

# Deeper Learning by (Re)Design

Making Courses More Coherent, Connected and Consequential

Handout for the Morning Workshop in the University of Toledo's

## 2017 University Assessment Day

9:30-11:30 AM on 5 April 2017

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### Values Affirmation [ 1 ]

Schnabel (2013) & Steele (2010)

On the lines below, jot down 2 or 3 of your core educational/professional values that motivate you to invest your time and energy in activities like this workshop and University Assessment Day.

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### Goal Ranking and Matching [ 2 ]

Morisano, D., et al. (2010)

What specifically do you hope to learn/gain through participating in this morning's workshop?

On the lines below, please list two or three specific learning goals you hope to achieve or advance and/or questions you hope to answer through your participation.

Your Learning Goals/Burning Questions for this workshop

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### First 'Balcony' Question

How, if at all, might having assessment data on your students' learning-related values and or goals possibly help you and your colleagues further your teaching-related values and goals?

## **Plus-Minus-Question Mark Technique – [ 1 & 3 ]**

Some key terms and concepts that *might* be of use . . .

- Backward design
  - Formative and summative assessment
  - Norm-based and criterion-based grading
  - Prior knowledge, beliefs and opinions
  - Deliberate practice
  - Intended Learning Outcomes and Teaching Objectives
  - *Bus Test, Parrot Test, and Parking Lot Test*
  - Cognitive load
  - Metacognition
  - *The Dance Floor and The Balcony*
  - Novice-Expert differences
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## **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
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## **Second ‘Balcony’ Question**

## SIX DIMENSIONS OF HIGHER LEARNING OUTCOMES [ 1, 2 & 4 ]

Approximate percentage of the instruction you received in your own undergraduate program that focused directly on . . .

What percentage of their instruction will *your future* undergraduate students need that focuses directly on . . .

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### FACTUAL LEARNING

Learning *What (Level 1)*  
Learning facts and principles

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### CONCEPTUAL LEARNING

Learning *What (Level 2)*  
Learning concepts and theories

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### PROCEDURAL LEARNING

Learning *How*  
Learning skills and procedures

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### CONDITIONAL LEARNING

Learning *When and Where*  
Learning applications

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### METACOGNITIVE LEARNING

Learning *How to Learn*  
Learning to direct and manage one's own lifelong learning

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### REFLECTIVE LEARNING

Learning *Why (and Why Not)*  
Developing self-knowledge, cultural awareness, ethics, etc.

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100%

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100%

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### Third 'Balcony' Question

**Designing/Redesigning Courses for Deeper Learning – 10 Clarifying Questions**

1. What is the overall purpose – or what are the overall aims – of this course?
2. Where does this course fit into the program/degree curriculum?
3. For whom is this course designed?
4. What specifically, should students demonstrate they know and can do by course's end?
5. What standards will be used to evaluate and grade students' learning?
6. How will their learning be assessed against those standards?
7. What specific content will be taught and assessed?
8. What will motivate students to learn deeply and well?
9. What kinds of work and how much work must students do to learn and succeed?
10. What kinds of work and how much work must teachers – and others – do to facilitate learning?

**“Backward” Course (Re)Design – A Simple Self-Assessment** Angelo, T. (2012)

Step Number	Column 1 – Sequential Steps in an Ideal “Backward” Course (Re)Design Process <i>Develop or revise . . .</i>	Column 2 Observed Sequence	Column 3 Preferred Sequence
1	PharmD Program Learning Outcomes		
2	Course-Level Intended Learning Objectives/Goals		
3	Standards for Assessing and Grading Performance		
4	Summative Assessments		
5	Diagnostic and Formative Assessments		
6	Learning Activities, Assignments & Resources		
7	Teaching Strategies, Techniques & Resources		
8	Program Review, Course & Teaching Evaluation		

## **Bloom's Cognitive Domain Taxonomy (Revised) [ 3 & 4 ]** Anderson & Krathwohl (2001)

### **(6) CREATE**

Generate, Plan, Synthesize, Produce the New

### **(5) EVALUATE**

Critique or Judge based on Explicit Standards/Criteria

### **(4) ANALYSE**

Break Down, Relate Parts and Whole, Organize

### **(3) APPLY**

Follow Procedures to Solve Problems or Carry Out Tasks

### **(2) UNDERSTAND**

Connect New Learning to Prior Knowledge by Interpreting, Classifying, Comparing, Summarizing, etc.

### **(1) REMEMBER**

Elaborate, Encode, and Retrieve Information from Long-term Memory

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## **“Blooming” - Categorizing Questions by Bloom's Taxonomy [ 1, 3 & 4 ]** Cook, E., et al. (2013)

**Directions:** Using the numbers 1-6 to represent the levels of Bloom's revised taxonomy (above), please identify the level of each question below.

