceptual question and giving them a few minutes to mull it over"	6

Methods & Data Sources

Survey: In the Fall of 2008, 722 physics faculty completed a survey about their instructional goals and practices as well as their knowledge about and use of research-based instructional strategies [1].

Interviews: A subset of 72 survey respondents was purposefully chosen to participate in an associated interview study. This poster reports on an analysis of the 15 interviews conducted with self-reported Peer Instruction [2] users.

Interview analysis procedures: The interviews were analyzed using emergent coding with the assistance of qualitative analysis software (Atlas.ti). Each interview was coded by at least two of the researchers.

Faculty try Peer Instruction because: they believe the lecture approach is ineffective, interactive techniques make intuitive sense and Peer Instruction is easy to try.

Data on effectiveness does not appear to motivate faculty to try a research-based technique but rather confirms and supports their decision.

How do faculty learn about Peer Instruction?

Category and Description	Sample Quote	N	N, First Exposure
COLLEAGUE: The interviewee learned about Peer Instruction through a colleague. This category includes cases where the colleague was another faculty member in their department (most common), a professional colleague outside their local environment, or a faculty member they worked with as a graduate student.	"I learned about it from my college. I've been here 10 years and when I arrived, they had settled on this text and settled on this general approach. And it seemed eminently reasonable to me. So I was happy to adopt it and learn from them"	10 (67%)	3
PRESENTATION: The interviewee learned about Peer Instruction through a formal presentation or workshop. This category includes AAPT meetings (most common) as well as other meetings and workshops with the exception of the workshops for new physics and astronomy faculty which are in a separate category.	"I attended a workshop at the AAS. And a couple of years later I attended a second workshop at the AAS."	7 (47%)	2
READING BOOK: The interviewee learned about Peer Instruction through reading Mazur's book Peer Instruction [2].	"Yes. I read Eric Mazur's book, you could have the title, "Peer Instruction." Yeah, and then that was about eight or nine years ago and so I've implemented it ever since."	7 (47%)	1
FACULTY WORKSHOP: The interviewee learned about Peer Instruction through the physics and astronomy New Faculty Workshop (most common) or the equivalent workshop for two-year college faculty (one interviewee).	"I just didn't ever hear about it until I'd been there like, four or five years. And I went to [the New Faculty Workshop]. ... it more was like, you know, wow, this is something I really should work harder on. ... And I got so many different kinds of materials that it made it a lot easier to start thinking about doing those things."	4 (27%)	2
READING JOURNAL: The interviewee learned about PI through reading a journal article.	"I always read The Physics Teacher Journal and The American Journal of Physics. And whenever there's anything about Peer Instruction in there, I pay particular attention."	4 (27%)	0
FIELD OF EDUCATION: The interviewee learned about Peer Instruction through work in the field of education.	"My degree is in science education and so I had some exposure in my graduate program."	3 (20%)	3

Social interaction (colleague, presentation, workshop, field of education) is the primary way users are exposed to Peer Instruction.

Reading serves as follow up for additional information.

Implications for Dissemination

The decision to try a research-based technique appears to be strongly influenced by social and emotional factors (i.e. beliefs and intuition). **Dissemination should focus on methods that involve direct and personal contact with faculty**, utilizing written materials as a resource for faculty already exposed to the innovation. Additionally, effectiveness data does not appear to be a convincing factor for faculty, however it does give them confidence in their decision and is often used by faculty to justify teaching reforms to their colleagues.

References & Acknowledgements

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