

Promoting Learning by Design

*Aligning Teaching, Assessment, Feedback and Support
to Improve Learning Outcomes*

Workshop III for Academic Staff of The University of Alberta

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Goal Ranking & Matching Exercise

What do you hope to learn/gain through this afternoon's workshop? How can it best address your needs and expectations? This is a Classroom Assessment Technique (CAT) designed to help you identify your goals and expectations and share them with each other and the presenter.

1. On the lines below, please list three or four learning goals you hope to achieve—things you hope to learn or questions you hope to answer—through participating actively in today's workshop.

Your Learning Goals for this afternoon's workshop

2. Now, rank your goals in terms of their relative importance to you. Make the most important goal #1, the next most important #2, and so on.
3. Next, working with your group of 3-4 colleagues, determine quickly whether you have any first- or second-ranked goals in common. Determine which one or two key goals are most widely shared.
4. Prepare to report out which goals were shared within your group and to what extent. For example, "Three out of four of us wanted to learn X."

Ten Levers for Higher Learning

*Guidelines from Research and Good Practice
For Improving Teaching, Assessment, and Learning*

*In general, our students will learn more, and more deeply,
when we help them to . . .*

1. Engage actively – intellectually and emotionally – in their academic work
2. Set and maintain realistically high, personally meaningful expectations and goals
3. Provide, receive, and make use of timely, specific feedback
4. Become explicitly aware of their values, beliefs, preconceptions, and prior learning – and to be willing to unlearn when needed
5. Develop the transferable studying and thinking skills needed to become successful, reflective lifelong learners
6. Seek and find connections to and real-world applications of what they are learning
7. Understand and value the criteria, standards, and methods by which they are assessed and evaluated
8. Work regularly and productively with academic staff
9. Work regularly and productively with other students
10. Invest as much engaged time and high-quality effort as possible in their academic work

Clarifying Intended Learning Outcomes (ILOs)

Examples to consider, critique, and perhaps improve from *Phrenology 101*

1. On completion of this module, you should be able to:

- A. Demonstrate enhanced knowledge of the basis tenets of phrenology and its history
- B. Demonstrate understanding of what was current best practice of phrenology in England of the 1840s

2. When you have completed this module, you should be able to:

- A. List the six basic tenets of Gall's phrenological system
- B. Identify, locate, and explain the functions of at least 30 of the "organs" of the brain
- C. Explain the significance of organ size and shape
- D. Identify and summarise the key contributions of at least six major figures in the history of phrenology

3. In order to successfully complete this module, you must demonstrate that you can:

- A. Correctly locate and label all 35 organs on a map of the skull
- B. Phrenologise three subjects in one hour, summarise your analyses of all three in writing in the second hour, and achieve at least 85% agreement with expert analyses
- C. Prepare a character analysis and related career and marriage advice for a fourth subject, achieving at least 85% agreement with the expert responses
- D. Develop a 20-minute talk on your case study (C above), complete with visuals, for presentation at the ESP (Edmonton Society of Phrenologists) and evaluation by the members.
[Presentation quality must be rated "Very Good" or "Excellent" by at least 80% of those in attendance.]

Sharpening Up Learning Outcome Statements

Draft Learning Outcome: _____

Who?

Does What?

To/For Whom?

By When?

Where?

How?

How Well?

Why?

The Seven C's

Design Criteria for More Effective Courses

- ***Compelling***
- ***Constructively-aligned***
- ***Conceptual***
- ***Clear***
- ***Coherent***
- ***Consequential***
- ***Connected***

Reflective Questions on Course Design and Constructive Alignment

Reflecting on a course you teach and know well:

- ***List 3-5 intended learning outcomes – what learners should know or be able to do – that successful students in this course should be able to demonstrate one year later.***
- ***How clearly do students understand those learning outcomes and why they matter? What's the evidence?***
- ***List 3-5 key learning assignments that explicitly further the learning outcomes listed above.***
- ***List 3-5 key assessments that provide information on progress toward those learning outcomes.***
- ***How clearly do students understand the links among learning outcomes, assignments and assessments?***
- ***How/when does the course determine whether students have the motivation, prior knowledge and skills to successfully learn those outcomes?***
- ***How/when does the course help students develop the necessary motivation, knowledge and skills if they haven't already mastered them sufficiently?***
- ***How/when/how often does the course provide students with feedback in time to help them succeed in key***

assignments and assessments?

