CREATING CLEARER STUDENT LEARNING OUTCOMES FOR BETTER ALIGNED COURSES AND PROGRAMS

The 2014 Assessment Institute in Indianapolis

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CLEARER Student Learning Outcomes are . . .

- **Constructively aligned**
- **Learning focused**
- **Evidence based**
- **Assessable**
- **Relevant**
- **Equitable**
- **Rigorous**

A Revision of Bloom's Taxonomy (Anderson & Krathwohl, 2001)

CREATE (6)
Generate, Plan, Synthesize, Produce the New

EVALUATE (5)
Critique or Judge based on Explicit Standards/Criteria

ANALYSE (4)
Break Down, Relate Parts and Whole, Organize

APPLY (3)
Follow Procedures to Solve Problems or Carry Out Tasks

UNDERSTAND (2)
Connect New Learning to Prior Knowledge by Interpreting, Classifying, Comparing, Summarizing, etc.

REMEMBER (1)
Elaborate, Encode, and Retrieve Information from Long-term Memory

SIX DIMENSIONS OF HIGHER LEARNING OUTCOMES

Approximately what percentage of all the instruction *you* got during your own undergraduate degree program <u>focused on</u> . . .		**What percentage of their total instruction *your* undergraduate students will receive during 2015-2019 <u>should focus on</u> . . .**
_____	**FACTUAL LEARNING** Learning ***What (Level 1)*** **Learning facts and principles**	_____
_____	**CONCEPTUAL LEARNING** Learning ***What (Level 2)*** **Learning concepts and theories**	_____
_____	**PROCEDURAL LEARNING** Learning ***How*** **Learning skills and procedures**	_____
_____	**CONDITIONAL LEARNING** Learning ***When and Where*** **Learning applications**	_____
_____	**METACOGNITIVE LEARNING** Learning ***How to Learn*** **Learning to direct and manage one's own learning**	_____
_____	**REFLECTIVE LEARNING** Learning ***Why*** **Developing self-knowledge, cultural awareness, ethics, etc.**	_____
100%		**100%**

Tom Angelo - Queens University of Charlotte – thomas.a.angelo@gmail.com – 21 July 2014

"Backward" Course (Re)Design – A Simple Self-Assessment

Step Number	Sequential Steps in an Ideal Backward Course (Re)Design Process *Develop or revise . . .*	Column 2 **Observed Sequence**	Column 3 **Preferred Sequence**
1	Program-Level Intended Learning Outcomes		
2	Course-Level Intended Learning Outcomes		
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		

Backward" Course Design – An Alignment Grid

	Step One	Step Two	Step Three	Step Four	Step Five	Step Six	Step Seven	Step Eight
Focus of Learning	Program-Level Intended Learning Outcomes	Course-Level Intended Learning Outcomes	Standards for Assessing and Grading Performance	Summa-tive Assess-ments	Diagnostic and Formative Assess-ments	Learning Activities, Assignments & Resources	Teaching Strategies, Techniques & Resources	Program Review, Course & Teaching Evaluation
Factual								
Conceptual								
Procedural [Skills]								
Conditional [Applications]								
Metacognitive								
Reflective								

Clarifying Intended Learning Outcomes (ILOs)

Examples to consider, critique, and perhaps improve from a *Phrenology* course

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 modern 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 in phrenology
   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 in 15 mins. or less
   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 ISP (Indianapolis Society of Phrenologists) and evaluation by the members.

      [Presentation quality must be rated "Very Good" or "Excellent" by at least 80% of ISP members in attendance]

Developing Intended Learning Outcomes: An Example

First-draft Intended Learning Outcome (ILO)

Teachers in this course will design effective, research-based 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).

Fourth-draft ILO?

Sharpening Up Learning Outcome Statements

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

_____

_____

_____

Who? _____

Does/Will Do What? _____

_____

To/For Whom? _____

By When? _____

Where? _____

How? _____

_____

How Well? _____

Why? _____

_____

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***

Reference: Angelo, T.A. & Cross, K.P. (1993). Classroom Assessment Techniques: A Handbook for College Teachers, 2nd edition. San Francisco: Jossey-Bass, pp. 236-239.

Intended Learning Outcomes (ILOs)

A Checklist to Help you Write and Revise ILOs

Intended Learning Outcomes (ILOs) are statements specifying what successful learners are expected to demonstrate that they know and/or are able to do by the end of a learning activity, course or program.

They are "intended" in three senses: (1) The curriculum, teaching and assessment are all intentionally designed and provided in order to promote their achievement; (2) Other unintended, but nonetheless very valuable learning outcomes are likely to result, as well as the intended ones; and, (3) Despite the best intentions and efforts of all involved, not all learners will always achieve the intended learning outcomes in the time allotted. What students do demonstrably achieve are known as "observed learning outcomes."

When clear, explicit ILOs are combined with clear, explicit standards for achievement, assessing student learning can be more effective, efficient, and equitable.

