ADVISORY COUNCIL ON INSTRUCTIONAL EXCELLENCE
Vice Provost Laurie J. Kirsch, Chair
November 5, 2018

Minutes

Present: L. Kirsch (Chair), N. Benedict, J. Coyle, B. Falcione, P. Gartside, C. Golden, G. Hamad, A. Lotz, C. Perfetti, J. Russell, T. Seybolt, L. Wang, B. Wells

Welcome and Introductions

Laurie Kirsch called the meeting to order at 2:05 p.m. and welcomed members and presenters to the meeting. The council members and presenters introduced themselves.

Assessment of Teaching

Laurie noted that in Provost Cudd's charge, she asked that the Council provide recommendations to the Provost and the Teaching Center about expanding the ways in which the university assesses teaching. To begin discussions on this topic, Laurie invited three individuals to provide the Council with information on what is currently being done to assess teaching.

Lindsay Onufer, Teaching Consultant and Teaching Support from the University Center for Teaching and Learning, discussed teaching assessment options currently offered by the Teaching Center, handout is attached.

Jacqueline Dunbar-Jacob, Dean of the School of Nursing, provided the Council with an overview of what the School of Nursing is currently doing to assess teaching. For annual evaluations the following criteria are considered: honorary awards received, OMETS and courses taught, peer evaluations by the Promotion Committee, active contributions to curriculum and international programs, strategies to support students, mentoring of visiting faculty, teaching of Honor, independent study, and/or practicum courses, advising students and dissertations, syllabus review, and evidence based teaching. In addition to annual evaluations the School of Nursing also has an Advisory Council of Undergraduate Students that meet with senior leadership to discuss the positives and areas of concerns for undergraduate courses. The School of Nursing also enroll all new faculty in a 6-week long crash course in how to be an educator. Additionally the new faculty member is paired with a senior faculty member for their first year at Pitt; during their first year, the new faculty member works with the senior faculty member on their courses and does not teach any courses independently.

Mary Besterfield-Sacre, Associate Dean for Academic Affairs in the Swanson School of Engineering, provided the council with information on how the School of Engineering is working to improve teaching effectiveness, presentation is attached.

Next Meeting

The next meeting will be on Thursday, January 31, 2019 from 1:00 – 2:00 p.m., in 815 Alumni Hall. This meeting will be to review and discuss the process for reviewing the Innovation in Education proposals.

Adjournment

Having no further business to discuss, the meeting was adjourned at 3:01 p.m.

Support for Assessment of Teaching Effectiveness

Research suggests that experimenting with additional ways of measuring and assessing teaching, beyond student opinion surveys, can be valuable and help instructors to improve and refine their teaching practices. The University Center for Teaching and Learning can assist with the following:

Classroom Observations

Teaching observations are conducted using an internally developed tool, usually at the request of individual faculty members, or sometimes at the request of chairs and deans. Observations are typically formative and are done to improve some aspect of teaching. Sometimes these are completed at the request of a department to supplement a teaching portfolio for tenure.

Course Review

The Teaching Center conducts course, curriculum, assessment, and syllabi review. Information sessions on how to conduct informal mid-term assessments can also be scheduled.

Teaching Portfolios

Teaching portfolios allow instructors to document the scope and quality of their teaching performance with evidence from a variety of sources, such as syllabi, readings, graded work, comments from observers, and more. Faculty who would like to develop a teaching portfolio or request a critique of their existing portfolio should contact the Teaching Center.

Departmental Peer Assessment

The Teaching Center will work with a department to design a teaching effectiveness form, *unique to the needs of the department.* The Teaching Center will then train the faculty who to use the form to evaluate peer faculty via teaching observations, and how to provide feedback.

Teaching Inventories

Teaching inventories are useful tools that allow faculty to view the extent to which they are using research-based teaching practices. The Wieman Teaching Inventory is available for pilots with interested departments, with our consultants providing support.

Teaching Cohorts (Peer Evaluations)

Four faculty together with a teaching consultant work to examine, review, and enrich their teaching practice. Groups meet three times a semester and conduct one observation of each group member as they teach. Teaching consultants facilitate. (Limited capacity—must be arranged in advance.)

Small Group Instructional Diagnosis

Teaching consultants can conduct these guided discussions (which are similar to focus groups) with groups of students to collect and analyze data on teaching and learning. The data will be turned into a report for the faculty and TAs with suggestions on how improvements could be made. (Limited capacity—must be arranged in advance).

Assessment of Teaching
UNIVERSITY CENTER FOR
Teaching and Learning

Contact us for more information on these services.

