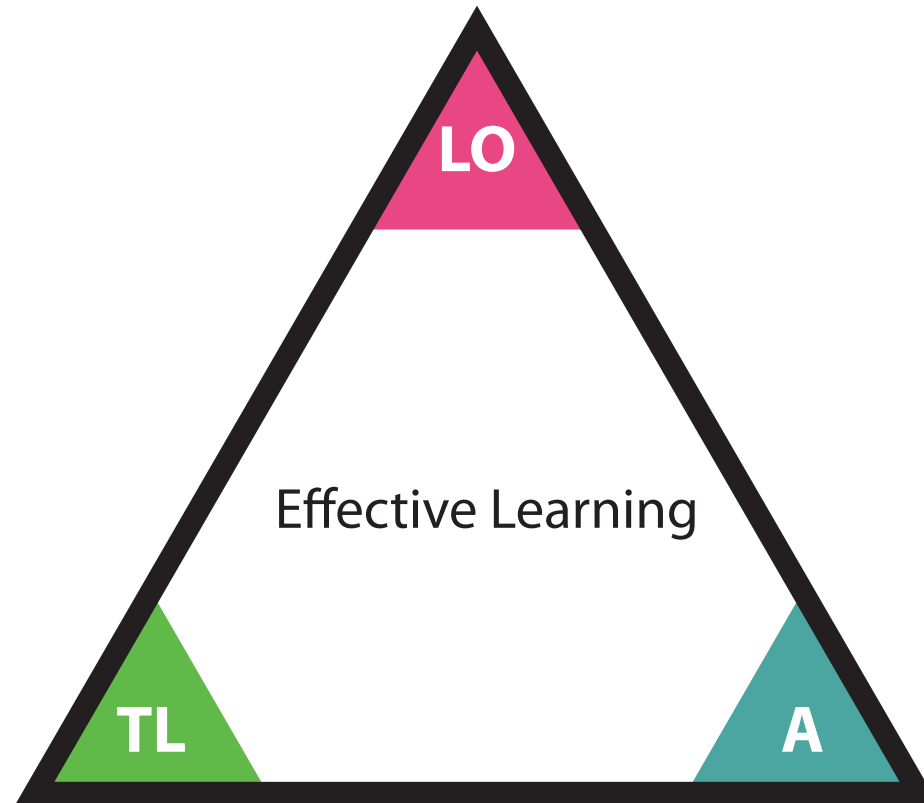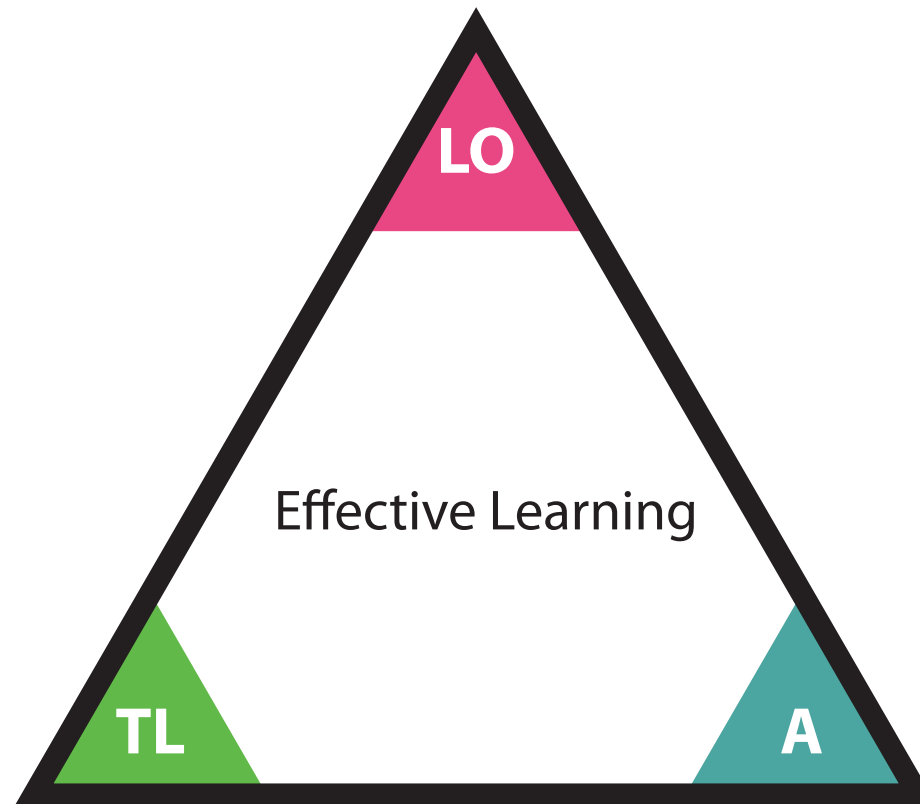Constructive alignment | Teaching & Learning

Triangle of effective learning

- Identify & communicate significant learning outcomes
- Implement learning activities
- Gather and report direct evidence of learning
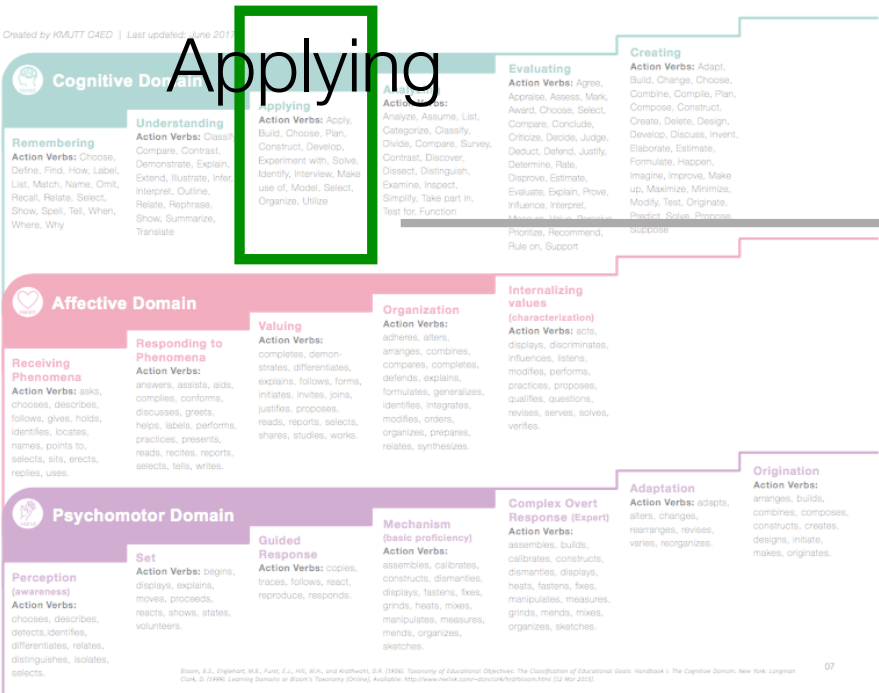
Triangle of effective learning

