

# THE CIRCLE OF LEARNING

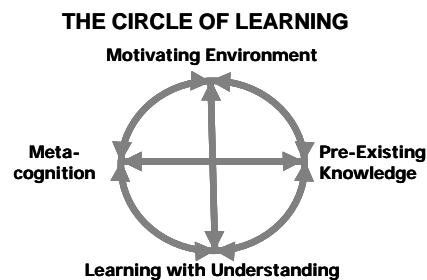
## (An Integration of and Elaboration on the Works of Bransford et al., 2000; Davis, 2001; Fink, 2003; Weimer, 2002; and Mezirow, 2000)

The goal of teaching in ways that are consistent with how people learn is to help learners:

- Develop a deep foundation of knowledge and the skills and attitudes to apply and use it.
- Transfer learning from one context to another and from “classroom” to the “real world”.
- Develop the kind of thinking, problem-solving, and fluency used by “experts.”
- Develop the skills and habits of a life-long learner.
- Transform and be transformed by what is learned.

According to Fink (2003), a significant learning experience is one in which learners are actively engaged, there is a high level of energy, and some significant and lasting change of value to the learner occurs. Applying the following four principles of learning, which are derived from the educational theory and research literature, will help create significant learning experiences and increase the likelihood of successfully accomplishing the goals described above:

- Create an environment that is motivating to learners.
- Explore and build on learners’ pre-existing knowledge.
- Facilitate learning with understanding (versus rote memorization).
- Develop metacognition in learners.



### CREATE AN ENVIRONMENT THAT IS MOTIVATING TO LEARNERS

**Goal:** Maintain & enhance interest that brought students to a learning activity in the first place; encourage students to work, learn and become self-motivated independent learners.

**Description:** Motivation to work and learn is affected by many factors, and motivation differs from learner to learner. Some motivating factors are intrinsic (e.g., desire to succeed) and some are extrinsic (e.g., getting a good grade). Motivation is an internal process. Although we cannot “motivate” per se, we can establish motivating environments.

#### Implications for Teaching:

- Teacher Factors
  - Demonstrate enthusiasm.
  - Establish rapport with learners.
    - Show a genuine interest in learners and what they are learning.
    - Avoid demeaning comments.
    - Express high but realistic expectations for achievement.
    - Make learning and behavioral expectations clear.
    - Let students know how to succeed.
    - Help students feel they are valued members of a learning community.
    - Give frequent early positive feedback that supports learners’ belief that they can do well.

- Information (Content) Factors
  - Demonstrate relevance/value; explain how the knowledge/skill is/will be useful to the learner; generate a “need to know.”
  - Provide well-organized learning activities.
  - Target learning objectives to the proper level, designed to move learners to the next level of understanding.
  - Provide multiple concrete, relevant, and understandable examples.
- Presentation (Delivery) Factors
  - Provide opportunities for students to be actively involved in establishing their own learning objectives, to actively participate, and to interact and share with others (feel connected and valued versus isolated and anonymous).
    - Involve minds through questions, discussion, demonstration, writing.
    - Involve mind-body through hands-on experiences.
    - Involve attitudes, values, and feelings through debates, position papers, ethical and professional discussions.
  - Use a variety of teaching methods (e.g., discussion, group work, lecture); vary stimuli (e.g., video, slides, flip chart, audio).

## **EXPLORE AND BUILD ON LEARNERS’ PRE-EXISTING KNOWLEDGE**

**Goal:** Identify prior knowledge, skills, beliefs, and concepts that will influence what and how learners will learn. Build on these ideas in ways that help learners achieve a more mature understanding.

**Description:** Learners do not come to a learning experience as blank slates. The knowledge they already have will influence what and how they learn, because people construct new knowledge and understanding based on what they already know. If pre-existing knowledge is not addressed, misconceptions may persist or the new information may be learned (memorized) for a test, followed by learner reverting to preconceptions.