E-mail: teaching@pitt.edu

Web: teaching.pitt.edu

12/2018

University Center for Teaching and Learning
teaching@pitt.edu

CLASSROOM OBSERVATION CHECKLIST

Instructor: _____Class/Date:_____ _____

		BEHAVIORS RELATED TO GOOD TEACHING	+ Satisfactory - Needs Improvement
LESSON	**1**	States objectives for class session	
	2	Captures attention by communicating relevance	
	3	Helps students to recall what they already know	
	4	Communicates a clear organizational scheme	
	5	Connects material to real world examples or students' interests	
	6	Checks understanding through targeted questions or activities	
	7	Provides targeted practice opportunities and feedback	
	8	Defines new terms before using them	
	9	Provides opportunities for student to student interaction/discussion	
	10	Provides opportunities for student questions	
	11	Breaks down complex ideas into simple parts	
	12	Uses multimodal methods for teaching: Visual, auditory, kinesthetic activities, images, metaphors, cases, problem solving, writing activities, group work, etc.	
	13	Limits key ideas or concepts to fewer than seven	
	14	Provides a clear explanation of assignments	
	15	Provides a summary of key points or ideas that includes a transition to the next lesson	
ENVIRONMENT	**16**	Addresses individuals by name	
	17	Exhibits enthusiasm about the topic	
	18	Demonstrates respect when responding to students	
	19	Manages discussions among the high/low responders	
	20	Makes eye contact with students in different parts of the classroom	
	21	Uses statements or examples that do not assume that students share a common cultural perspective	
	22	Prompts all students equally for responses to questions	

Developed by Carol Washburn EdD, University Center for Teaching and Learning, University of Pittsburgh. 2015. Based on the priniciples and information from the book, Ambrose. S. et al. (2010). How learning works. SanFrancisco: Jossey-Bass.

DELIVERY	**23**	Easily heard	
	24	Enunciation is clear	
	25	Pacing is appropriate	
	26	Faces the class when speaking	
	27	Uses friendly gestures and facial expressions	
	28	Provides explanations for visuals (as opposed to reading them)	
MEDIA	**29**	Visual information easily seen/heard	
	30	Audio easily heard if used	
	31	Slides have minimal text	
	32	Diagrams, charts, and maps are labeled clearly	
	33	Purpose of media explained	

What are the observed strengths of the instructor?

How could the lesson be improved?

Additional Comments:

Developed by Carol Washburn EdD, University Center for Teaching and Learning, University of Pittsburgh. 2015. Based on the priniciples and information from the book, Ambrose. S. et al. (2010). How learning works. SanFrancisco: Jossey-Bass.

Beyond OMET
Evaluating Teaching Effectiveness or Student Learning

EERC

ENGINEERING EDUCATION RESEARCH CENTER

Dr. Mary Besterfield-Sacre

Associate Dean for Academic Affairs

Nickolas DeCecco Professor, Industrial Engineering

Director, Engineering Education Research Center*

Our Overarching Plan …A few years ago

Faculty Development

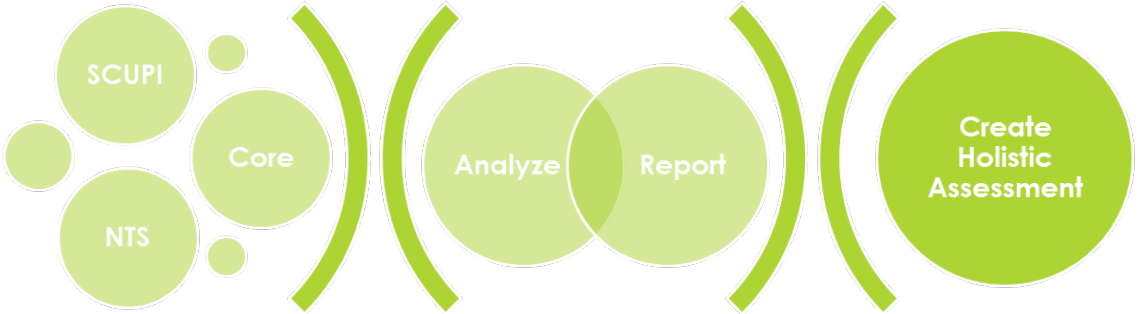
Evaluations are indirect, relative measures; and they're biased

NTS need more than OTE for promotion purposes

Freeman et. al Active Learning Increases Performance

Teaching Practices Inventory

Classroom Observation Protocol for Undergraduate STEM (COPUS)