LO

Effective Learning

TL

A

- Help students achieve LO
- Promote active and engaged learning

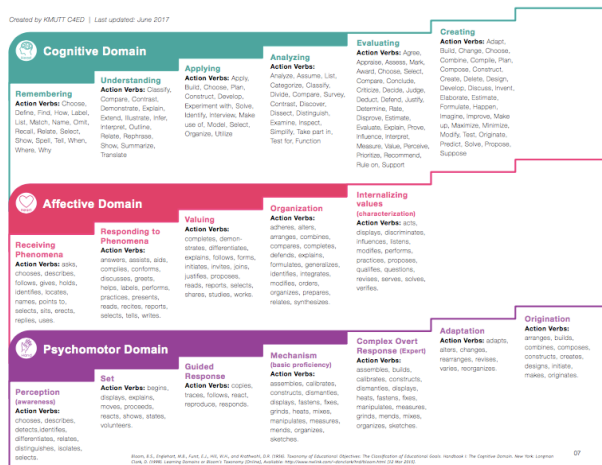- Analyze, report, reflect
- Continuous improvement

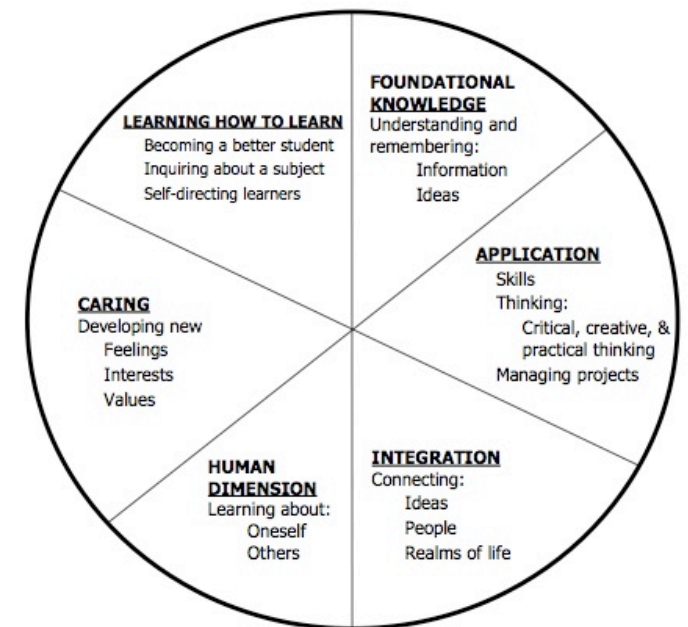# Constructive alignment

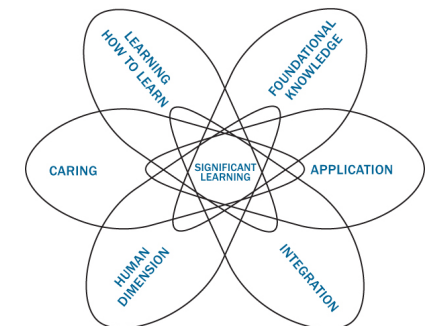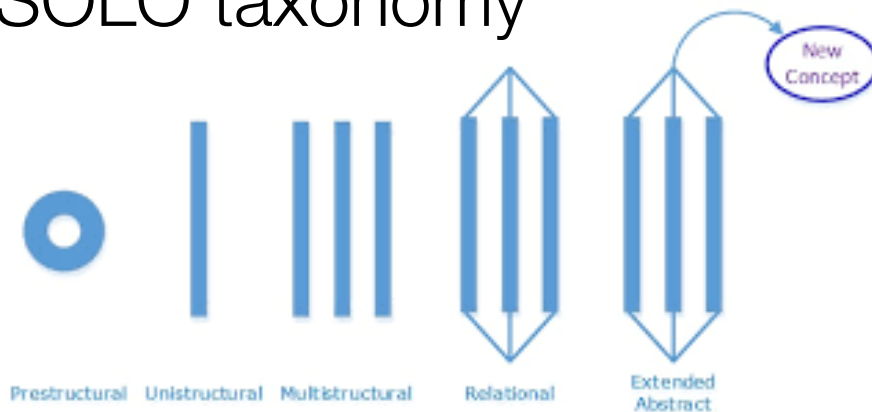# Taxonomy & alignment

Taxonomy

Revised Bloom's taxonomy

Dee Fink's Taxonomy of significant learning

SOLO taxonomy

Examples

Bloom's revised taxonomy:
cognitive domain
vs.
Learning activities

Creating — Synthesising ideas from different sources or materials to create new perspectives or a new/ original product.

Evaluation — Judging the value of research based on criteria or standards, comparing ideas and identifying the strengths and weaknesses of scholarly work.

Analysis — Examining the reasons for theories, finding evidence, and seeing relationships between parts of something.

Application — Using ideas in new ways and applying theories to real situations.

Understanding — Describing what knowledge means. Finding the main ideas, summarising, explaining trends and significance.

Knowledge — Remembering the facts, terms, concepts and principles of your subject.

Examples

Taxonomy vs.
Learning activities

Applying Bloom's Taxonomy in Your Classroom

1. REMEMBER

Students are expected to retrieve information from memory, but aren't expected to change it in any way.

In-Class Instruction
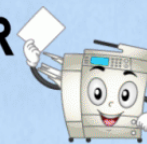Students memorize a definition of an associative property.

Assessment
Students are given a multiple choice question and asked to recognize the answer, or are asked to recall the answer and fill in a blank.

2. UNDERSTAND

Students are building new connections in their minds.

In-Class Instruction
Students identify the key characteristics needed for an organism to survive in a particular ecosystem.

Assessment
When given the description of a fictitious animal, students explain whether the animal will survive in a given ecosystem.

3. APPLY

Certain procedures or steps are expected to be followed in order to answer new problems.

In-Class Instruction
Students learn about Newton's three laws.

Assessment
Students are asked to examine the information about a car crash and determine which if any of Newton's laws apply to the situation.

4. ANALYZE

Students utilize lower-level thinking skills to identify key elements and examine each part.

In-Class Instruction
Students read a student lab report and identify the evidence to support the finding.

Assessment
Read the results of the scientific study and find supporting statements for each conclusion or finding.

5. EVALUATE

Informational sources are examined to assess their quality and decisions are made based on identified criteria.

In-Class Instruction
Students read about the physical effects of exercise on humans.