A Simple Example of Diagnostic Formative Assessment

Introductory Statistics

Background Knowledge Probe

In response to each problem below, circle the number (1-4) that best represents your current knowledge. If you circle (4), please go ahead and solve the problem on the attached sheet.

- I. Suppose that you have a bag of M&M candies (plain, no peanuts) that contains 22 light brown, 20 dark brown, 18 yellow, 14 green, 12 orange, and 11 red M&Ms. If you draw one of these M&Ms out at random, what are the probabilities that it will be:

(a) yellow? (b) red? (c) neither yellow nor red?

- (1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now
- II. In Smallville, 8% of all adults over 50 have diabetes. If a clinic in this community correctly diagnoses 95 percent of all persons with diabetes as having the disease, and incorrectly diagnoses 2% of all persons without diabetes as having the disease. What is the probability that an adult over 50 diagnosed by this clinic as having diabetes actually has the disease?
- (1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now
- III. In Lost Wages, Nevada, incompatibility is given as the reason for 60% of all divorces. What is the probability that three of the next six divorce cases filed in this city will claim incompatibility as the reason? (Use the attached table)
- (1) I have no idea how to solve this problem
(2) I once knew how to solve problems like this, but have forgotten
(3) I think I could solve it, given enough time
(4) I'm sure I can solve it right now

An Example of Grading Standards

First-Year Writing Seminar
EN 010-01 -- T. A. Angelo
Boston College – Fall 1993

Grading Standards for Writing in Seminar Portfolios

"A" work

- (1) Responds fully to the assignment given;
- (2) Expresses its purpose clearly and persuasively;
- (3) Is directed toward and meets the needs of a defined audience;
- (4) Begins and ends effectively;
- (5) Provides adequate supporting arguments, evidence, examples, and details;
- (6) Is well-organized and unified;
- (7) Uses appropriate, direct language;
- (8) Correctly acknowledges and documents sources;
- (9) Is free of errors in grammar, punctuation, word choice, spelling, and format;
- (10) Maintains a consistent level of excellence throughout, and demonstrates originality and creativity in realizing (1) through (7).

"B" work Realizes (1) through (9) fully and completely—and demonstrates overall excellence—but shows little or no originality or creativity.

"C" work Realizes (1) through (9) adequately—and demonstrates overall competence—but contains a few, relatively minor errors or flaws.
A "C" paper may show great creativity and originality, but those desirable qualities do not make up for poor or careless writing.
A "C" paper usually looks and reads like a next-to-final draft.

"D" work Fails to realize some elements of (1) through (9) adequately—and contains several, relatively serious errors or flaws, or many minor ones.
A "D" paper often looks and reads like a first or second draft.

"F" work Fails to realize several elements of (1) through (9) adequately—and contains many serious errors or flaws, and usually many minor ones, as well. An "F" paper usually looks and reads like a zero draft.

A Simple Assessment/Grading Rubric

Title of assignment: _____ Author: _____ Date: _____

(1) Responds fully to <u>to the assignment</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(2) Expresses its purpose <u>clearly and persuasively</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(3) Is directed toward and meets the needs of <u>a defined audience</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(4) Begins and ends <u>effectively</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(5) Provides adequate supporting arguments, evidence, examples, <u>and details</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(6) Is well-organized <u>and unified</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(7) Uses appropriate, <u>direct language</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(8) Correctly acknowledges <u>and documents sources</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(9) Is free of errors in grammar, punctuation, word choice, spelling, <u>and format</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
(10) Maintains a level of <u>excellence throughout</u>	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor
Shows originality and creativity in realizing (1) through (7)	EXCELLENT	VERY GOOD	Adequate	FAIR	Poor

OVERALL EVALUATION **EXCELLENT** **VERY GOOD** **Adequate** **FAIR** **Poor**

COMMENTS:

A More Detailed Assessment/Grading Rubric

Macroeconomics Essay Grading Grid

Assignment: Write a well-structured, enlightened critical essay about current economic conditions that demonstrates command of existing economic knowledge, appropriate interpretation and application of that knowledge, and demonstrates appropriate use of data and argumentation to support well-reasoned policy recommendations.