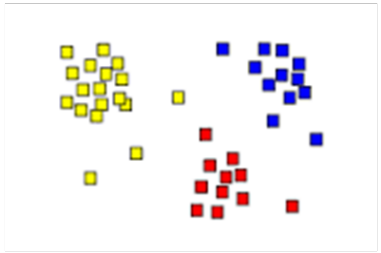


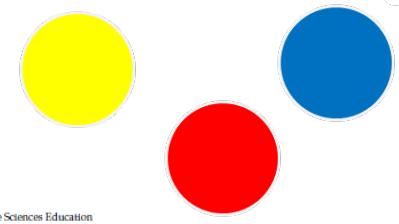
Who

What are we doing

How to use for effectiveness

Teaching Practices Inventory Differentiated Pedagogy





CBE—Life Sciences Education
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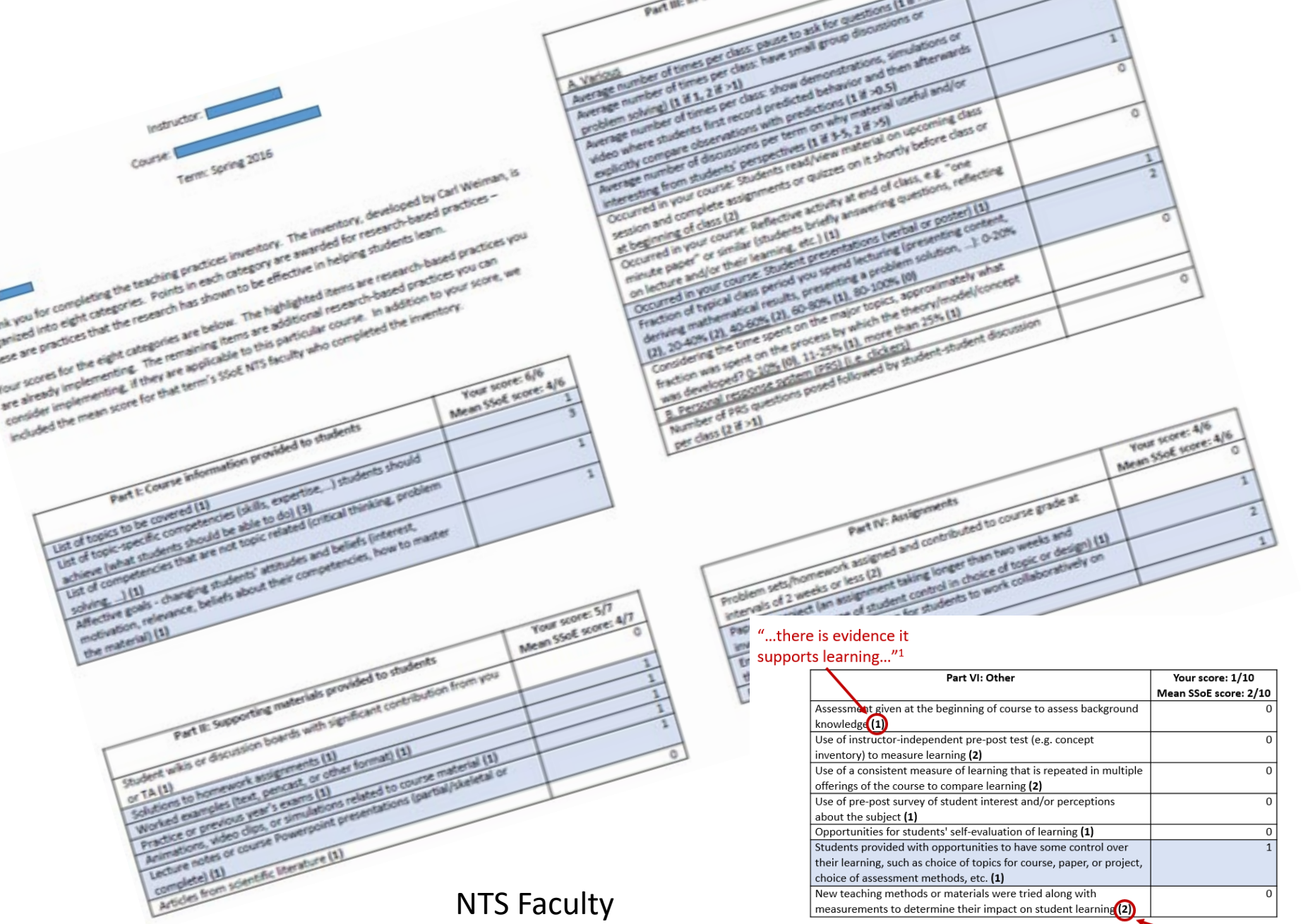
Article

The Teaching Practices Inventory: A New Tool for Characterizing College and University Teaching in Mathematics and Science

Carl Wieman* and Sarah Gilbert†



Instructor:

Course:

Term: Spring 2016

nk you for completing the teaching practices inventory. The inventory, developed by Carl Wieman, is
gorized into eight categories. Points in each category are awarded for research-based practices –
ese are practices that the research has shown to be effective in helping students learn.