Assessment
Read an article about a famous athlete. Identify one piece of information in the article that fails to support the author's case that hard work was the main reason for the athlete's exceptional athletic skills.
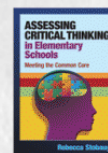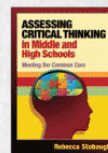
6. CREATE new!

Learners organize information in a new or different way.

In-Class Instruction
Students research the role of economics in business.

Assessment
Students brainstorm reasons for a problem and generate suggested solutions, and design and implement a campaign designed to solve the identified problem.

ASSESSING CRITICAL THINKING in Middle and High Schools
Meeting the Common Core

ASSESSING CRITICAL THINKING in Elementary Schools
Meeting the Common Core

Rebecca Stobaugh

Adapted from
Assessing Critical Thinking in Middle and High Schools: Meeting the Common Core and
Assessing Critical Thinking in Elementary Schools: Meeting the Common Core
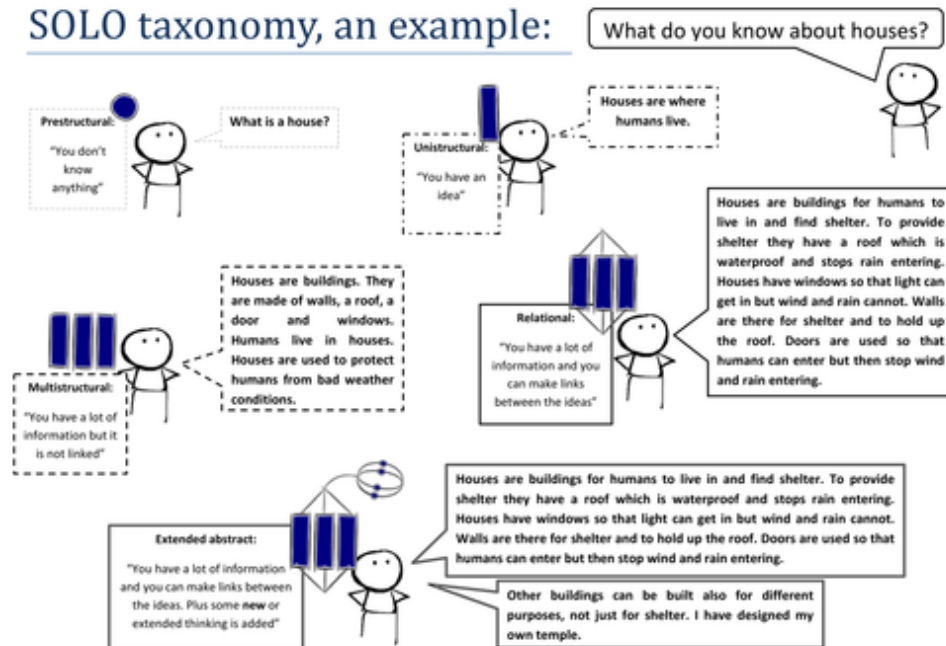by Rebecca Stobaugh

EYE ON EDUCATION
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Examples

Taxonomy vs. Learning activities

SOLO taxonomy, an example:

	Taxonomy Dimension	LAT	Brief Description
1	Foundational Knowledge	LAT 7 Best Summary	Students individually prepare summaries of the main points at the end of a given unit of content, lecture, reading assignment, or other and then work in groups to compare, evaluate, and select the "best" summary.
2	Application	LAT 17 Think-Aloud Pair Problem-Solving Protocols	Student pairs receive a set of problems to solve as well as specific roles—problem solver and listener—that they switch as they move from problem to problem.
3	Integration	LAT 27 Case Study	Students receive a real-life scenario, or "case," related to course content. These cases usually present a brief history of how the situation developed and a dilemma that a key character within the scenario is facing, and students are charged with helping the character develop a solution to the problem.
4	Human Dimension	LAT 30 Free Discussion	Small groups of students are formed quickly and extemporaneously to respond to course-related questions. Their discussion is an informal exchange of ideas, but students are assessed on their ability to participate effectively.
5	Caring	LAT 42 Debate	In a debate, students research and analyze a controversial topic and then engage in a series of oral presentations of their arguments against an opposing team.