Basic Questions:

What is the current macroeconomic situation in the U.S.?

What is the likely prognosis for the next 12 to 24 months?

What are your economic policy recommendations?

Thanks to Dr. Richard Stratton of the University of Akron for permission to use this example.

Discussion Draft Questions for an Undergraduate Course/Teaching Feedback Form

Questions about yourself (1= Always, 2=Usually, 3=Sometimes, 4=Rarely, 5=Never, NA= Not Applicable)

I was self-motivated to learn this course material	1	2	3	4	5	NA
2. I was well-prepared for each class session	1	2	3	4	5	NA
I asked the instructor for help/guidance when I needed it	1	2	3	4	5	NA
I invested enough time and energy to meet/exceed course requirements	1	2	3	4	5	NA
I participated actively and contributed thoughtfully in class sessions	1	2	3	4	5	NA
I attended class sessions and/or individual appointments	1	2	3	4	5	NA
Overall, I gave my best possible effort to learning in this course	1	2	3	4	5	NA

Questions about the course (1= Always, 2=Usually, 3=Sometimes, 4=Rarely, 5=Never, NA= Not Applicable)

8. The course was well-organized to help students learn	1	2	3	4	5	NA
9. The objectives and criteria for meeting them were made clear	1	2	3	4	5	NA
10. The assignments contributed to my learning	1	2	3	4	5	NA
11. The assessments/evaluations were clearly connected to the objectives	1	2	3	4	5	NA
12. The amount of work required was appropriate to the objectives	1	2	3	4	5	NA
13. The level of intellectual challenge was high	1	2	3	4	5	NA

Questions about the instructor (1= Always, 2=Usually, 3=Sometimes, 4=Rarely, 5=Never, NA=Not Applicable)

The instructor clearly connected the course objectives to course assessments	1	2	3	4	5	NA
	activities, assignments, and					
15. The instructor encouraged me to connect my experience to the course	1	2	3	4	5	NA
16. The instructor provided clear and useful feedback to improve learning	1	2	3	4	5	NA
The instructor inspired interest and excitement in the course material	1	2	3	4	5	NA
The instructor was available and helpful when asked	1	2	3	4	5	NA
The instructor communicated ideas and information clearly and effectively	1	2	3	4	5	NA
20. The instructor evaluated and graded fairly	1	2	3	4	5	NA

21. The instructor treated students and their ideas with respect	1	2	3	4	5	NA
22. The instructor used required texts/other required materials effectively	1	2	3	4	5	NA

Summary Questions (1=extremely high, 2=high, 3=adequate, 4=low, 5=very low)

23. This course increased my desire to continue learning about this material	1	2	3	4	5	NA
24. If a friend asked about taking this course, my recommendation would be	1	2	3	4	5	NA
25. Overall, I would rate the quality of this course as	1	2	3	4	5	NA
26. Overall, I would rate the effectiveness of the instructor as	1	2	3	4	5	NA
27. Overall, I would rate the amount I learned in this course as	1	2	3	4	5	NA
28. Overall, I would rate the value of what I learned in this course as	1	2	3	4	5	NA

Levels of Cognitive Development or “Ways of Knowing”

Committed Constructivism

Constructed Knowing

“I can explain why I choose to believe this and why others do not.”

Constrained Social Constructivism

Procedural Knowing

Connected Mode/Separate Mode

“Every field has its own games with their own rules.”

Rampant Relativism

Subjective Knowing

“Everybody has an opinion, and all opinions are equal.”

Naive Realism

Received Knowing

“Just tell me the right answer or, at least, where I can find it.”

Silence

“What do you mean, how do I know this is true?”