Your scores for the eight categories are below. The highlighted items are research-based practices you
are already implementing. The remaining items are additional research-based practices you can
consider implementing. If they are applicable to this particular course, in addition to your score, we
included the mean score for that term's SSoE NTS faculty who completed the inventory.

Part I: Course information provided to students	Your score: 6/6 Mean SSoE score: 4/6
List of topics to be covered (1)	1
List of topic-specific competencies (skills, expertise…) students should achieve (what students should be able to do) (3)	3
List of competencies that are not topic related (critical thinking, problem solving…) (1)	1
Affective goals - changing students' attitudes and beliefs (interest, motivation, relevance, beliefs about their competencies, how to master the material) (1)	1

Part II: Supporting materials provided to students	Your score: 5/7 Mean SSoE score: 4/7
Student wikis or discussion boards with significant contribution from you or TA (1)	0
Solutions to homework assignments (1)	1
Worked examples (text, pencast, or other format) (1)	1
Practice or previous year's exams (1)	1
Animations, video clips, or simulations related to course material (1)	1
Lecture notes or course Powerpoint presentations (partial/skeletal or complete) (1)	1
Articles from scientific literature (1)	0

A. Various	
Average number of times per class: pause to ask for questions (1 if >1, 2 if >1)	1
Average number of times per class: have small group discussions or problem solving) (1 if 1, 2 if >1)	0
Average number of times per class: show demonstrations, simulations or video where students first record predicted behavior and then afterwards explicitly compare observations with predictions (1 if >0.5)	0
Average number of discussions per term on why material useful and/or interesting from students' perspectives (1 if 3-5, 2 if >5)	1
Occurred in your course: Students read/view material on upcoming class session and complete assignments or quizzes on it shortly before class or at beginning of class (2)	2
Occurred in your course: Reflective activity at end of class, e.g. "one minute paper" or similar (students briefly answering questions, reflecting on lecture and/or their learning, etc.) (1)	0
Occurred in your course: Student presentations (verbal or poster) (1)	
Fraction of typical class period you spend lecturing (presenting content, deriving mathematical results, presenting a problem solution, …): 0-20% (2), 20-40% (2), 40-60% (2), 60-80% (1), 80-100% (0)	0
Considering the time spent on the major topics, approximately what fraction was spent on the process by which the theory/model/concept was developed? 0-10% (0), 11-25% (1), more than 25% (1)	
B. Personal response system (PRS) (i.e. clickers)	
Number of PRS questions posed followed by student-student discussion per class (2 if >1)	0

Part IV: Assignments	Your score: 4/6 Mean SSoE score: 4/6
Problem sets/homework assigned and contributed to course grade at intervals of 2 weeks or less (2)	0
Project (an assignment taking longer than two weeks and [illegible] of student control in choice of topic or design) (1)	1
[illegible] for students to work collaboratively on	2
	1

"…there is evidence it supports learning…"[1]

Part VI: Other	Your score: 1/10 Mean SSoE score: 2/10
Assessment given at the beginning of course to assess background knowledge **(1)**	0
Use of instructor-independent pre-post test (e.g. concept inventory) to measure learning **(2)**	0
Use of a consistent measure of learning that is repeated in multiple offerings of the course to compare learning **(2)**	0
Use of pre-post survey of student interest and/or perceptions about the subject **(1)**	0
Opportunities for students' self-evaluation of learning **(1)**	0
Students provided with opportunities to have some control over their learning, such as choice of topics for course, paper, or project, choice of assessment methods, etc. **(1)**	1
New teaching methods or materials were tried along with measurements to determine their impact on student learning **(2)**	0

"…provide particularly large and robust benefits…"[1]

NTS Faculty

The COPUS looks at what students are doing, and what the instructor is doing in a class session

1. Students are Doing

L	Listening to instructor/taking notes, etc.
Ind	Individual thinking/problem solving. Only mark when an instructor explicitly asks students to think about a clicker question or another question/problem on their own.
CG	Discuss clicker question in groups of 2 or more students
WG	Working in groups on worksheet activity
OG	Other assigned group activity, such as responding to instructor question
AnQ	Student answering a question posed by the instructor with rest of class listening
SQ	Student asks question
WC	Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor
Prd	Making a prediction about the outcome of demo or experiment
SP	Presentation by student(s)
TQ	Test or quiz
W	Waiting (instructor late, working on fixing AV problems, instructor otherwise occupied, etc.)
O	Other – explain in comments

