Increasing the Impact of PER: Recommendations from Typical Faculty

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RESEARCH QUESTION
What suggestions do non-PER faculty have about what PER could do to have a larger impact on college-level teaching practices?

Data Collection
Interviews: N=35

Participant Characteristics
(purposefully selected)
Level of Use of Peer Instruction2
High User – uses with fidelity (N=7)
Mixed – uses some features (N=10)
Knowledgeable non-user (N=10)
Type of Institution
Two-year college (N=11)
Four-year college (B.A.) (N=12)
Four –year college (Grad) (N=12)

One question in a larger interview: “What would you recommend that the PER community do in order to have a larger impact on the teaching practices of typical physics faculty?” Other parts of the interview also relevant.

3 faculty had no recommendations and are not included in this analysis

Analysis
• Emergent coding scheme

Identify statements from transcripts with recommendations for PER (N=125)

Group statements that are similar

Cluster groups into 4 main categories

References

THE CURRENT SITUATION

- There are many good PER-based instructional strategies available
- 50% of faculty say that they use at least one PER-based strategy
- Many report implementation difficulties
- Discontinuation is a problem
- Few adapters use strategies as recommended by developer

RESULTS

Four Categories of Recommendations

1. Improve Dissemination
   • PER needs to improve dissemination efforts
2. More Research
   • More research on PER methods is needed
3. Department Culture
   • PER should focus on impacting department and institutional culture
4. Other

Type of Institution
- 100% of faculty say that they use at least one PER-based strategy
- 50% of faculty say that they use at least one PER-based strategy

Researcher-Defined User Status
- 100% of faculty say that they use at least one PER-based strategy

RESULTS

Category 1: PER needs to improve dissemination efforts (78%)
- There is so much PER stuff out there and it can be hard to find
- Need easier access to PER materials
- Need ways to keep up with new ideas
- Need consultants to recommend solutions to departments.

Category 2: More research on PER methods is needed (38%)
- There is insufficient evidence-based support for PER pedagogies (16%)
- PER research results are not believable – Assessment methods in PER are biased towards the method being studied.

Category 3: PER should focus on impacting department and institutional culture (31%)
- Faculty have good ideas! We should listen to them.

Category 4: Other (41%)
- Astronomy does a better job at impacting faculty than physics

Conclusions

Faculty have good ideas! We should listen to them.

Improving Dissemination
- Figure out how to provide user-friendly, convenient access to PER materials
- Once implementation happens – design to support it

More Research
- Study secondary implementations
- Develop assessments that measure things other than student conceptual understanding (e.g., problem solving ability)

Department Culture
- Utilize change models that focus on the department level - not individual faculty
- Help departments and institutions re-think how assessment of teaching effectiveness is done

Detailed Recommendations

Category 1: PER needs to improve dissemination efforts (76%)
- Need to do more to get faculty engaged in thinking about how they can best use a PER product.
- Teaching methods need to fit with personality (e.g., PER person) very gradually and carefully – how he manages class is not a good model for me.
- Higher profile dissemination efforts (22%)
- Need to do more to get faculty engaged in thinking about how they can best use a PER product.
- More Research
- 50% of faculty say that they use at least one PER-based strategy
- Disseminate to support customization (25%)
- More Research
- Need to do more to get faculty engaged in thinking about how they can best use a PER product.

Category 2: More research on PER methods is needed (38%)
- There is insufficient evidence-based support for PER pedagogies (16%)
- PER research results are not believable – Assessment methods in PER are biased towards the method being studied.
- Explicitly research how PER ideas work in different situations (16%)
- Other (16%)

Category 3: PER should focus on impacting department and institutional culture (31%)
- Faculty have good ideas! We should listen to them.
- Department Culture
- Utilize change models that focus on the department level - not individual faculty

Category 4: Other (41%)
- Astronomy does a better job at impacting faculty than physics.