LEVER 2

GOAL RANKING AND MATCHING EXERCISE

What do you hope to learn/gain through this brief 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 this morning’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.”
**Lever 1**

*Tri-national Background Knowledge Probe*

Please answer each question below for the following three countries: The United States, Canada, and Mexico. Guessing is encouraged and expected!

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>CAN</th>
<th>MEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Population?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>2. Area in sq. kms?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>3. Capital city?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>4. Name of current head of national gov’t</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>5. Name of most likely next head of govt?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>6. % eligible voting in last national election?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>7. % Indigenous?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>8. % with Bachelors degree or above?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>9. Corruption ranking?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>10. Per capita income?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>11. Greenhouse gas per capita ranking?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>12. %-age GDP to Defense?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
<tr>
<td>13. %-age child poverty?</td>
<td>_______</td>
<td>_______</td>
<td>_______</td>
</tr>
</tbody>
</table>
Lever 6

Collaborative Learning Technique #1

Think-Pair-Share

This collaborative learning technique (CoLT) is useful for stimulating engagement in discussions, checking students’ understanding of concepts, and encouraging students to rehearse, express, and compare their understandings with those of others.

**Estimated Time and Effort Required for**

<table>
<thead>
<tr>
<th></th>
<th>faculty to prepare this CoLT</th>
<th>students to use this CoLT</th>
<th>faculty to assess/follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VERY LOW</td>
<td>VERY LOW</td>
<td>VERY LOW</td>
</tr>
</tbody>
</table>

| Complexity                | VERY LOW                     |
| Risk of Failure           | VERY LOW                     |

**Duration and Location**

5-15 minutes/In class

**Group Size and Structure**

Pairs or triads/Informal/No pre-organising needed

**Description and Purpose:**

The name of this CoLT, “Think-Pair-Share,” captures the essential steps. In response to a question posed by the instructor, students think and perhaps write on their own for a few minutes, quickly pair up with classmates, and then share, discuss, and compare their responses in pairs before responding to the instructor or sharing with the entire class. This technique provides students with the opportunity to formulate responses and practice communicating them with their peers. Since Think-Pair-Share can dramatically improve students’ willingness and readiness to participate, it’s often used as a “warm up” or “step up” to a whole class discussion.

**Procedure**

1. Pose an engaging question to the class, giving students ample time to think about the question individually and to devise individual responses.
2. Ask students to pair with another student nearby to share responses and, if useful, to create a joint response by building on each other’s ideas.
3. Ask the pairs to share their responses with the whole class. If time is limited and/or the class is large, randomly call on student pairs.

If appropriate, provide class with the correct or expert response, allowing them to check and, if needed, correct their individual and pair responses.
Lever 1

A Simple Example of a Diagnostic 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
Lever 1
ConcepTest

Liquid hazardous waste is disposed of by pumping it down injection wells. Which well location would be the most suitable to use for an injection well? Why?

Thanks to Dr. David McConnell, of the University of Akron, for the Geology Conceptest above.

Stats for Everyday Life – Spring 2004 - Angelo

First Concept Review

Circle the variable in each pair that you would expect to have the larger standard deviation:

1.1 adult humans’ heights
1.2 domestic dogs’ weights
1.3 language skills of normal 12-year-olds
1.4 hours students spend in this classroom

adult humans’ weights
domestic cats’ weights
math skills of normal 12-year-olds
hours students spend studying for this class
The Minute Paper

Please answer each question in 1 or 2 sentences:

1) What was the most useful or meaningful thing you learned during this session?

2) What question(s) remain uppermost in your mind as we end this session?


The "Muddiest" Point*

What was the "muddiest" point in this session? (In other words, what was least clear to you?)

* This Classroom Assessment Technique was developed by Dr. Frederick Mosteller, professor emeritus of statistics at Harvard University. For a detailed account of its development and use, see his article, The "Muddiest Point in the Lecture" as a Feedback Device in On Teaching and Learning: The Journal of the Harvard-Danforth Center, Vol. 3, April 1989, pp. 10-21.
Lever 4

GROUP INFORMAL FEEDBACK on TEACHING*
(The G.I.F.T. Technique)

Directions: Please write brief, honest, and legible responses to the questions below.
(Do not write your name on this form.)

1. What are 1 or 2 specific things your instructor has done that are helping you learn in this course?

2. What are 1 or 2 specific things your instructor has done that are hindering or interfering with your learning?

3. Please provide your instructor with 1 or 2 specific, practical suggestions to help you improve your learning in this course.

*Also known as Small Group Instructional Diagnosis (SGID)

Lever 4

Discussion Draft Questions for a Course/Teaching Feedback (not Evaluation!) Form

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

1. 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
3. I asked the instructor for help/guidance when I needed it
   1 2 3 4 5 NA
4. I invested enough time and energy to meet/exceed course requirements
   1 2 3 4 5 NA
5. I participated actively and contributed thoughtfully in class sessions
   1 2 3 4 5 NA
6. I attended class sessions and/or individual appointments
   1 2 3 4 5 NA
7. 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)

14. The instructor clearly connected the course objectives to course activities, assignments, and assessments
    1 2 3 4 5 NA
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
17. The instructor inspired interest and excitement in the course material
    1 2 3 4 5 NA
18. The instructor was available and helpful when asked
    1 2 3 4 5 NA
19. 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: Compared w/ other courses: (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
Seven Levers for Deeper Learning
Research-based Guidelines for Effective Teaching and Learning

Overall, research suggests that virtually all students can learn more – and more deeply – when we help them to . . .