Teaching & Learning
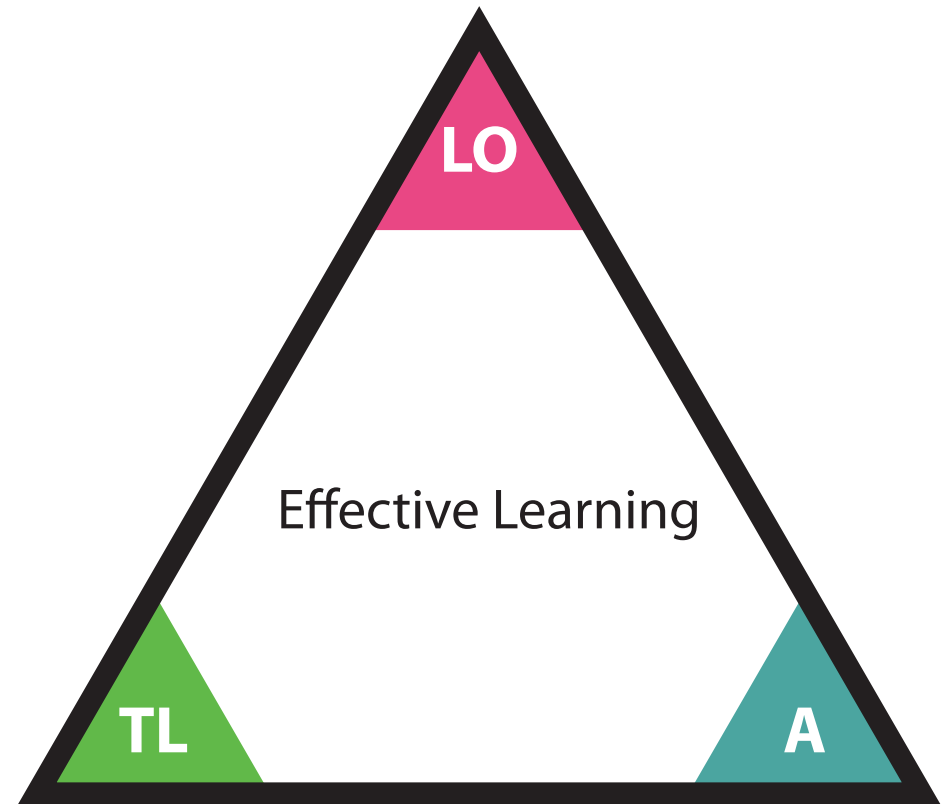
Teaching and learning
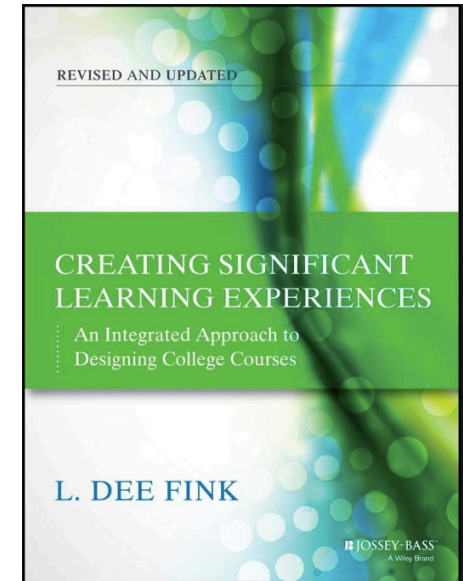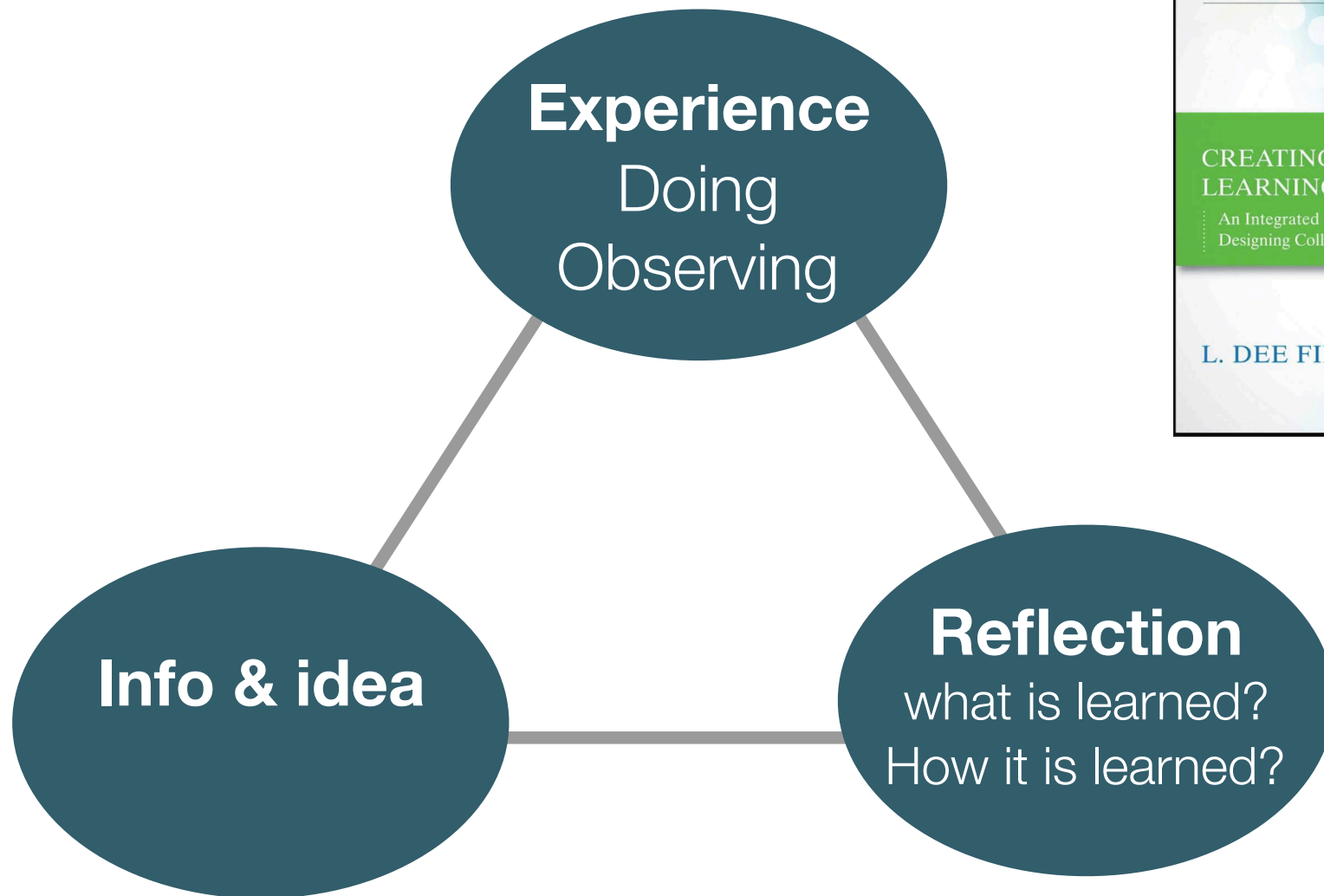
- Traditional classroom

Presenting an organized summary of their understanding of the subject (lecturing) and leading occasional whole-class discussion of the subject

- Active learning

"Anything that involves students in doing things and thinking about the things they are doing" ~ Bonwell & Eison (1991)