- \_\_\_A. Give an example of “seasonal change”
- \_\_\_B. Why do the Earth's seasons change?
- \_\_\_C. What causes the Earth's seasons to change? (Explain how it works.)
- \_\_\_D. When it is winter in Toledo, OH, USA what season is it in Townsville, QLD, Australia?
- \_\_\_E. Where on Earth would you predict the greatest seasonal variation occurs? Why?
- \_\_\_F. What contribution, if any, will global warming likely make to seasonal change? Explain your reasoning.
- \_\_\_G. What would likely happen to seasonal change in Toledo, OH if the Earth's degree of tilt on its axis changed to:
  - i. 45 degrees?
  - ii. 90 degrees?
  - iii. 180 degrees?
  - iv. 0 degrees?
- \_\_\_H. If the Earth's orbit moved it significantly further away from the Sun, what difference, if any, would you predict that increased distance would make to seasonal change? Explain your answer.
- \_\_\_I. If you were teaching how and why the seasons change to a 5-year-old, how would you explain it?
- \_\_\_J. If astronomers discovered an Earth-like planet with no seasonal variation, what would you predict about that planet's orbit, etc.? Explain your reasoning.

# Bondy’s Clinical Performance (Skills) Rating Scale [ 3 & 4 ] Bondy, K.N. (1983)

**(6) EXPERT INSTRUCTOR \***  
Extremely Safe & Proficient – Capable of assessing, demonstrating, instructing & supporting learners in levels 1-5

**(5) INDEPENDENT**  
Safe – Very Proficient – Requires no supportive cues

**(4) SUPERVISED**  
Safe – Proficient – Requires only occasional supportive cues

**(3) ASSISTED**  
Safe – Mostly Proficient – Requires frequent verbal and occasional physical cues

**(2) MARGINAL**  
Safe only when supervised – Unskilled – Requires continuous verbal and frequent physical cues

**(1) DEPENDENT**  
Unsafe & Unaware – Unable to demonstrate skill – Requires continuous monitoring, support & direction – verbal & physical cues

\*Level Six is not in the original Bondy Scale, but is implicit in its use as a criterion-based assessment tool.

## Skills Self-Assessment Exercise – [ 1, 3 & 4 ]

Using the Bondy Scale above, and thinking of skills you already possess and your current levels of competence, confidence and independence in those skills: Identify at least one of your skills in which you are currently “Dependent,” another skill(s) in which you are “Marginal,” and so on all the way up.

<b>Bondy Levels</b>	<b>My Skills</b>
Expert Instructor (6)	_____
Independent (5)	_____
Supervised (4)	_____
Assisted (3)	_____
Marginal (2)	_____
Dependent (1)	_____

## **Clarifying Intended Learning Outcomes (ILOs)**

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

- 1. On completion of this course, you should be able to:**
  - A. Demonstrate enhanced knowledge of the basic tenets of phrenology and its history
  - B. Demonstrate understanding of what was current best practice of phrenology, as it was practiced in England of the 1840s
  - C. Appreciate the relationship of phrenology to neuroscience
  
- 2. When you have completed this course, 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 summarize the key contributions of at least six major figures in the history of phrenology
  
- 3. To successfully complete this course, you must demonstrate you can:**
  - A. Correctly locate and label all 35 organs on a map of the skull
  - B. Phrenologize three subjects in one hour, summarize 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 TASP (Toledo Area Society of Phrenologists) and evaluation by the members.  
  
[Presentation quality must be rated “Very Good” or “Excellent” by at least 80% of those TASP members in attendance].

## Developing Intended Learning Outcome (ILO) Statements

Draft Learning Outcome (Write this only after you've answered the questions below):

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Who?

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Does/Will Do What?

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To/For Whom?

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By When?

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Where?

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How?

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How Well?

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Why?

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## Developing Intended Learning Outcomes: An Example

### First-draft Intended Learning Outcome (ILO)

Teachers in this course will design effective lessons.

### Second-draft ILO

Who?	Each teacher in this course
Will do what?	Will design a lesson to pre-assess, give feedback on, teach and post-assess students' understanding of an important and potentially problematic concept
For whom?	The elementary or secondary students in their placement classrooms
When?	Between semester weeks four and six
Where?	In her or his placement classroom
How?	Through an annotated lesson design, related assessments and assignments
How well? (to what standard?)	At the 'meets expectations' level or above on the assignment grading rubric as assessed by the course instructor—and by an expert school teacher
Why?	In order to demonstrate an appropriate level of skill in effective, research-based lesson design

### Third-draft ILO

Between semester weeks four and six, each teacher in this course will present an annotated lesson designed to pre-assess, give feedback, teach, and post-assess their placement students' understanding of an important and problematic concept, in order to demonstrate an appropriate level of skill in effective, research-based lesson design.