### **Implications for Teaching:**

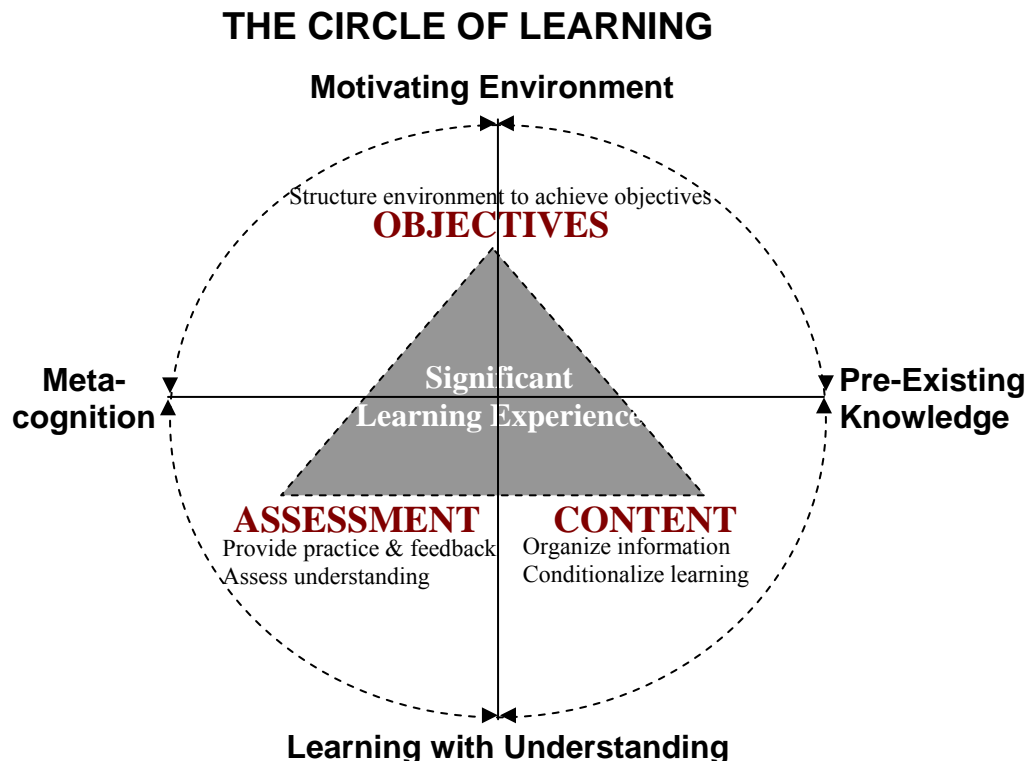
- Build a bridge from what learners already know to next level.
  - Create an environment in which taking a risk and admitting you don’t know is reinforced and where making mistakes is seen as a step in the learning process.
    - Tell learners what it takes to succeed.
    - Avoid sarcasm, put-downs, and belittling remarks.
    - Allow learners time to think before responding.
    - Demonstrate that you really care about learners and what they are learning.
  - Help learners make their thinking “visible.” Ask questions such as:
    - How do you know?
    - What is your evidence for that?
    - What led you to that conclusion?
    - Are you sure?
    - What happens next?
    - How does that relate to x?
    - What are the logical implications?

- Identify current level of knowledge to determine next level.
  - Ask what they know about x or to demonstrate x activity/procedure.
  - Give pre-test.
  - Have them work through problem until they can go no further.
  - Ask questions and get responses (show of hands, colored cards, audience response system, written responses).
  - Use formative assessment techniques (e.g., one-minute paper, muddiest point).
- Make explicit connections between previous and new learning; use analogies.
- Identify and correct misperceptions.
  - Ask how new learning relates to what they already know.
  - Point out common misperceptions and why they are incorrect.

## FACILITATE LEARNING WITH UNDERSTANDING

**Goal:** Develop competence that moves learner from novice to expert. Experts attempt to understand a problem rather than jump immediately to solutions, automatically and fluently retrieve information, see patterns and relationships (recognize “types”), identify discrepancies that are not apparent to novices, quickly identify what is relevant, remember solutions that have worked before, apply major principles or laws applicable to a problem.