Cognitive Development & Critical Thinking

[Nuclear Power as an Example]

SGT FRIDAY

Facts

One Authority Has The Truth

[Nuclear Power either: (a) Is Totally Safe or (b) Should Be Totally Banned]

|

| <----- UNCERTAINTY

|

BASKIN ROBBINS

Opinions

Each Person's Views are Right For Her

[Nuclear Power: Why Argue? Just Respect Each Other!]

|

| <----- COMPARISONS & CRITERIA

|

TEACHERS' GAMES

Making Arguments

Let's Really Understand Everyone's Arguments & Frameworks

[Nuclear Power: Environmentalists Argue That Whereas ...]

|

| <----- CONSEQUENCES & VALUES

|

FRAME ARGUMENTS

|

OWNED GAMES

Contextual Decisions

Some Frameworks / Combinations Are

More Appropriate For Particular Contexts

[Nuclear Power: Safe Enough for Some Uses (Submarines)

But Not for Others (Power-Plants in Urban Areas) Because ...]

Fostering CT: What teachers and learners can do

What specific things can teachers do to foster critical thinking?

What specific things can learners do to foster CT?

What specific things can teachers do to hinder CT?

What specific things can learners do to hinder it?

Collaborative Learning Technique

Analytic Teams

Listening to a lecture, watching a video, or reading an assignment can be passive activities for students. One way to engage students more fully is to form structured teams to analyze and discuss various aspects of the task.

Estimated Time and Effort Required for

Faculty to prepare this CoLT ***MEDIUM***

Students to use this CoLT ***MEDIUM***

Faculty to assess/follow up ***MEDIUM***

Complexity ***MEDIUM***

Risk of Failure ***LOW***

Duration & Location ***15-60 minutes/In or out of class***

Group Size & Structure ***Quartets or Quintets/Formal/Some pre-organizing needed***

Description

This CoLT analyzes, or breaks down processes we expect individual students to engage in when critically reading, listening, or viewing into several specific tasks that are then distributed among different individuals or teams. This division of labor allows students to concentrate on learning and performing one aspect at a time of these complex critical thinking processes and to see how re-combining the different tasks through groupwork can contribute to their understanding and learning. In preparing this technique, the most challenging aspect is determining how to follow up on the groupwork in a way that will help students meaningfully synthesize the various information and opinions they have heard.

Procedure

1. Form student groups of four or five, assigning each individual in the team, or each team, one of the following roles:

Summarizers - Prepare a summary of no more than seven most important points

Questioners - Prepare at least three substantive questions about the material.

Proponents -- List at least three points you agreed with and state why.

Critics - List at least two points you disagreed with or found unhelpful and state why.

Example givers - Give at least three examples of key concepts presented.

Make certain that students understand the purpose of the exercise and the intended outcomes.

2. Present the lecture, show the video, or assign the reading. The actual listening, viewing, or reading can take place in or out of class or, in some cases, on line.
3. Give teams some class time to prepare to present their analyses, whether as oral or written presentations. Again, these can be done online. Specify and limit what each team will be responsible for presenting, to avoid unhelpful repetition. Assign clear time/length limits.
4. Follow up group presentations with individual assignments that build on and extend this exercise.

Applications Card

DIRECTIONS: Please take a moment to recall the ideas, techniques, and strategies we've

discussed – and those you've thought up – to this point in the session. Quickly list as many possible applications as you can. Don't censor yourself! These are merely possibilities.

You can always evaluate the desirability and/or feasibility of these application ideas later.

Interesting
IDEAS/TECHNIQUES
from this session

Some possible
APPLICATIONS of those
ideas/techniques to my work

Three Next Steps

Before leaving this session, identify three practical next steps that you can realistically take to capitalize on what you have learned.

Identify one positive, non-burdensome step you can take in the next week; a second step you can take in the next month; and a third before the next academic term.

