New ideas for how to evaluate and improve your teaching

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Everyone wants to teach better

*How well am I doing?*

*What can I do to get better?*

*How can I show how well I am doing and how I have improved?*

Student evaluations?

*Like-hate, too fast-too slow, too easy-too hard... ????*

• Go to workshop
• Read books (best– *How Learning Works*, by Ambrose et al.)

still lots of uncertainty
Today--Evaluate how well you are teaching and see how to improve
Document for evaluation, promotion, and tenure.

Using new tools developed by CWSEI
• COPUS (classroom observation protocol for undergraduate science)
• Teaching practices Inventory
Familiar with COPUS?
Has been used on your course?
Every two minutes check code for what students and instructor is doing.

Requires little (~1hr) training for reliable results

<table>
<thead>
<tr>
<th>1. Students doing</th>
<th>2. Instructor doing</th>
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<td>0 - 2</td>
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<td>2 - 4</td>
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<td>4 - 6</td>
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Range of distributions observed

Instructors are usually surprised to see their distributions.

How you could use—get someone (STLF, grad, inst, ...) to do your class

See what you are doing, adjust as desired.
The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science
Carl Wieman and Sarah Gilbert

http://www.cwsei.ubc.ca/resources/TeachingPracticesInventory.htm

Familiar with TP Inventory?
Have used it for your course?

Characterizes all elements of teaching a course
(except lab & seminar courses)
8 categories, 64 items.
~10 minutes per course to complete
<table>
<thead>
<tr>
<th>I. Course information provided</th>
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<tbody>
<tr>
<td>Information about the courses, such as list of topics and organization of the course, and learning goals/objectives.</td>
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<th>II. Supporting materials provided</th>
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<tr>
<td>Materials provided that support learning of the course material, such as notes, video, and targeted references or readings.</td>
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<tr>
<th>III. In-class features and activities</th>
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<td>What is done in the classroom, including the range of different types of activities that the instructor might do or have the students do.</td>
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<th>IV. Assignments</th>
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<td>Nature and frequency of the homework assignments in the course.</td>
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<th>V. Feedback and testing</th>
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<td>Testing and grading in the course, and the feedback to students and feedback from students to instructor.</td>
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<th>VI. Other</th>
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<td>Assorted items covering diagnostics, assessment, new methods, and student choice and reflection.</td>
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<th>VII. Training and guidance of teaching assistants</th>
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<td>What selection criteria and training is used for course teaching assistants, and how their efforts are coordinated with other aspects of the course.</td>
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<th>VIII. Collaboration or sharing, use of research, in teaching</th>
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<tbody>
<tr>
<td>Collaboration with other faculty, use of relevant education research literature, and use of educational materials from other sources.</td>
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</table>
I. Course information provided to students via hard copy or course webpage. (check all that occurred in your course) [1]

- List of topics to be covered  1
- List of topic-specific competencies (skills, expertise, ...) students should achieve (what students should be able to do)  3
- List of competencies that are not topic related (critical thinking, problem solving, ...)  1
- Affective goals – changing students’ attitudes and beliefs (interest, motivation, relevance, beliefs about their competencies, how to master the material)  1
- Other (please specify)
  If you selected other, please specify______________________________

II. Supporting materials provided to students (check all that occurred in your course)

- Student wikis or discussion boards with little or no contribution from you  0
- Student wikis or discussion boards with significant contribution from you or TA[2]  1
- Solutions to homework assignments[3]  1
- Worked examples (text, pencast, or other format)  1
- Practice or previous year’s exams  1
- Animations, video clips, or simulations related to course material  1
- Lecture notes or course PowerPoint presentations (partial/skeletal or complete)[4]  1
- Other instructor selected notes or supporting materials, pencasts, etc.  0
- Articles from scientific literature[5]  1
- Other (please specify)
  If you selected other, please specify______________________________

III. In-class features and activities

A. Various

Give approximate average number:

- Average number of times per class: pause to ask for questions ____ (1 if >3)
- Average number of times per class: have small group discussions or problem solving ____ (1 if 1, 2 if >1)
Very detailed characterization of how course is taught

Measure extent of use of teaching practices research shows produce greater learning.

(51 of the 64 items have 1, 2, or 3 “effective teaching practices” points)
Get ETP score for each category, and overall total
Add up all your points = “Effective teaching practices (ETP)” score

Shows what you are doing that is good.
Shows what is good that you are not doing.

Track & document your improvement
40-50 good, >50 superstar

Scores for courses in various departments
COPUS & Teaching Practices Inventory

Tell you what you are doing, what things can add that would be better-- *(critical--research says teaching methods used best predictor of student learning)*

Not much about details of how to implement a particular method most effectively.

CWSEI website “Resources” tab—many two pagers:
“*Instructor habits to keep students engaged*” (particularly in large classes)
“What not to do”
“Creating and implementing in-class activities-tips”
“Effective clicker use” booklet (includes a lot on question design)
...
Great videos showing in use

Workshops today:
Facilitating discussion, Getting the most out of demos and videos, Practical strategies to maximize engagement
Conclusion:

COPUS & Teaching Practices Inventory

New, useful ways to evaluate your teaching and help you see how to improve

Also can be used to document quality and improvement in your teaching
TPI— not perfect way to assess quality of teaching.
**Just much better than anything else available.**

“useful” = *directly involves people responsible/can change outcome*

*shows how to improve (individually & collectively)*

*practical for widespread regular use*

*allows comparisons against a standard*

“meaningful” = *proxy that research shows correlates with desired outcomes.*

Amount of learning and student course completion.
Particularly learning of expert-like thinking.