2. Instructor is Doing

Lec	Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)
RtW	Real-time writing on board, doc. projector, etc. (often checked off along with Lec)
FUp	Follow-up/feedback on clicker question or activity to entire class
PQ	Posing non-clicker question to students (non-rhetorical)
CQ	Asking a clicker question (mark the entire time the instructor is using a clicker question, not just when first asked)
AnQ	Listening to and answering student questions with entire class listening
MG	Moving through class guiding ongoing student work during active learning task
1o1	One-on-one extended discussion with one or a few individuals, not paying attention to the rest of the class (can be along with MG or AnQ)
D/V	Showing or conducting a demo, experiment, simulation, video, or animation
Adm	Administration (assign homework, return tests, etc.)
W	Waiting when there is an opportunity for an instructor to be interacting with or observing/listening to student or group activities and the instructor is not doing so
O	Other – explain in comments

Image from Smith, et al, 2014

Toward a new perspective of measuring teaching effectiveness through student learning (our beginning conjectures…)

- Research indicates that active learning results in higher learning
- Hypothesis: Higher engagement of COPUS Student is surrogate for higher learning
- Fall 2016 data only
- NTS faculty known for good teaching

- High variety of C-Stu indicates active learning
- COPUS is limited for certain types of courses – i.e., studio
- Need to compensate for large amounts of group work
- Need bad teaching examples to fully demonstrate

Course	TPI	C-Ins	C-Stu	C-Stu>10%	Notes	Notes 2
A	7	9	9	5	traditional lecture	
B	8	9	5	5	studio/group work	quiz +1
C	7	8	5	4	traditional lecture	
D	7	8	5	4	traditional lecture	
E	7	7	4	3	studio/group work	
F	6	7	4	3	studio/group work	
G	6	7	4	3	studio/group work	
H	7	8	3	2	studio/group work	no listening
I	3	6	3	3	traditional lecture	

NTS Faculty

Chemistry 2 (CHE

	Students are Doing	% of Observation Segments
	Listening to instructor/taking notes, etc.	91%
	Individual thinking/problem solving. An instructor explicitly asks students to think about a clicker question or another question/problem on their own.	4%
G	Discuss clicker question in groups of 2 or more students	0%
G	Working in groups on worksheet activity	0%
G	Other assigned group activity, such as responding to instructor question	9%
nQ	Student answering a question posed by the instructor with rest of class listening	19%
SQ	Student asks question	2%
WC	Engaged in whole class discussion by offering explanations, opinion, judgment, etc. to whole class, often facilitated by instructor	0%
Prd	Making a prediction about the outcome of demo or experiment	0%
SP	Presentation by student(s)	0%
TQ	Test or quiz	0%
W	Waiting (instructor late, work instructor otherwise occupie	
O	Other	
	Total two minu	

	Instructor is D	
Lec	Lecturing (presenting content, deriving mathematical results, presenting a problem solution, etc.)	77%
RtW	Real-time writing on board, doc. projector, etc. (often checked off along with Lec)	70%
FUp	Follow-up/feedback on clicker question or activity to entire class	19%
PQ	Posing non-clicker question to students (non-rhetorical)	32%
CQ	Asking a clicker question (mark the entire time the instructor is using a clicker question, not just when first asked)	0%
AnQ	Listening to and answering student questions with entire class	2%
MG	Moving through cla learning task	0%
1o1	One-on-one exten paying attention t AnQ)	
D/V	Showing or cond animation	
Adm	Administration	
W	Waiting when t interacting wit and the instru	

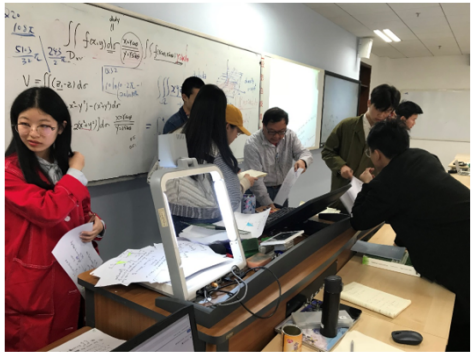
Notes on Active Learning/Interactivity/Engagement

- The first portion of the class session was a preparation for the midterm exam. Dr, Mai reviewed topics that the students would need to know and was very clear about his expectations as well as specific directions for the exam (e.g., problems for which partial credit would not be given). He posed questions to the students, and the students were fairly-responsive.

Ideas

- Allow the exam review session to be more of an active, actual practice session for the exam. For example, for some of the content or examples reviewed, have the students quickly work the problem themselves as practice for the exam (versus working the problem for them from the start). Give them one to two minutes for this and call on volunteers for an answer. This will also give students practice with completing problems under time pressure, as they will need to do on the exam.

Dr. Mai always surrounded by students after class with questions - especially before an exam!