1. _____

2. _____

3. _____

Research-based Strategies for Promoting Motivation

- **Provide positive first impressions of the subject, course, and instructor [Demonstrate that you love your subject and care about student learning.]**
- **Break down anonymity and help students connect**
- **Show and tell students what you expect in terms of the quality of their learning and their interactions – and of what they can expect of you and the course**
- **Ensure that grading is criterion and not norm-based, and that the criteria for grading are clearly understood**
- **Show students where they'll be going and how they will get there – and that they can get there**
- **Show students that investing time and energy in the course will be valuable and engaging**
- **Gather initial data on their beliefs, interests, and goals**
- **Help students see connections between their goals and interests and the course content and outcomes**
- **Provide some choices, however small, in learning tasks**
- **Provide timely, specific feedback on learning and goal attainment**

Fostering Critical Thinking

Approaches Well-Supported by Research

- Step-by-step Guided Practice
- Authentic Problem-solving
- Structured Collaboration
- Focused Communication
- Formative Feedback
- Guided Inquiry/Research

Hindering Critical Thinking

Approaches Contraindicated by Research

- Focus on rote learning
- Information overload
- One-shot assignments/assessments
- Meaningless assignments
- Norm-referenced (curved) marking
- Assessment fatigue

In other words, we are more likely to help students develop critical thinking skills if they are actively engaged in –

- Learning and practicing explicit processes for reasoning and communicating –
whether the scientific method, the writing process model, a particular historical method, the nursing method, or _____
- Working in structured small groups to talk about and solve messy, authentic problems – with feedback, guidance, and evaluation from experts
- Making their assumptions, beliefs, and ideas explicit to themselves and others through writing and speaking
- Evaluating, explaining, supporting, and justifying their ideas – and those of

others – through writing and speaking directed at relevant audiences

Critical Thinking: How Some Authors Define It

“Critical thinking, as we define it here, means reviewing the ideas we have produced, making a tentative decision about what action will best solve the problem or what belief about the issue is most reasonable, and then evaluating or refining that solution or belief.”

V.R. Ruggiero (1991). The Art of Thinking: A Guide to Critical and Creative Thought, p. 149.

[Critical thinking is] . . . “an investigation whose purpose is to explore a situation, phenomenon, question or problem [in order] to arrive at a hypothesis or conclusion that integrates all available information and that can therefore be convincingly justified. In critical thinking, all assumptions are open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome.”

J.G. Kurfiss. (1988). Critical Thinking: Theory, Research, Practice, and Possibilities, p. 2.

“ . . . critical thinking appears to stress the individual’s ability to interpret, evaluate, and make informed judgments about the adequacy of arguments, data , and conclusions.”

E.T. Pascarella & P.T. Terenzini. (1991). How College Affects Students: Findings and Insights from Twenty Years of Research, p. 118.

“ . . . most formal definitions of critical thinking include the intentional application of rational, higher-order thinking skills such as analysis, synthesis, problem-recognition and problem-solving, inference, and evaluation.”

T.A. Angelo. (1995). “Classroom assessment for critical thinking.” Teaching of Psychology, 22(1), p. 6.

“Critical thinking is not simply being highly critical of everyone else’s thinking but your own.”

Anonymous. (2002).

A Few Key References on Improving course Design, Teaching & Learning

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Twigg, C. (2005). *Improving Learning and Cutting Costs*. Rochester, NY: Center for Academic Transformation.

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- a. <http://www.insidehighered.com/views/2005/11/02/twigg>
- b. <http://www.thencat.org/howtodoit.htm>
- c. http://www.highereducation.org/reports/pa_core/core.pdf
- d. <http://www.center.rpi.edu/Monographs/IncSuccess.htm>

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Weimer, M. (2002). *Learner-Centered Teaching: Five Key Changes to Practice*. San Francisco, CA: Jossey Bass.

Workshop Evaluation Form

1. Please rate the overall quality of this session on the scale below:

1	2	3	4	5
very poor	poor	acceptable	good	excellent

2. Please rate the overall usefulness of the session below:

1	2	3	4	5
useless	not very	somewhat	very	extremely

3. Please rate the effectiveness of the presenter below:

1	2	3	4	5
not at all	not very	somewhat	very	extremely

4. What did you learn that you can apply to your work? (Please be specific.)

5. How could the session have been more useful to you? (Please be specific.)

6. What kinds of follow up would be most helpful to you?