1. Become explicitly aware of their own relevant prior knowledge, beliefs, preconceptions, and values – and unlearn, as needed

2. Set and maintain realistically high and personally meaningful learning goals and expectations for academic success

3. Learn how to learn effectively – given their own individual histories, talents, preferences, and goals – so they become increasingly self-directed and independent learners

4. Understand the criteria, standards, and methods used in assessing and evaluating their learning and get useful, timely feedback on their performance against those standards

5. Seek and find connections to and real-world applications of concepts and skills they are learning in class

6. Collaborate regularly and effectively with other learners and with teachers to achieve meaningful, shared learning goals

7. Invest as much actively engaged time and high-quality effort as possible in their academic work
Lever 4

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?

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Distinguished</th>
<th>Exceeds Expectations</th>
<th>Meets all Expectations</th>
<th>Meets some Expectations</th>
<th>Unsatisfactory</th>
<th>Missing or fails minimum req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>10</td>
<td>8</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Meets all minimum requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive summary is effective &amp; concise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introduction clearly lays out a roadmap for the paper and places the information in context</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body addresses all the Basic Questions, includes the argumentation and data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusion provides summary and closure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Command of existing economic knowledge</td>
<td>30</td>
<td>24</td>
<td>18</td>
<td>12</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Use of terms, theories, and data are</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informed judgment demonstrated by selection of terms, theories and data (shown by the exclusion irrelevant and inclusion of)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Argumentation</td>
<td>40</td>
<td>32</td>
<td>24</td>
<td>16</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Argument flows logically so that early statements lay the foundation for later statements and the reader is guided through the arguments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate application of theory is used to make argument; clearly links theory and data to conclusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arguments are persuasive focuses on key points, does not wonder, uses no unnecessary verbiage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative policies, arguments, conclusions and generalizations are noted where they exist and addressed; differences of opinion, supported by evidence, are also discussed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data used is reliable, valid, and pertinent; it provides effective support; no superficial information or tangential data muddies the argument</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Striving for Excellence and Creativity</td>
<td>20</td>
<td>16</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Presentation is neat and professional; all visuals used are well labeled, clear, and effective conveying information better than words; text contains no errors and is easy to read &amp; understand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creativity – the paper clearly holds the imprint of the author. Original thought is demonstrated by innovative organization, the integration of concepts and ideas, the use of new approaches, the novel use of visuals, or</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thanks to Dr. Richard Stratton of the University of Akron for permission to use this example.
WHY GIVE LEARNERS FEEDBACK?

- TO IMPROVE PERFORMANCE & ACADEMIC SUCCESS
- TO INCREASE INTEREST & MOTIVATION TO LEARN
- TO ILLUMINATE AND UNDERMINE MISCONCEPTIONS
- TO PROMOTE SELF-ASSESSMENT
- TO DEVELOP INDEPENDENCE

TO USE FEEDBACK WELL, LEARNERS NEED M.O.M.

- MOTIVATION – REASONS TO USE IT
- OPPORTUNITIES – FOR SAFE, GUIDED PRACTICE
- MEANS – KNOWLEDGE & SKILLS FOR IMPROVEMENT

THE ORDER IN WHICH WE GIVE FEEDBACK MATTERS.
CONSIDER THE FOLLOWING FIVE STEPS:

1ST - GOOD NEWS: WHAT WAS DONE WELL
2ND - BAD NEWS: WHAT STILL NEEDS IMPROVEMENT
3RD - OPTIONS: WHAT CAN BE DONE TO IMPROVE IT
4TH - PLANS: WHAT THE LEARNER INTENDS TO DO
5TH - COMMITMENTS: WHAT BOTH PARTIES AGREE TO DO, HOW, TO WHAT STANDARD, AND BY WHEN
ANGELO’S SEVEN AXIOMS
OF
CLASSROOM ASSESSMENT

1. Don't ask if you don't want to know.

2. Don't collect more data than you can easily and quickly turn into useful information.

3. Don't simply adopt methods and techniques from others, adapt them to your subject and students.

4. Before using an assessment technique, always ask yourself: How might having data from this help both the students and me improve learning? (If you can't answer that question, the assessment is probably not worth doing.)

5. Take advantage of the "Hawthorne Effect." Let students know why you are assessing and how you hope it will benefit them. You'll be more likely to find what you're looking for.

6. Remember: If an assessment is worth doing, it's worth teaching students how to do it well.

7. Make sure to close the "feedback loop" by letting students know what you've gleaned from their responses – and how you and they can use that information to improve learning.
Lever 5

Applications Card

**DIRECTIONS:** Take a moment to recall 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 to your work as you can imagine. Don't censor yourself! These are merely possibilities. You can always evaluate their desirability and/or feasibility later.

<table>
<thead>
<tr>
<th>Interesting or promising</th>
<th>Some possible, potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDEAS/TECHNIQUES</td>
<td>APPLICATIONS of those</td>
</tr>
<tr>
<td>from this session</td>
<td>ideas/techniques to my work</td>
</tr>
</tbody>
</table>

A Few Useful References on Assessment and Feedback


... and on Improving Teaching and Learning Quality