Notes on Active Learning/Interactivity/Engagement

- This was primarily a studio-based problem-solving class, in which students actively worked on problems during class, which they handed in at the end of class.
- There was also very good interaction with students during in-class lecture time. Specifically, various students were called on to answer questions, and they did. There was good questioning and monitoring of students by Dr. Stehle in terms of their understanding during lecture.
- The solution of textbook-based studio problems (4 problems) comprised most of the class period. Voice-over PPT slides were available before class for self-study, so this classroom resembled a flipped classroom. Dr. Stehle circulated during studio time, receiving many questions. Students were very engaged in their work, interacting with and helping each other as well.
- Students readily and frequently approached Dr. Stehle for assistance at the front of the classroom as well, without Richard necessarily having to circulate to generate student questions.

Top: Dr. Stehle interacting with students during studio time in Thermodynamics
Bottom: Students approaching Dr. Stehle for help at front of room during studio

SCUPI Faculty

COPUS and TPI

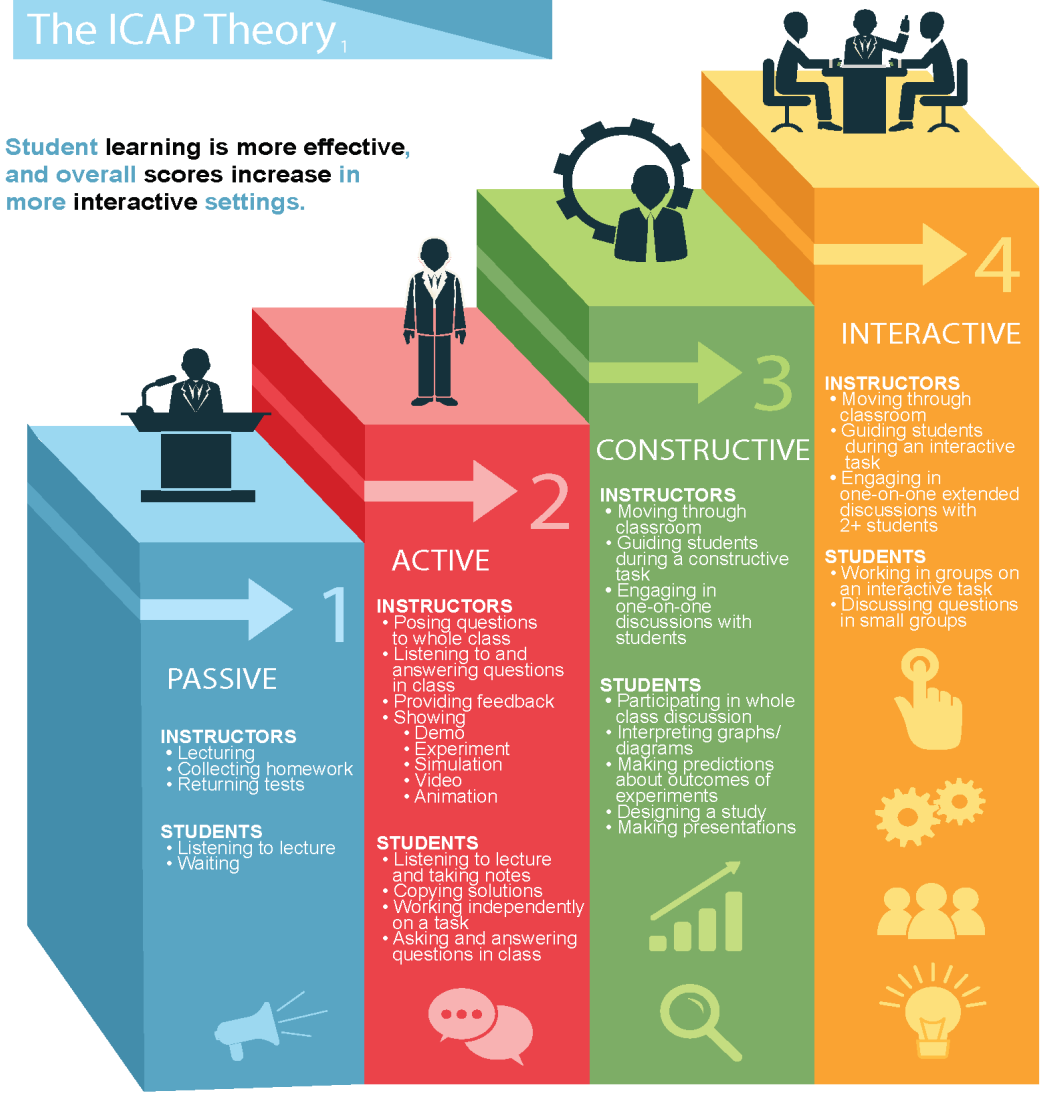
- SCUPI

- It works
- Moving from evaluation to sampling to professional development
- Evaluation of teaching effectiveness or how to better improve teaching