**Description:** Learning with understanding, as opposed to rote memorization, means being able to apply, transfer, transform (and be transformed by) knowledge. This requires integrating into the circle of learning the essential elements of learning with understanding, not just in theory but also in practice:



## Implications for Teaching:

### OBJECTIVES

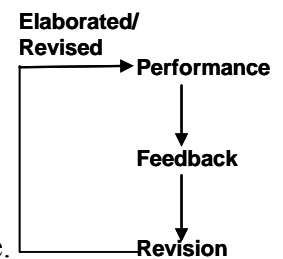
- Structure the environment to achieve objectives.
  - Create learning objectives that go beyond content and include multiple dimensions; identify teaching methods that will best achieve objectives.
  - Consider introducing students to content outside of formal learning environment (reading, case, website, etc.) and using valuable formal learning time together for working with the content in active, sense-making, meaningful ways.
  - Actively involve learners in doing and observing experiences (e.g., debates, role-playing, simulation, dramatization, service learning, authentic project).
  - Provide the time needed for significant learning to occur.
  - Encourage, facilitate, and reinforce openness to alternative points of view, empathy, and concern about how others think and feel.
  - Provide opportunities for interaction—learning is a social activity.

### CONTENT

- Organize information.
  - Organize information around core concepts/principles/prototypes; facilitate in-depth exploration of fewer topics (versus a mile wide and an inch deep).
  - Provide opportunity for information to be learned in the context in which it will be used to improve retention and retrieval.
  - Help learners develop a conceptual framework to organize and connect the information they learn (i.e., concept mapping).
  - Chunk information by underlying function or strategy and provide experiences that specifically enhance their ability to recognize meaningful patterns of information.
- Conditionalize learning.
  - Specify contexts in which application of the learning is useful and appropriate and situations in which it is not; differentiate among similar problems/issues; provide explicit practice applying learning within and across contexts.
  - Use learning strategies such as compare and contrast and “What if…” to help learners contextualize and generalize information.
  - Provide and/or elicit multiple examples both within and across contexts.

### ASSESSMENT

- Provide practice and feedback.
  - Provide opportunity for learners to see models of how experts organize and solve problems in their domains.
  - Provide hands-on experiences (e.g., solve problems, perform skills, do projects).
  - Facilitate guided practice.
  - Facilitate feedback about learner’s understanding, performance, and insight about when, where, and why to apply learning.
  - Help learner develop plan for improvement (revision).
  - Provide opportunity for revised elaborated (improved) performance.
- Assess understanding.
  - Link assessment to objectives and criteria.
  - Provide opportunity for self- and peer-assessment.
  - Assess understanding, performance, and appropriate use in addition to knowledge.
  - Emphasize mastery versus grades.



## DEVELOP METACOGNITION IN LEARNERS

**Goal:** Create self-awareness that leads to improved understanding, transfer of learning, and transformation of learner toward independence and self-regulation (eventually, the teacher's voice should be replaced by the learner's critical reflection and internal dialogue with self).

**Description:** Metacognition refers to people's ability to be aware of and monitor their current levels of mastery and understanding (to know what they know), to predict their performance on various tasks, and to identify what they don't know but need to know.

### Implications for Teaching:

- Consciously incorporate developing metacognitive skills into learning goals.
- Help learners identify criteria for what constitutes high-quality understanding and performance in the context of the domain being studied.
- Encourage/facilitate learners' metacognitive "habit of mind" to:
  - Become aware of their own tacit assumptions and expectations and those of others.
  - Regularly reflect critically on assumptions.
  - Assess the relevance of assumptions for making an interpretation.
  - Validate meaning by assessing reasons.
  - Reflect on limits of their knowledge, the certainty of knowledge, and the criteria for knowing.

Questions such as the following are helpful:

- What led you to that conclusion?
- What are the underlying assumptions?
- What is your evidence?
- How do you know?
- Are you sure?
- What's for and against?
- What are other perspectives on this issue?
- What else could be going on?
- Model criteria-based feedback to self and others.
  - Reflect out loud on your own performance.
  - Provide students the opportunity to self-assess out loud and to assess peers and provide feedback (provides a "reality check" as well as practice).
- Provide learners time, opportunity, and practice to reflect on their own learning and on the learning process.
  - Explicitly ask learners to reflect (e.g., one-minute papers, journals, learning portfolios).
  - Ask learners how they think they did on specific learning activities.
    - What did you think went well (was effective)?
    - What would you do differently next time?
  - Ask learners what they know, how they learned it, and what they still need to learn.
- Help learners develop specific and realistic plans for continued growth and development