-

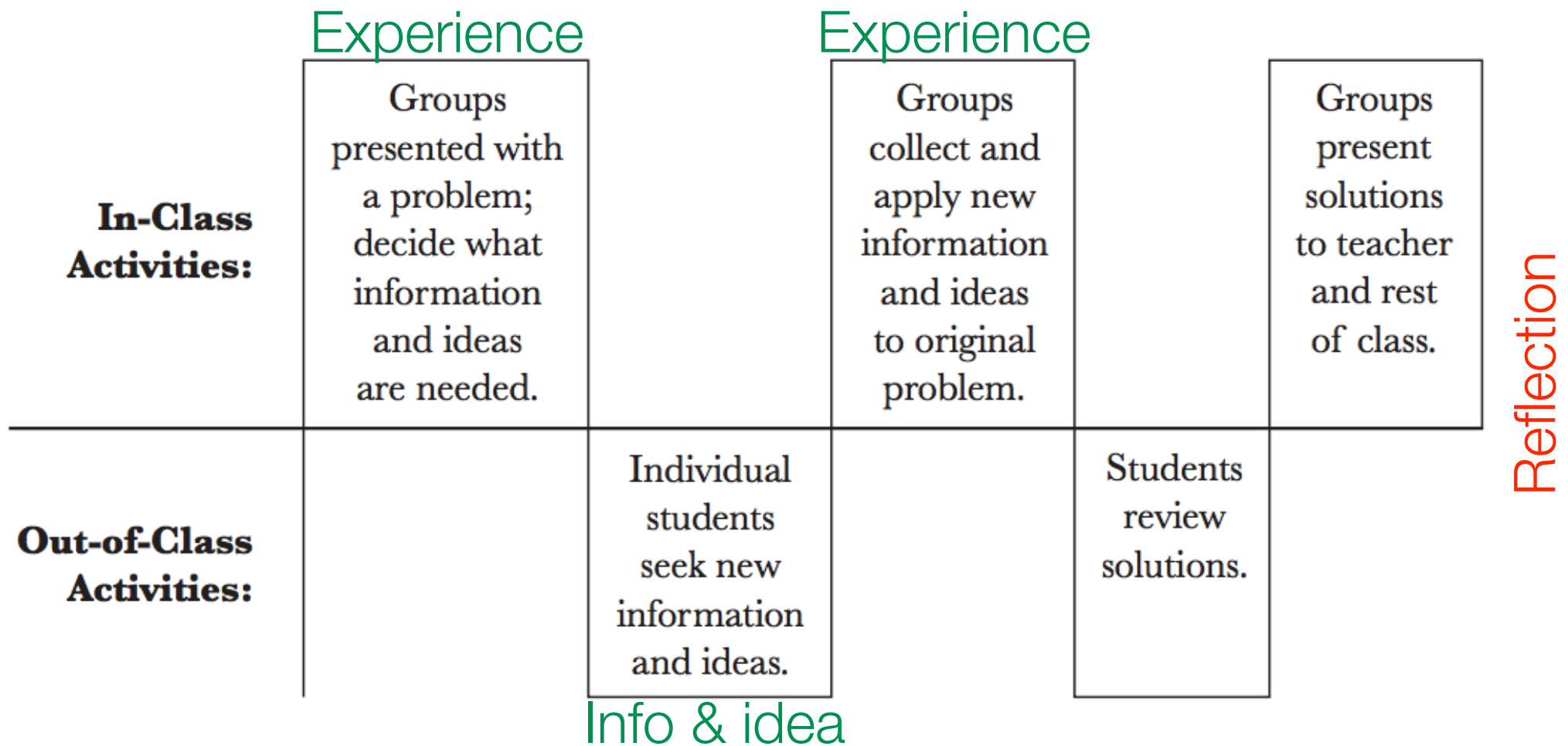# Dee Fink's Holistic View of Active Learning
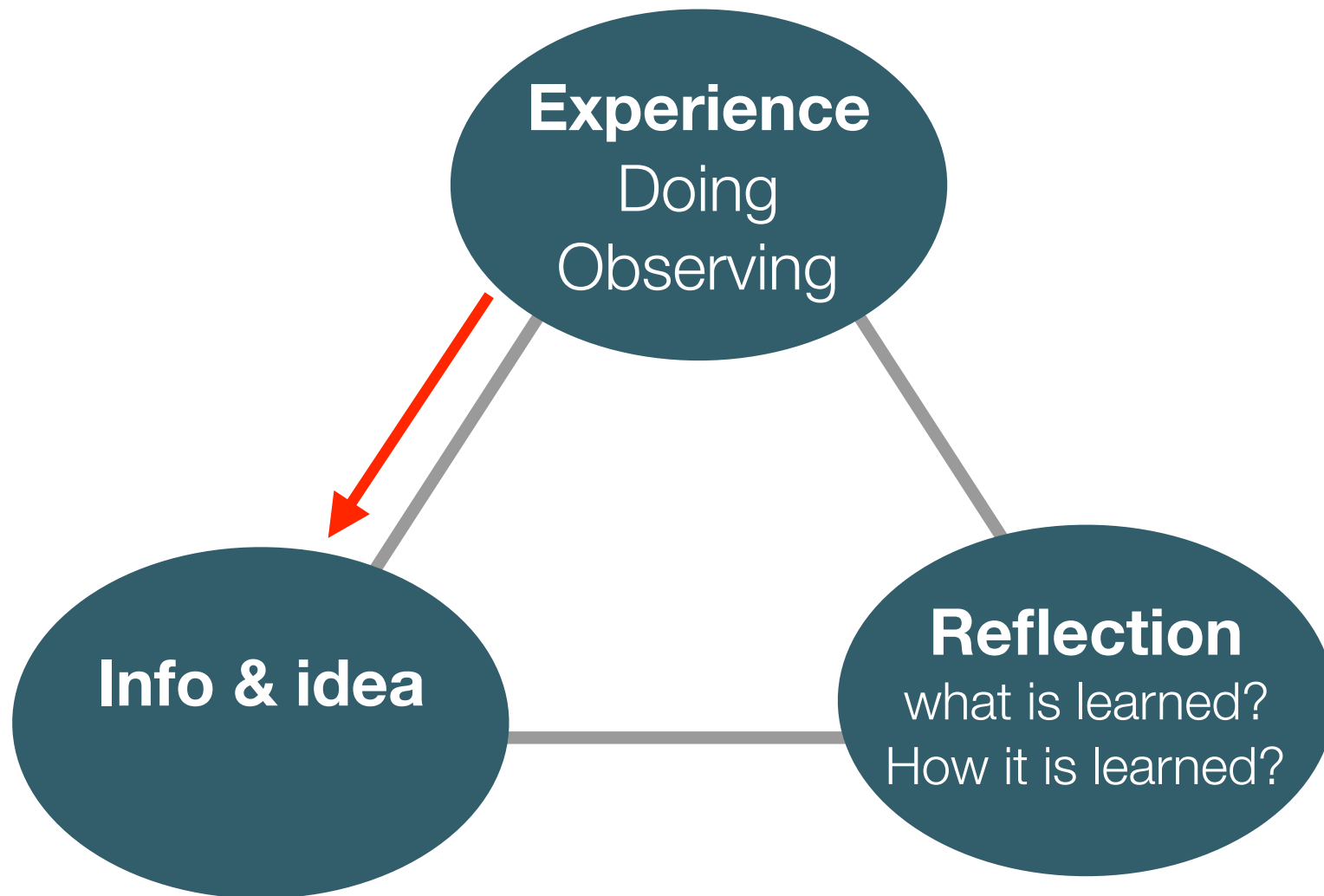
Teaching strategy

- Teaching technique = specific teaching activity

- Teaching strategy = particular combination of learning activities in a particular sequence

  - Goal: to find a combination and sequence of learning activities that work together synergistically and build high level of student energy that can be applied to the task of learning

    .

