**AN IDIOSYNCRATIC ANOTATED DICTIONARY OF**

**KEY TERMS FROM LEARNING THEORY**

**Background**Information is ubiquitous, as is easy access to it. The role of faculty member as information dispenser is increasingly unimportant. But faculty have other roles. Principle among them is our role as designers of learning environments and activities. Only people with substantial content knowledge can design the best learning environments and activities because only such people know which challenges are appropriate given particular students, learning contexts, and types of content. Content experts are well positioned to select the best means to a learning objective.

**Types of Learning Objectives**

Content Mastery

Flexible understanding of new ideas. An understanding is *flexible* when it can be accurately and usefully (retrieved and) deployed in *multiple* contexts.

Skill Enhancement

New or improved fluency in flexibly performing of a task

Personal Transformation

Replacement or alternation of previously prized values, beliefs, or ways of living

**Differences Between Experts And Novices**

Experts

People with substantial pre-existing understandings and skills regarding a relevant task. People who have robust, nuanced concept maps. Experts initially represent problems in useful ways. Experts can easily “chunk” or place new information into an intellectual framework where it’s meaning is clear. Experts quickly filter out unimportant information and fluently retrieve relevant information. In doing this experts employ considerable metacognition.

Metacognition

Evaluative thinking about the quality of cognitive performance. A person with high metacognitive ability knows when s/he is doing well or poorly at some cognitive task and can adjust her/his behavior accordingly.

Novices

People with little relevant pre-existing understandings or skills regarding a task. Novices typically do not initially represent problems in useful ways. Novices have no or underdeveloped concepts maps for a relevant task. Novices have low metacognitive ability with regard to a relevant task.

Advanced Beginners

People who falsely believe they have better pre-existing understandings and skills than they in fact do. Advanced beginners often misrepresent problems, but unlike novices advanced beginners believe they have accurately represented the task. Advance beginners use inefficient concept maps and are unaware that they are doing so. Most importantly, by over-estimating their competency, advance beginners cannot successfully deploy metacognitive ability even if they have it. Sometimes content experts in philosophy are merely advanced beginners regarding teaching and learning.

Controlled Failure

An intentional action that causes a person (especially advanced beginners) to recognize the limitations of their current understandings and skills.

**Learning**

Students will use pre-existing understandings and skills even if they are ill fit for the new task because that is what they’re wired to do. If we want students to learn, we must construct learning environments and activities that cognitively, socially, and emotionally support learning. The best support involves high levels of formative feedback. Further, since learning requires the physical build-up of myelin, scaffolded repetition is necessary for successful learning. For example, to improve critical thinking skills students need to *think* critically. They don’t much need to listen to teachers tell them about critical thinking, nor do they much need to read about it. They need to *do* it, repeatedly, with concrete, forward-looking feedback to help them improve.

Myelin

Neurons are connected to each other by synapses, which are made up of multiple axons. Axons develop a coating of myelin when energy passes across them. Among other things, learning is a biochemical transformation of the brain. The more myelin a synapse has the easier it is for energy to pass. When we know something we have a network of synapses firing electricity easily. When we make new understandings we are developing improved coatings in less used areas of the network.

Pre-Existing Understandings

Beliefs or conceptual schemes that frame how a person makes sense of new experiences (i.e. when learning). Pre-existing understandings are difficult to undo because electrical brain activity wants to go where it can most easily travel and cannot go well where it has not much travelled before. Especially relevant is “initial problem representation.” If a person believes his/her task is X, but in fact it is Y, s/he will likely not excel in “Y”ing.

Formative Feedback

In light of an earlier performance, concrete forward-looking directives designed to alter future performance.

Repetitive, Deliberative Practice

Performing tasks that require similar skills with an eye toward improvement that is guided by formative feedback.

Scaffolding

Sequencing assignments in three ways. First, begin with a simple task, provide formative feedback, assign a second task that requires the performance of the first task and the performance of a new task, provide formative feedback, assign a third task that requires the performance of the first two tasks and the performance of a new task, provide formative feedback, etc. Second, provide a great deal of “How To” instruction and move slowly at first. Gradually reduce the supporting instruction while increasing the pace. Third, move from low stakes to high stakes grading.

**What To Do**

Describing, Modeling, Scaffolding

Scaffold assignments. Describing successful academic performance (e.g. grading rubrics) is useful. Modeling the outcome (e.g. sample essays) or the activity (e.g. critiquing a view in class) is useful. Scaffolding, however, is what allows students to develop fluent understandings and skill deployment. Merely describing and/or modeling insufficiently support students reaching for learning objectives appropriate to higher education.

Intrinsic Incentives

Use pedagogies that have significant intrinsic incentives. Intrinsic incentives motivate high performance more than extrinsic incentives. An intrinsic reward is positive feeling associated with an activity that motivates quality effort. For example, most people enjoy helping others and showing others what they know or can do. An intrinsic disincentive is a negative feeling associated with an activity that discourages quality effort. For example, sitting still without getting to talk for 75 minutes is often boring. (The most significant extrinsic reward/disincentive relative to course performance is a grade.)

Alignment

Align learning goals, pedagogies, and grades. A course is aligned when students do and are graded on demonstrations of their achievements regarding the goals of the course.

**References**

I do not claim to have said anything new here today. While my route is too indirect to provide direct quotations or even to provide footnotes regarding paraphrases, everything I’ve said here is found in one or more of the following sources.

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L. Dee Fink, *Creating Significant Learning Experiences: An Integrated Approach To Designing College Courses* (Jossey Bass, 2003)

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**Also…**

I don’t think I’ve ever said anything that Craig E. Nelson hasn’t already said. ☺ If you found this presentation valuable you should read his work:

**Journal Articles**

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**Book Chapters**

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