- NTS
  - We hired them to be good and they are
  - Don’t need OMETs to evaluate teaching effectiveness
  - Need something to measure student learning
  - Need something to measure changes and improvements due to innovative teaching methods
  - COPUS and TPI aren’t sensitive enough

Engineering Learning

The ICAP Theory[1]



Michelene Chi's Conceptual Framework for Differentiating Learning Activities (2009, p.74-105)

Chi's ICAP Hypothesis

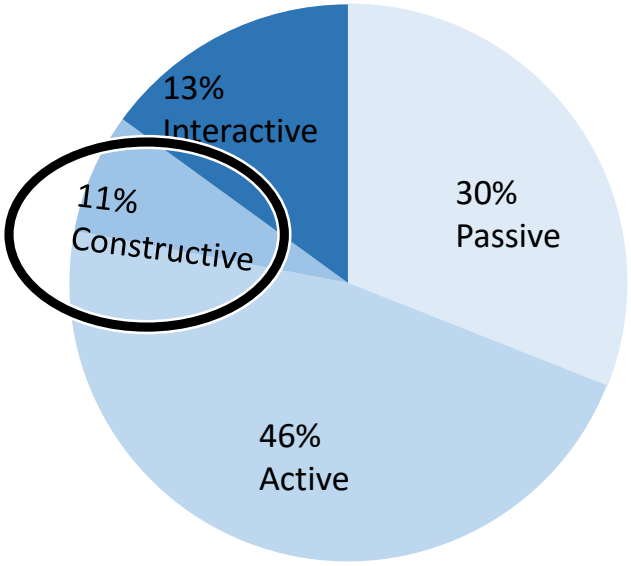
The ICAP (Interactive, Constructive, Active, and Passive) hypothesis predicts that as students become more engaged with the learning materials, from *passive* to *active* to *constructive* to *interactive*, their learning will increase.

Partner with Colorado School of Mines

1 Menekse, M., Stump, G. S., Krause, S., & Chi, M. T. (2013). Differentiated Overt Learning Activities for Effective Instruction in Engineering Classrooms. Journal of Engineering Education, 102(3), 346-374. doi:10.1002/jee.20021

Student Organization	NonProductive	Organizing	Advanced	INSTRUCTOR	
Individual	Student Waiting	Skill or Concept Work	Design	Not engaged with students	Administration
Small Group	Disruptive	Searching for info	Develop and defend argument	Lecturing	Copying from notes to board
Large Whole	Passive	Generating Data and Evidence	Analyze and synthesize	Modeling thinking	Performing Demonstration
Student Talk	Listening to Instructor	Constructive	Critique	Showing a video	Monitoring group work
Answers Question 0	Listening to other Students	Explain using concepts	Explict connections	One on one discussion	Guiding individual or group learning
Asks Question 0	Operational	Use concepts to solve	Connecting to other content	Discussion with group	Interacting with 1 student
Discussion	Listening taking notes	Alternate interpretations		Feedback	Wait Time
Presentation	Copying notes or solutions	Develop or interpret graphics	Time 17:55:06	Listen and Redirect	Poses individual task
Meta reflection	Following procedure	Develop or interpret models	Time Remaining 0:54	Poses Q 0	Poses group task
TEST or QUIZ	Tasks supporting recall	Revise work		Answers own question	Other

