



## Table of Contents

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### Implementation

[Purpose of the TPI](#)

[Course Level: What kinds of courses is it appropriate for?](#)

[Content: What does it assess?](#)

[Timing: How long should I give students to take it?](#)

[Example Questions](#)

[Access: Where do I get the assessment?](#)

[Versions and Variations: Which version of the assessment should I use?](#)

[Administering: How do I give the assessment?](#)

[Scoring: How do I calculate my students' scores?](#)

[Clusters: Does this assessment include clusters of questions by topic?](#)

[Typical Results: What scores are usually achieved?](#)

[Interpretation: How do I interpret my students' scores in light of typical results?](#)

### Resources

[Where can I learn more about this assessment?](#)

[Translations: Where can I find translations of this assessment in other languages?](#)

### Background

[Similar Assessments](#)

[Research: What research has been done to create and validate the assessment?](#)

[Research Validation](#)

[Research Overview](#)

[Developer: Who developed this assessment?](#)

### References

# Implementation

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## Purpose of the TPI

To characterize the extent of use of research-based teaching practices in undergraduate natural and social sciences "lecture" courses.

## Course Level: What kinds of courses is it appropriate for?

Upper-level, Intermediate, and Intro college

## Content: What does it assess?

Teaching (Course information provided, Supporting materials provided, In-class features and activities, Assignments, Feedback and testing, Training and guidance of TAs, Collaboration in teaching, Other)

## Timing: How long should I give students to take it?

10 minutes

## Example Questions

### I. Course information provided to students via hard copy or course webpage. (check all that occurred in your course)

- List of topics to be covered
- List of topic-specific competencies (skills, expertise, ...) students should achieve (what students should be able to do)
- List of competencies that are not topic related (critical thinking, problem solving, ...)
- Affective goals – changing students' attitudes and beliefs (interest, motivation, relevance, beliefs about their competencies, how to master the material)
- Other (please specify)

### B. Feedback to students (check all that occurred in your course)

- Assignments with feedback from instructor, teaching assistant, or peer before grading or with opportunity to redo work to improve grade
- Students see graded assignments
- Students see assignment answer key and/or grading rubric
- Students see graded midterm exam(s)/quizzes
- Students see midterm exam(s)/quizzes answer key(s)
- Students explicitly encouraged to meet individually with you
- Other (please specify)

## Access: Where do I get the assessment?

Download the assessment from physport at [www.physport.org/assessments/TPI](http://www.physport.org/assessments/TPI).

## Versions and Variations: Which version of the assessment should I use?

The latest version of the TPI, released in 2018, is version 3. Version 1 was released in October 2014 and version 2 was released in January 2015.

## Administering: How do I give the assessment?

- The Teaching Practices Inventory is a self-assessment. The instructor answers the questions based on the course they are currently teaching or just finished teaching.
- Complete the inventory for lecture sections of the course only.

## Scoring: How do I calculate my students' scores?

- Download the scoring rubric from PhysPort ([www.physport.org/key/TPI](http://www.physport.org/key/TPI))
- Each question is assigned a certain number of points based on how "research-based" a practice has been determined to be.
- Download the Excel scoring rubric from PhysPort ([www.physport.org/scoring/TPI](http://www.physport.org/scoring/TPI))
- The scoring rubric extracts an "extent of use of research-based teaching practices (ETP)" score for each of the eight inventory categories and for the course as a whole. This rubric assigns points to each practice for which there is research showing that the practice improves learning.

