

Evidence-Based Teaching: A Case Study

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What is Evidence-Based Teaching?

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From Wikipedia:

Evidence-based education is the principle that education practices should be based on the best available scientific evidence, rather than tradition, personal judgment, or other influences.

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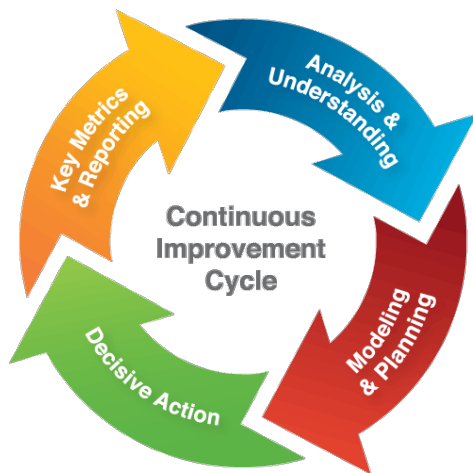
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I like to think I use a

Continuous Improvement Cycle.

The Continuous Improvement Cycle



Our Case: Cold Calling

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Cold calling is
calling on a student
to answer a question
or address the class
when they have
not volunteered to do so.

Survey Says: n Reasons **NOT** to Cold Call

Survey Says: n Reasons **TO** Cold Call

The Larkin/Pines Research: Initial Observation

Late 1990s observation:

most contestants on Who Wants to Be
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possible explanation: discrimination?

probably not:

- ▶ show used a random double blind process to select contestants
- ▶ show made many public attempts to recruit women

The Larkin/Pines Research: Starting Question

Question: In the context of public performance, do women perceive greater risks than men, and will they avoid putting themselves in such settings?

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Key point: risks here tend to be personal, and usually involve looking foolish in public.

The Larkin/Pines Research: Quiz Show Studies

Intro psych students were asked whether they would be willing to participate in a quiz show for cash prizes

- ▶ in public with an audience
- ▶ in private, anonymously

Results:

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Results:

- ▶ Women perceived more risk in the public setting, and were less likely to volunteer.
- ▶ In the private, anonymous setting there was no significant difference in risk perception or willingness to volunteer.

The Larkin/Pines Research: Effects of Social Pressure

In another study, even when social pressure was applied,

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women were less likely than men to volunteer.

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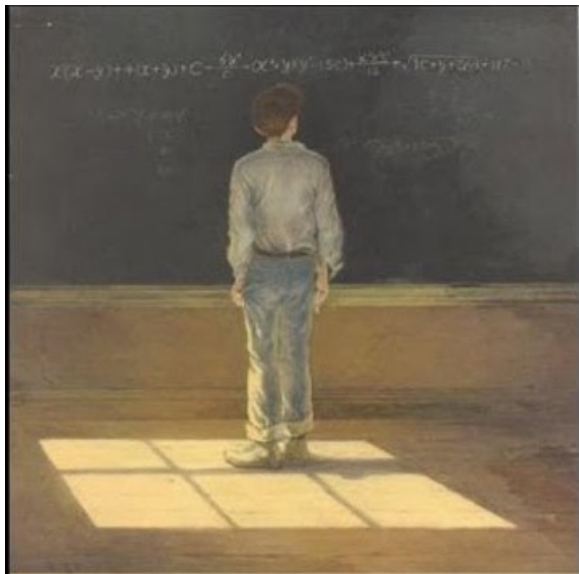
- ▶ most disliked or strongly disliked being called on, and

The Larkin/Pines Research: In the Classroom?

Among students surveyed,

- ▶ most disliked or strongly disliked being called on, and
- ▶ only 12% responded positively to the prospect.

Lost at C: Classroom Avoidance Techniques



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- ▶ Act like you're looking for the answer in your notes [82% 70%]

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- ▶ Act like you're writing something in your notes [85% 80%]
- ▶ Avoid eye contact with the teacher [85% 77%]

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Moral of the story: cold-calling may have a disproportionate negative impact on women, due to a difference in how women and men perceive the related risk.

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- ▶ trained observers counted cold-calling instances in 16 sections of a course
- ▶ classified each section as low-cc or high-cc
- ▶ measured differences in various student metrics between low-cc and high-cc sections.

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- ▶ students voluntarily participate more frequently in high-cc environments
- ▶ students reported being more comfortable participating in high-cc environments, and
- ▶ all of these increase during the semester in high-cc environments, and remain roughly constant in low-cc.

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Moral: Cold-calling can increase gender equity.

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“When instructors use pedagogical strategies such as cold-calling, in which participation of all students is actively sought, the women’s response reflects their pent-up demand. Women who may have wanted to participate but felt discouraged from doing so are now encouraged, thus embracing the opportunity; hence, the percentage of women participating increases more than men’s.”

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students interviewed reported

- ▶ group work and clicker questions could increase or decrease their anxiety, depending on implementation details
- ▶ cold calling or random calling would always increase their anxiety

CBD Response to DHP

“While a previous study suggests that practicing cold call or random call should cause students to become more comfortable speaking out in class, we found that cold call and random call had the opposite effect”

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Goal:

maximize benefits
and minimize costs

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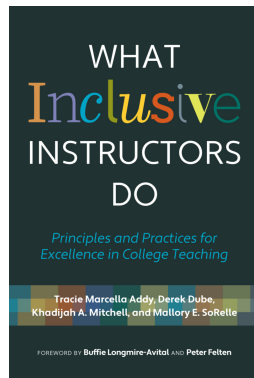
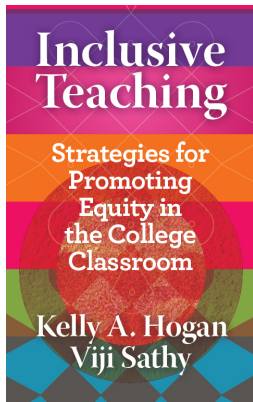
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- ▶ Have students report collective ideas
- ▶ Be respectful and positive
- ▶ Allow a pass
- ▶ Use random call consistently throughout the term

A Glimpse at the Secondary Literature



Takeaways?

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Teaching is highly interpersonal.

References

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The End

Thank You!

Questions or Comments?