Spring 2016



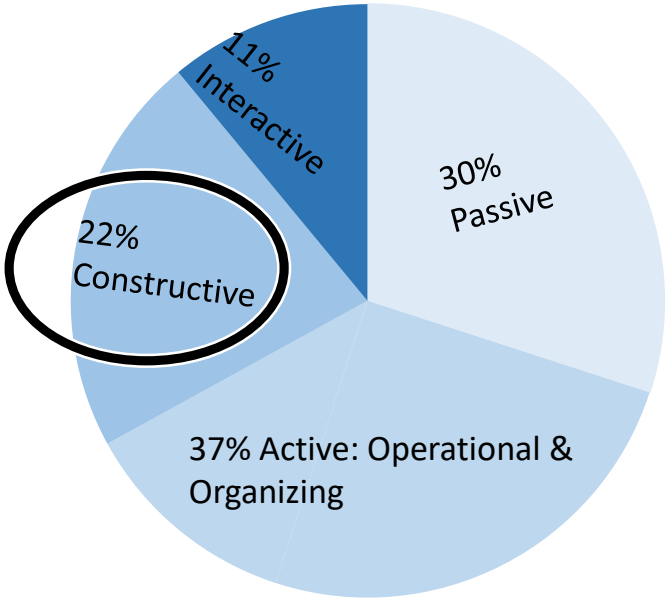
Passive

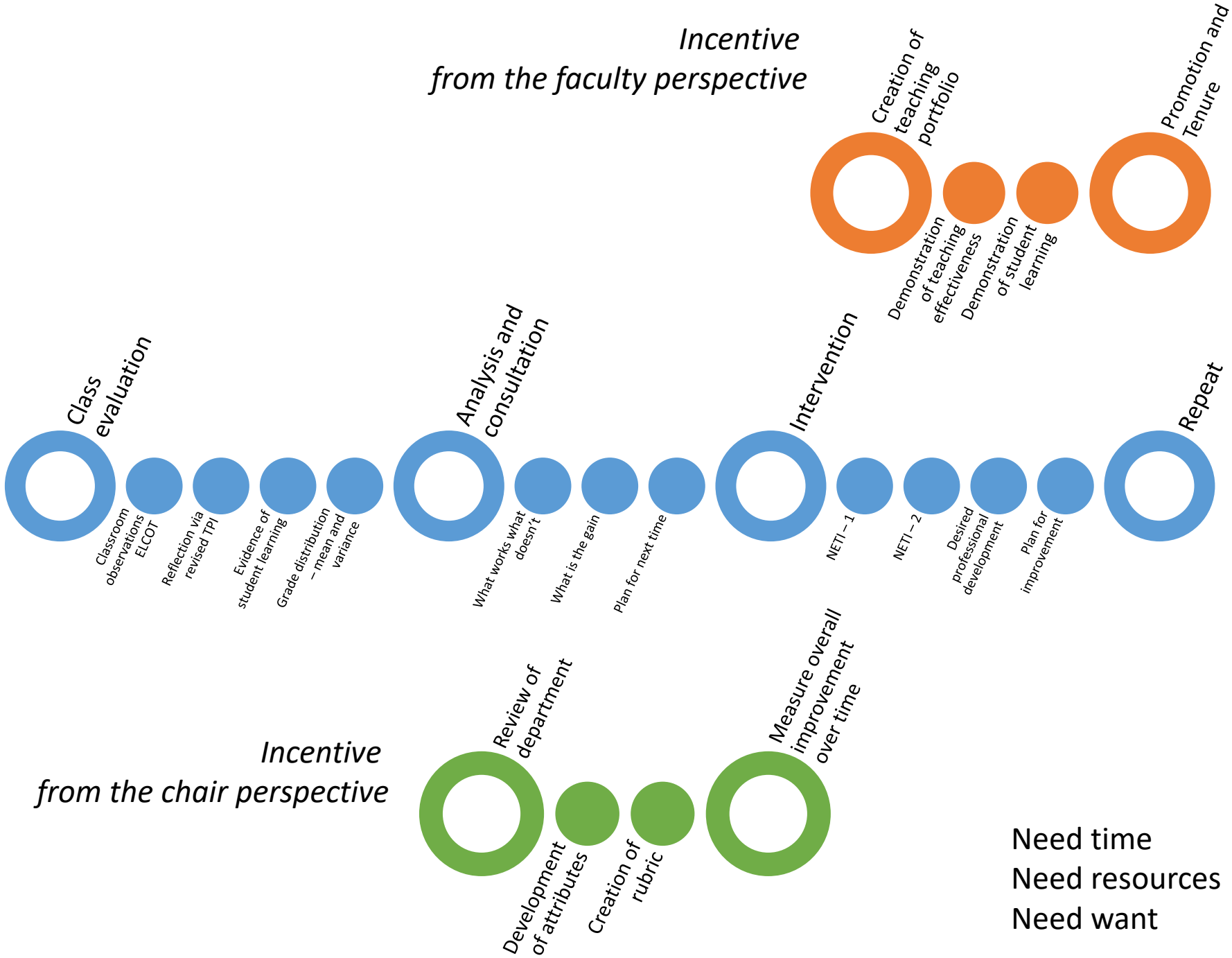
Active

Constructive

Interactive

Fall 2016




Incentive
from the faculty perspective
Creation of teaching portfolio
Promotion and Tenure
Demonstration of teaching effectiveness
Demonstration of student learning
Class evaluation
Classroom observations ELCOT
Reflection via revised TPI
Evidence of student learning
Grade distribution – mean and variance
Analysis and consultation
What works what doesn't
What is the gain
Plan for next time
Intervention
NETI – 1
NETI – 2
Desired professional development
Plan for improvement
Repeat
Incentive
from the chair perspective
Review of department
Development of attributes
Creation of rubric
Measure overall improvement over time
Need time
Need resources
Need want