**Standard:** The quality of the annotated lesson and related materials must be assessed at the 'meets expectations' level or above, overall, on the assignment grading rubric by both the course instructor and by the external assessor (an expert school teacher and student-teacher mentor).

### Fourth-draft ILO

***All teachers who successfully complete this course will have met or exceeded expectations in:***

**Designing an effective, annotated, research-based lesson**  
[With reference to relevant assessment plan and standards]

## A Detailed Assessment/Grading Rubric [ 4 ]

### 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?

Criterion	Distinguished	Exceeds Expectations	Meets all Expectations	Meets some Expectations	Unsatisfactory	Missing or fails minimum req.
<b>Structure</b>	<b>10</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>2</b>	<b>0</b>
Meets all minimum requirements						
<b>Executive summary</b> is effective & concise						
<b>Introduction</b> clearly lays out a roadmap for the paper and places the information in context						
<b>Body</b> addresses all the Basic Questions, includes the argumentation and data						
<b>Conclusion</b> provides summary and closure						
<b>Content</b>						
<b>Knowledge</b>	<b>30</b>	<b>24</b>	<b>18</b>	<b>12</b>	<b>6</b>	<b>0</b>
<b>Command</b> of existing economic knowledge						
<b>Use of terms</b> , theories, and data are						
<b>Informed judgment</b> demonstrated by selection of terms, theories and data (shown by the exclusion irrelevant and inclusion of						
<b>Argumentation</b>	<b>40</b>	<b>32</b>	<b>24</b>	<b>16</b>	<b>8</b>	<b>0</b>
<b>Argument flows logically</b> so that early statements lay the foundation for later statements and the reader is guided through the arguments						
<b>Appropriate application</b> of theory is used to make argument; clearly links theory and data to conclusions						
<b>Arguments are persuasive</b> focuses on key points, does not wonder, uses no unnecessary verbiage						
<b>Alternative</b> policies, arguments, conclusions and generalizations are noted where they exist and addressed; differences of opinion, supported by evidence, are also discussed						
<b>Data used</b> is reliable, valid, and pertinent; it provides effective support; no superficial information or tangential data muddies the argument						
<b>Striving for Excellence and Creativity</b>	<b>20</b>	<b>16</b>	<b>12</b>	<b>8</b>	<b>4</b>	<b>0</b>
<b>Presentation</b> 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 & understand						
<b>Creativity</b> – 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						

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

## Draft Questions for a Course/Teaching Feedback Form [ 1, 3 & 4 ]

### 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/outcomes 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/instructors: (1=extremely high, 2=high, 3=adequate, 4=low, 5=very low)

- |                                                                             |   |   |   |   |   |    |
|-----------------------------------------------------------------------------|---|---|---|---|---|----|
| 23. Overall, I would rate the instructor's effectiveness as a teacher as    | 1 | 2 | 3 | 4 | 5 | NA |
| 24. Overall, I would rate the amount I learned in this course as            | 1 | 2 | 3 | 4 | 5 | NA |
| 25. Overall, I would rate the value of what I learned in this course as     | 1 | 2 | 3 | 4 | 5 | NA |
| 26. Overall, I would rate the quality of this course as                     | 1 | 2 | 3 | 4 | 5 | NA |
| 27. My motivation to continue learning about this material in the future is | 1 | 2 | 3 | 4 | 5 | NA |
| 28. The likelihood I'd recommend this course to a good friend is            | 1 | 2 | 3 | 4 | 5 | NA |

## **Applications Card [ 5 ]**

Angelo, T.A. & Cross, K.P. (1993)

*Interesting or promising  
IDEAS/TECHNIQUES  
from this session*

*Some possible, potential  
APPLICATIONS of those  
ideas/techniques to my work*

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## A FEW USEFUL REFERENCES ON CURRICULUM, ASSESSMENT & LEARNING

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# NOTES

## **Morning Workshop Feedback Form [ 4 ]**

**Overall Feedback** – Please circle the rating for each item which best represents your experience and evaluation of this workshop.

**1. Overall, the value of what I learned in this workshop is**

5	4	3	2	1
Very High	High	Adequate	Low	Very Low

**2. Overall, the quality of this workshop is**

5	4	3	2	1
Very High	High	Adequate	Low	Very Low

**3. Overall, I rate this workshop leader's effectiveness as**

5	4	3	2	1
Very High	High	Adequate	Low	Very Low

### ***Comments on this workshop***

**4. Which two or three specific aspects of this workshop were most useful/helpful/interesting?**

**5. Which specific aspects could have been improved?**

**6. What possible follow-up, if any, from the University of Toledo might be helpful?**