

Adoption of Instructional Methods: What is the Role of Evidence?

Warren Code
Science Centre for Learning and Teaching (Skylight)

2013 CTLT Institute
May 27, 2013

Blended Learning Design session at 1:15pm cancelled – rescheduling for June.

Studying adoption of research-based teaching practices

- Charles Henderson and Melissa Dancy, along with several associates.
- Survey of over 700 Physics faculty in the US, representative of types of institutions.
- Variety of interviews to explore further.
- Lots of data, a series of publications.
- Newer NSF-sponsored study at Grand Valley State University (Henderson as well)

One RBIS: Peer Instruction

- Physicist **Eric Mazur** published his method as *Peer Instruction: A User's Manual*, free copies distributed.
- Mazur will be visiting UBC and giving a talk, "The Tyranny of the Lecture", on June 7th – sign up via CTLT events or view live webcast.

The free copies outnumbered US Physics faculty.

Reasons to attempt RBIS?

What do you think were the main reported reasons?

Reasons to attempt RBIS

Two most successful avenues reported:

- Heard about from a colleague.

What do you think were the main reported reasons?

Grand Valley State University (Michigan): 90% report hearing about new practices from local colleagues

Reasons to attempt RBIS

Two most successful avenues reported:

- Heard about from a colleague.
- Heard about at the New Faculty Workshop (for new Physics faculty in the US)

What do you think were the main reported reasons?

Physics-specific workshop for new faculty.

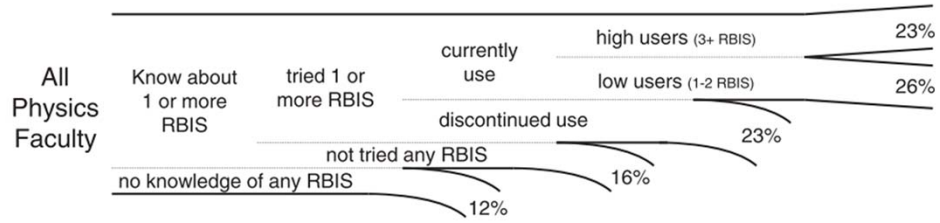


FIG. 1. Where do faculty leave the innovation-decision process?

Of those who attempted an RBIS, about 1/3 discontinued use.
 (RBIS = Research-Based Instructional Strategy)

Figure 1 from Henderson, Dancy, & Niewiadomska-Bugaj (2012)

Reasons to discontinue RBIS

What do you think were the main reported reasons?

Reasons to discontinue RBIS

- Too much class time.
- Too much prep time.
- Lack of resources.
- Lack of evidence of effect.

Reasons to continue RBIS

What do you think were the main reported reasons?

Reasons to continue RBIS

- A good personal experience.
- Use of one's own evidence.

What do you think were the main reported reasons?

What evidence?

- The evidence collected consisted primarily of personally-developed assessments (own tests) and own appreciation of the experience.
- Student evaluations were (reported as) somewhat influential.
- Validated instruments from the research seldom used.
- In a further series of interviews, most faculty were not sure how to answer how they knew their teaching (new or old) was effective.

What about the research literature?

- Very few faculty reported change based on exposure to education research.
- However, after adopting research-based methods, many reported that they valued this research . . .

Slightly unfair – there is value in being able to declare the framework for teaching having a basis in research (for promotion issues, for examples) beyond just trying to convince colleagues.

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- Very few faculty reported change based on exposure to education research.
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Our Opponent: Human Nature?

Daniel Kahneman, who was at UBC, won a Nobel prize for studying decision-making and bias. Basically, people seem to be designed to avoid rational, logical thinking and use a variety of heuristics as much as possible. Formal training and practice in rational thinking, e.g. scientific method and evidence, can overcome this to some extent in that specific context.

but

Our Opponent: Human Nature?

- Kahneman (in *Thinking, Fast and Slow*):
“My intuitive thinking is just as prone to overconfidence, extreme predictions, and the planning fallacy as it was before I made a study of these issues.”
- West, Meserve & Stanovich (*J Pers Soc Psych*, 2012):
“If anything, a larger bias blind spot was associated with higher cognitive ability.”

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But

West, Meserve, Stanovich: Cognitive sophistication does not attenuate the bias blind spot. Higher cognitive ability, which, presumably, are the people we are filling universities with. 97% of UBC faculty rated themselves as above-average teachers.

Possible solution: “engineers”?

- People connecting the research literature and practitioners (may also be practitioners to some degree).
- With design assistance, can mitigate the time and resource issue for faculty.
- Some evidence: CWSEI has seen much higher rates of continued adoption among faculty that have worked with Science Teaching and Learning Fellows.

People between the research literature and practitioners (may also be practitioners to some degree).

Thanks!

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References

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