Example of teaching strategy: Problem-based learning

- Problem based learning = learning that start with a problem and not a lot of information

Experience   Experience

| | In-Class Activities: | Groups presented with a problem; decide what information and ideas are needed. | | Groups collect and apply new information and ideas to original problem. | | Groups present solutions to teacher and rest of class. |
| Out-of-Class Activities: | | | Individual students seek new information and ideas. | | Students review solutions. | |

Reflection

Info & idea

Example of teaching strategy: Problem-based learning

# Example of teaching strategy: Team-based learning

- Use small group extensively with particular sequence of activities that transform group into team and use team capabilities to accomplish high level of content & application

Experience

| In-Class:	R.A.P.:* 1. Individual Test 2. Group Test 3. Appeal Process 4. Corrective Instruction		Group Work (Simple)		Group Work (Complex)	(Continue pattern as long as desired)		Exam: Done individually or in groups.
Out-of-Class:	Reading		Homework		Homework		Review	

Info & idea

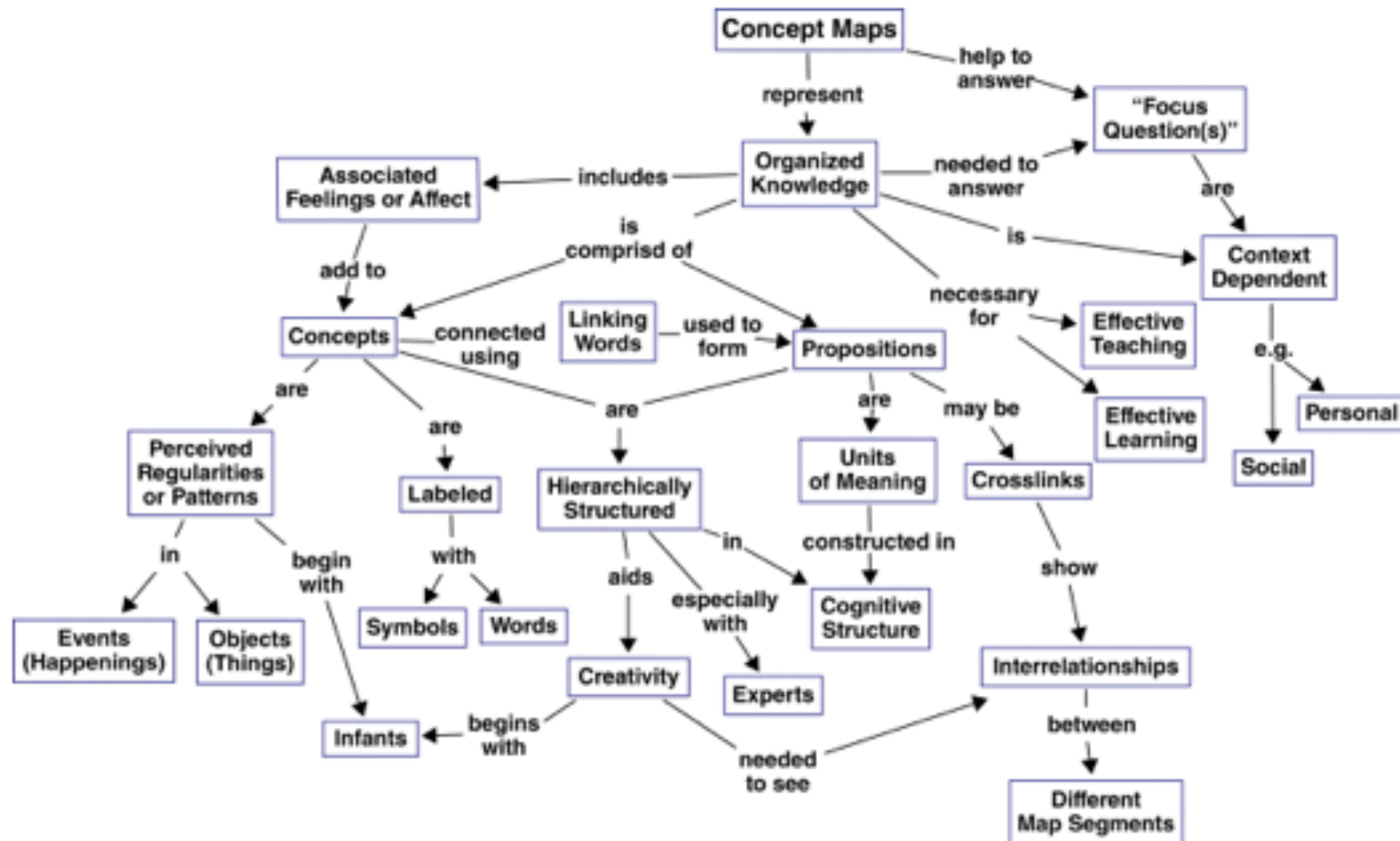# Example of teaching strategy: Team-based learning
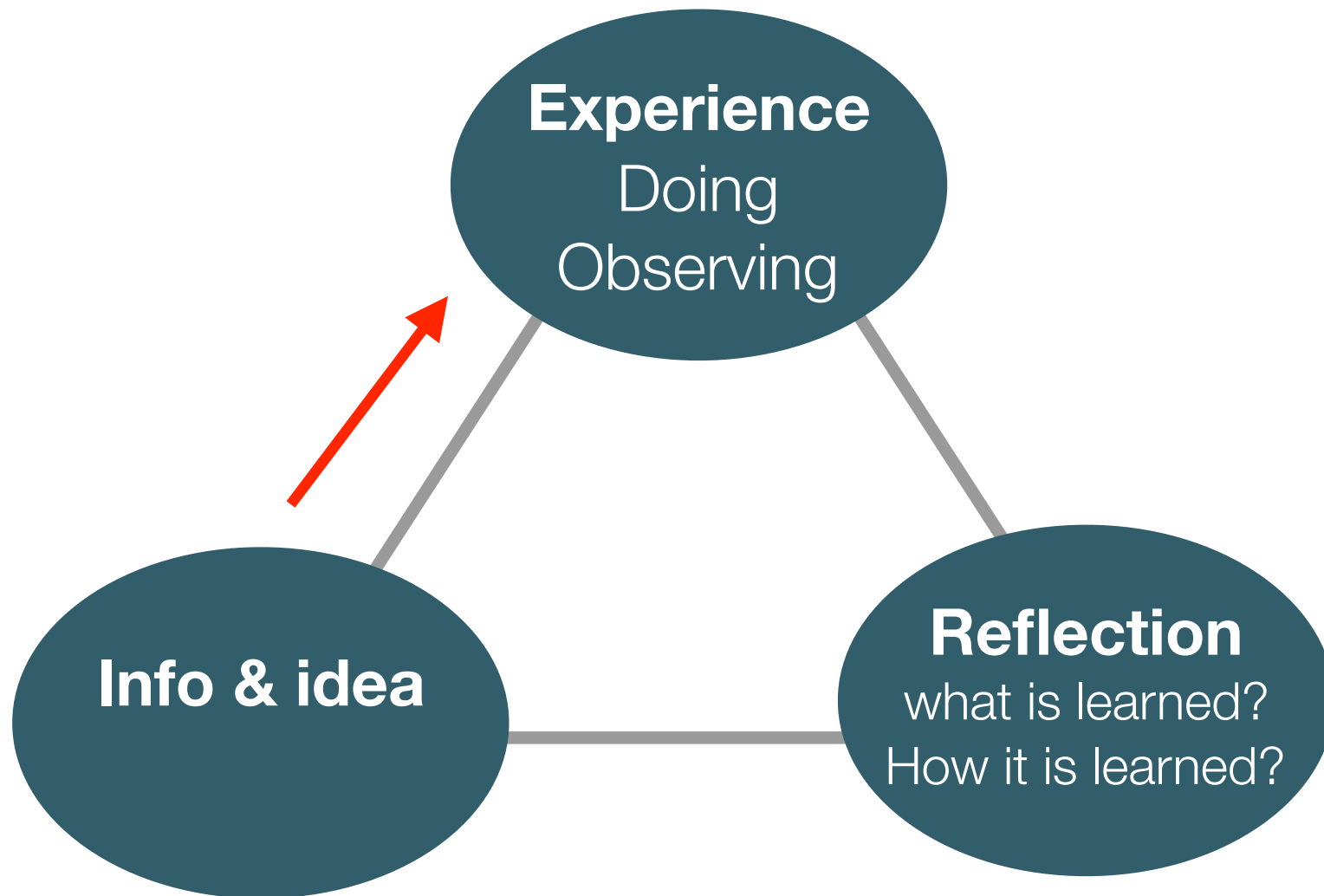
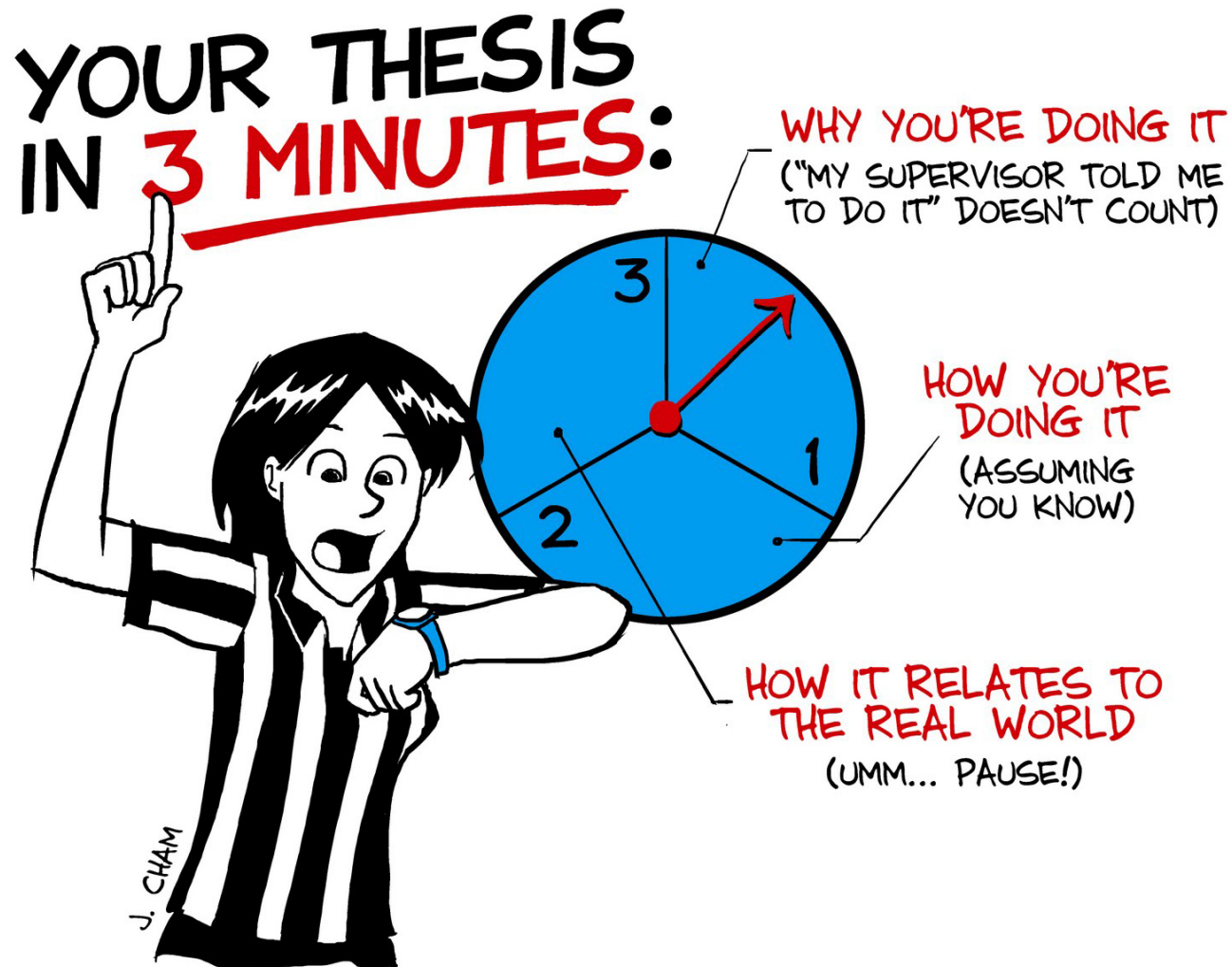# Teaching technique: Learning Assessment technique (LAT)