**Clusters: Does this assessment include clusters of questions by topic?**

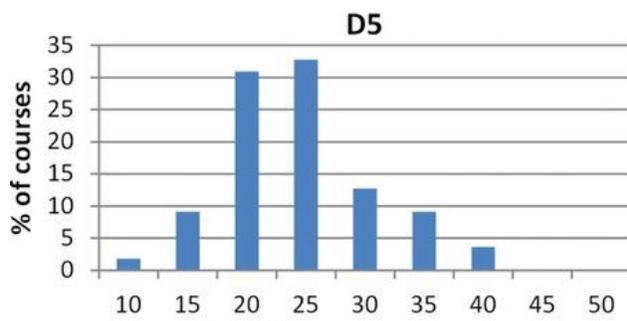
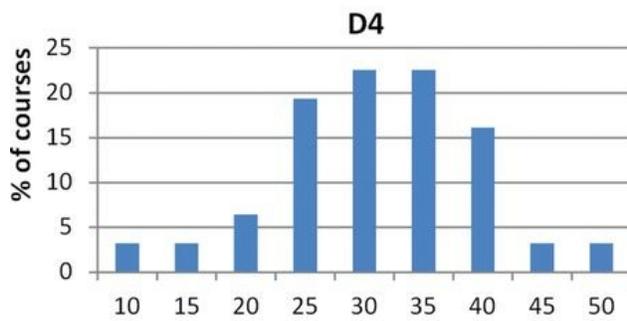
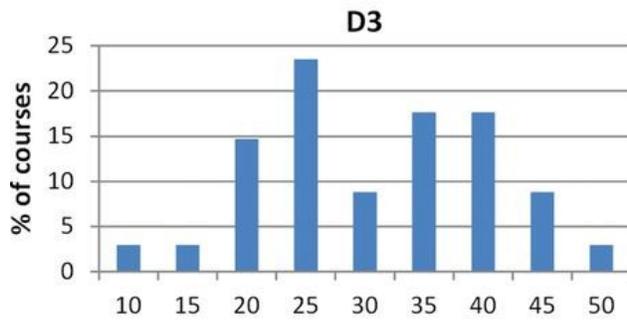
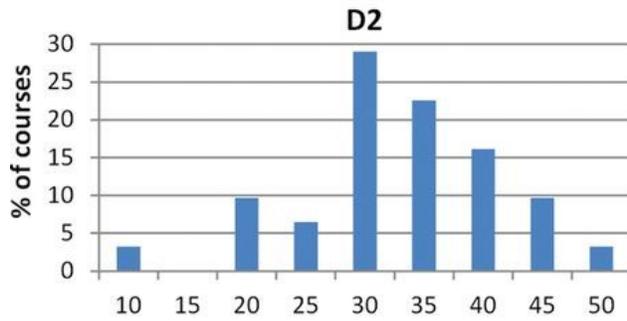
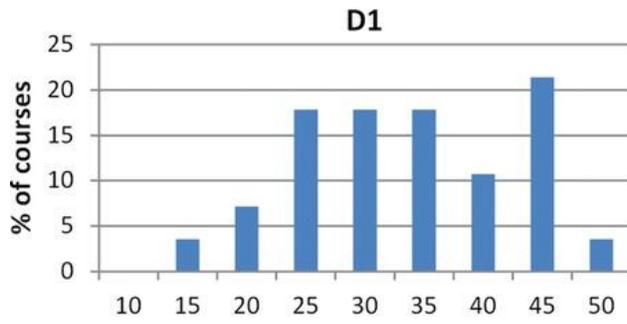
The items on the inventory are divided into eight categories:

1. Course information provided (including learning goals or outcomes)
2. Supporting materials provided
3. In class features and activities
4. Assignments
5. Feedback and testing
6. Other (diagnostics, pre-post testing, new methods with measures, ...)
7. Training and guidance of teaching assistants
8. Collaboration or sharing in teaching

**Typical Results: What scores are usually achieved?**

The figure below shows the histograms of the “extent of use of research-based teaching practices (ETP)” scores for the five departments at UBC (from [Wieman and Gilbert 2017](#)):





ETP score per course

## Interpretation: How do I interpret my students' scores in light of typical results?

The "extent of use of research-based teaching practices (ETP)" score provides an efficient way to sort through the mass of data provided by the full inventory to identify areas of interest. The breakdown by category and the full inventory response provides a much richer characterization of the teaching.

## Resources

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### Where can I learn more about this assessment?

C. Wieman and S. Gilbert, [The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science](#), *CBE Life. Sci. Educ.* **13** (3), 552 (2014).

You can fill out a paper and pencil version and score it yourself, or fill out this [online version](#), and have it automatically scored for you.

### Translations: Where can I find translations of this assessment in other languages?

We don't have any translations of this assessment yet.

If you know of a translation that we don't have yet, or if you would like to translate this assessment, please [contact us!](#)

## Background

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### Similar Assessments

The TPI is similar to other surveys assessing teaching practices (e.g., PIPS, MIST, SCII).

### Research: What research has been done to create and validate the assessment?

**Research Validation:** Bronze ●

This is the third highest level of research validation, corresponding to at least 3 of the validation categories below.

- Based on research into **student thinking**
- Studied using **student interviews**
- Studied using **expert review**
- Studied using **appropriate statistical analysis**
- Research conducted **at multiple institutions**
- Research conducted **by multiple research groups**
- Peer-reviewed publication**

### Research Overview

The PIPS was tested with several hundred faculty members at UBC and refined over a 6-year period. It was reviewed by experts in college science teaching, science education specialists, and Carl Wieman Science Education Initiative departmental directors. Open-ended responses to "other" categories were used to check instructors' interpretations of the questions and add options. For selected classes, observers of the classes were asked to evaluate the responses given by instructors.

### Developer: Who developed this assessment?

Carl Wieman and Sarah Gilbert

## References

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- K. M. Alsharif and N. M. Alamri, [Using Teaching Practices Inventory to Evaluate Mathematics Faculty Teaching Practices in Higher Education](#), *International Journal of Instruction*, **13** (1), (2020).
- A. A. Olsen, K. A. Morbitzer, S. Zambrano, J. M. Zeeman, A. M. Persky, A. Bush, and J. E. McLaughlin, [Development and](#)

[implementation of a formative instructional coaching program using the Teaching Practices Inventory within a health professions program](#), BMC Med Educ **22** (1) 554 (2022).

- C. Wieman, [A Better Way to Evaluate Undergraduate Teaching](#), Change: Mag. Higher Learn. **47** (1), 6 (2015).
- C. Wieman and S. Gilbert, [The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science](#), CBE Life. Sci. Educ. **13** (3), 552 (2014).