A Checklist for Writing and Revising Intended Learning Outcomes

Well-written ILO statements . . .

- ☐ Focus on student learning outcomes, and not on teaching activities or learning processes
- ☐ Focus on a limited number of outcomes – a maximum of 7 or so per course
- ☐ Address an appropriate range of levels of learning – e.g., from lower to higher or all higher
- ☐ Align, where relevant, with program and/or institutional learning outcome statements
- ☐ Focus on outcomes that are observable and assessable by the relevant faculty/staff
- ☐ Employ specific, active verbs – typically verbs that take direct and indirect objects
- ☐ Include only one such verb per statement
- ☐ Can be achieved by diligent staff and students within the allotted time and with available resources
- ☐ Are clearly understood by and useful to the relevant students and staff
- ☐

A note on verbs – In the U.S., ILOs are often written, evaluated and revised in relation to a classification scheme known as "Bloom's Taxonomy". Many universities, along with accrediting agencies and disciplinary associations, have posted tables of verbs classified according to Bloom's Taxonomy on the Web. These verb tables can be very useful in finding the appropriate, specific active verbs needed for your ILOs at the levels of learning you intend. [Google "Blooms taxonomy verbs chart" for examples.]

If you have questions or comments about the information above, please feel free to contact Tom Angelo, Director of the Center for the Advancement of Faculty Excellence (CAFÉ) at angelot@queens.edu.

A FEW USEFUL REFERENCES ON COURSE DESIGN, TEACHING & LEARNING

Ambrose, S.A., et al. (2010). *How Learning Works: Seven Research-based Principles for Smart Teaching*. San Francisco, CA: Jossey-Bass.

Anderson, L. & Krathwohl, D.R. (Eds.) (2001). *A Taxonomy for Learning, Teaching, and Assessment: A Revision of Bloom's Taxonomy of Educational Objectives (Abridged Edition*). New York: Allyn & Bacon.

Angelo, T. (2012). Designing subjects for learning: Practical, research-based principles and guidelines. In Hunt, L. & Chalmers, D. *University Teaching in Focus: A Learning-centred Approach*. London: Routledge, Taylor & Francis, 93-111.

Biggs, J. & Tang, C. (2007). *Teaching for Quality Learning at University, 3rd Edition*. Suffolk, England: Society for Research into Higher Education.

Bransford, J.D., Brown, A.L, & Cocking, R.R. (Eds.). (2000). *How People Learn: Brain, Mind, Experience, and School, Expanded Edition*. Washington, DC: National Academy Press.

Brown, P.C., Roediger, H.L. & McDaniel, M.A. (2014). *Make It Stick: The Science of Successful Learning.* Cambridge, MA: Belknap/Harvard University.

Davis, B.G. (2009). *Tools for Teaching, 2nd Edition*. San Francisco, CA: Jossey-Bass.

Donald, J.G. (2002). *Learning to Think: Disciplinary Perspectives*. San Francisco, CA: Jossey-Bass.

Fink, L.D. (2003). *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses.* San Francisco, CA: Jossey-Bass.

Freeman, S. et al. (2014). Active learning increases student performance in science, engineering, and mathematics. *PNAS Early Edition*. Downloaded 14 April 2014 from www.pnas.org/cgi/doi/10.173.pnas.1319030111

Hattie, J. A. C. (2009). *Visible Learning: A Synthesis of Over 800 Meta-Analyses Relating to Achievement.* New York: Routledge.

Hattie, J. & Temperley, H. (2007). The power of feedback. *Review of Higher Education*, 77(1), 81-112.

Huba, M.E. & Freed, J.E. (2000*). Learner-Centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Needham Heights, MA: Allyn & Bacon.

Kuh, G.D. et al. (2006). *What Matters to Student Success: A Review of the Literature.* Washington, DC: National Postsecondary Education Cooperative, U.S. Dept. of Education Institute of Education Sciences.

Nilson, L.B. (2013). *Creating Self-Regulated Learners: Strategies to Strengthen Students' Self-Awareness and Learning Skills*. Sterling VA: Sylus.

Pascarella, E. & Terenzini, P. (2005). *How College Affects Students: A Third Decade of Research*. San Francisco, CA: Jossey-Bass.

Rhodes, T.L. (Ed.) (2010). *Assessing Outcomes and Improving Achievement. Tips and Tools for using Rubrics.* Washington, DC: American Association of Colleges & Universities.

Suskie, L. (2009). *Assessing Student Learning: A Common Sense Guide, 2nd Edition*. San Francisco: Jossey-Bass.

Svinicki, M.D. (2004). *Learning and Motivation in the Postsecondary Classroom*. Bolton, MA: Anker.

Walvoord, B.E. & Anderson, V. (2010). *Effective Grading: A Tool for Learning and Assessment in College, 2nd Edition*. San Francisco, CA: Jossey-Bass.

Wiggins, G. & McTighe, J. (2005). *Understanding by Design, Expanded 2nd Edition*. Mahwah, NJ: Merrill-Prentice-Hall.