- LAT is designed to balance disciplinary content and sound pedagogy as they promote engaged, active learning that also produces an assessable learning artifact that can be evaluated for student achievement
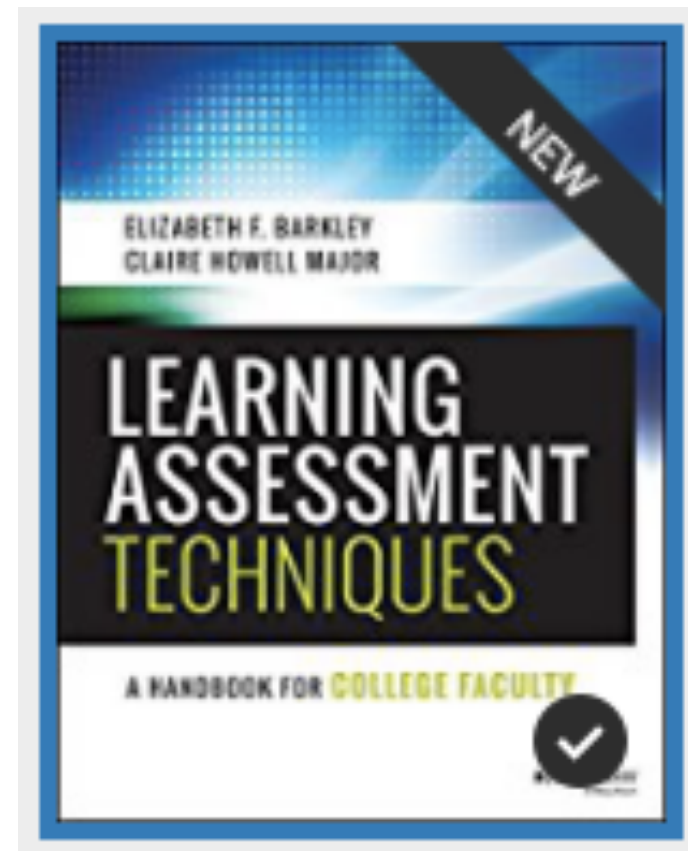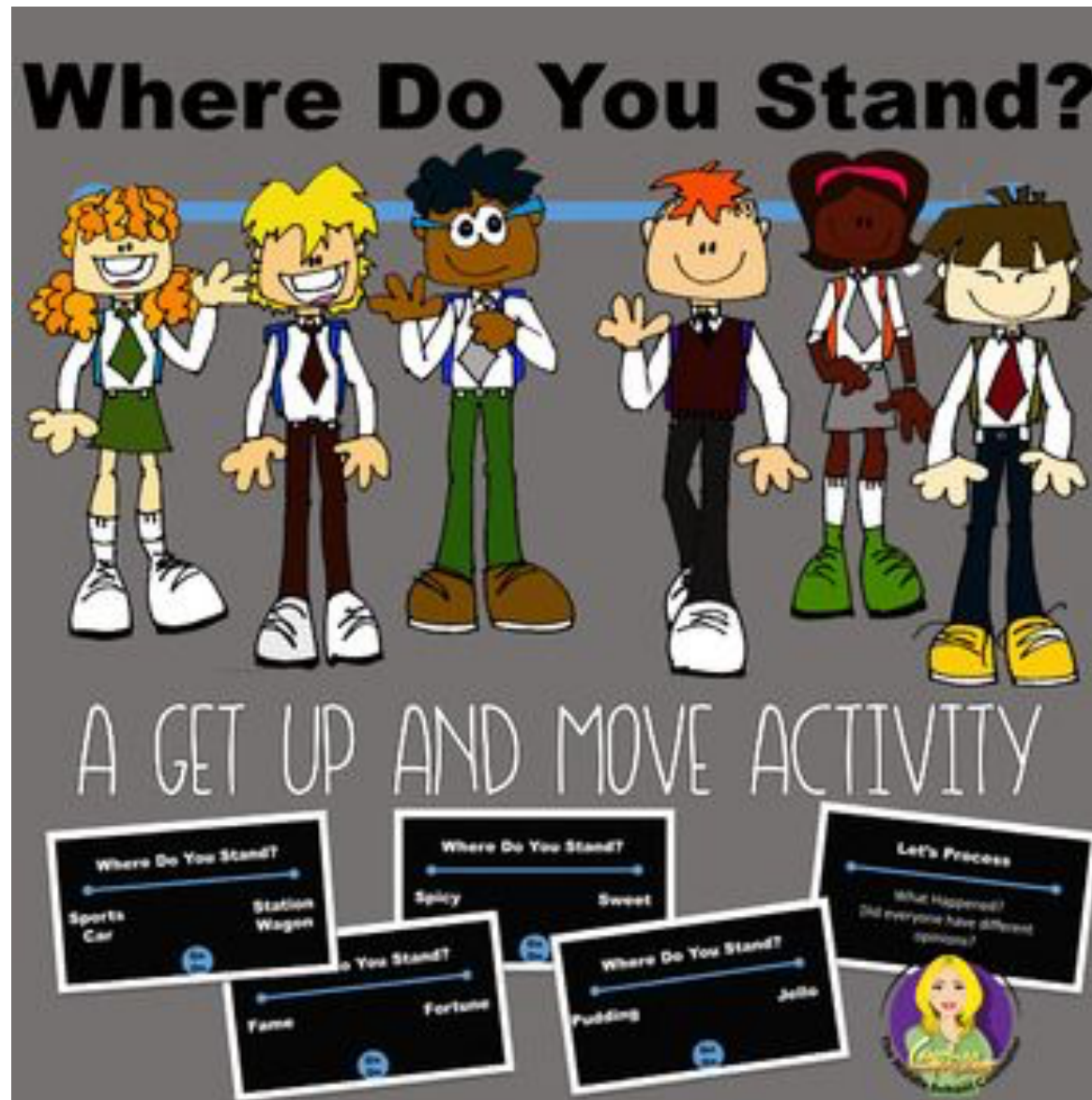
Teaching technique: Concept map

Teaching technique: 3 minutes message

Teaching technique: Stand where you stand

Recap

- Teaching & learning and assessment must align with the level in the taxonomy of action verb

- Think in term of teaching strategy but break it down to teaching technique/activity when plan the syllabus

- Teaching and Learning comes hand in hand with assessment especially the assessment for continuous improvement of teaching and learning

Examples

Example of constructive alignment

Learning Outcomes: *On completion of this module students should be able:*	Assessment Methods	Teaching/Learning Activities
To identify the main signs and symptoms of multiple sclerosis.	Multiple Choice Questions	Lecture on various signs/ symptoms, In class exercises/quizzes on terminology.
To formulate end products using selected ingredients	Poster Display 15% Presentation of end product 85%	Lecture presenting case studies of the design history of some market leaders. Students plan own project and
To develop and identify an area for research in the discipline	1,000 word research proposal	Presentation of examples of research questions, Student discussion groups on research areas.
To demonstrate effective presentational skills	In-class graded presentation	Practices sessions in the class, Peer-assessment, using set criteria, of others in class.

Example of constructive alignment

Title of Module: Evaluating and Reflecting on your Teaching.

Outcomes *On completion of this module you should be able to:*	Assessment *Critically reflective written report containing the following:*	Teaching / Learning Activities
Monitor, evaluate and reflect on your teaching and the learning of your students	Evidence of having completed the prescribed mentoring – observation cycle A reflective statement of personal and professional gains made from the peer	Introductory Group Tutorial – Revision of critical reflection theory (from previous modules). Seminar: Introduction to Peer Observation and the use of a Learning
Use a range of methods to gather student feedback.	Evidence of having received and responded to student feedback A reflective statement of what has been achieved as a result of gathering feedback from students.	Workshop: Methods of Gathering Student Feedback Project: Collecting Student Feedback (using a variety of methods)
Contribute to the debate on the links between research and teaching.	Formatively assessed by tutor comments in forum. (In preparation for formal assessment of this outcome in a future module.)	On line forum