

Thumbnails: Learning Theories and Concepts

As you look over these notes and explore a few websites, look out for similarities where concepts overlap or converge, and differences where they diverge or contradict each other. Highlight / annotate them for discussion. Make a note of VALUES and ASSUMPTIONS that underpins these concepts. Do you agree? Are they congruent to the world of higher education as we know it today? Reflection questions are in orange text. Stop and think in response. Make short notes that you can later use in a reflection synthesis.

Bloom's Taxonomy. Benjamin Bloom.

Bloom's taxonomy is a classification system of learning objectives developed by a committee led by Benjamin Bloom that sought to improve curriculum design and exams. The Taxonomy classifies educational objectives as Cognitive, Affective, and Psychomotor. In each category, learning at higher levels follows attainment of skills and knowledge at more basic levels.

Anderson, Krathwohl and others revised the taxonomy in 2001 to essentially switch Synthesis and Evaluation.

- **Cognitive:** Remember, Comprehend, Apply, Analyze, Synthesize, Evaluate (or Evaluation, Synthesis)
- **Affective:** Receive, Respond, Value, Organize (accommodate), Characterize (adopt perspectives)
- **Psychomotor:** Perceive (choose, describe, detect, differentiate, distinguish, identifies, isolates, relates, selects), Sets (readiness to act – begins, explains, moves, proceeds, reacts, shows, states, volunteers), Guided Response (copies, traces, follows, reacts, reproduces, responds), Mechanism or habituation to an action/response, Complex Overt Response or high proficiency and accuracy in completing a complex task, Adaptation or ability to use a learned action and modify to fit different circumstances, Origination or development of new movement patterns to fit new circumstances.

The most common taxonomy we see in teaching-learning discussions is the Cognitive one. Many educators remain unaware of the Affective and Psychomotor taxonomies.

1. What does this tell us about how we have traditionally approached teaching and learning?
2. How can we improve education by considering affective and psychomotor aspects of learning?

Anderson, L.W. (Ed.), Krathwohl, D.R. (Ed.), Airasian, P.W., Cruikshank, K.A., Mayer, R.E., Pintrich, P.R., Raths, J., & Wittrock, M.C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives* (Complete edition). New York: Longman.

Good websites for Bloom's Taxonomy and applications of it to teaching and learning.

- http://ww2.odu.edu/educ/roverbau/Bloom/blooms_taxonomy.htm - a single page with a quick explanation of Bloom's Taxonomy and links to other pages.
- <http://edorigami.wikispaces.com/Bloom%27s+Digital+Taxonomy> - this wikispace has a very good explanation of the different levels of Bloom's Taxonomy and its revisions, and translates it all to application to teaching with digital tools and spaces. But even if you're not thinking of digital aspects of teaching, the explanations of Bloom's taxonomy are super clear.
- <http://www.celt.iastate.edu/teaching/RevisedBlooms1.html> - this website at Iowa State has an interactive model of the different levels of Bloom's taxonomy and downloadable teaching planning resources that help you write learning objectives.
- <http://www.schrockguide.net/bloomin-apps.html> - A representation of all the different levels of Bloom's taxonomy matched to suggestions for using iPad, Google, Android, and web 2.0 apps for teaching and learning. This site also presents Bloom's taxonomy as a set of gear wheels or cogs rather than a hierarchy to move toward the idea that these different cognitive processes are used as needed rather than are dependent on each one in a linear, hierarchical way.

Fink's Taxonomy of Significant Learning

Significant learning ...

1. Learning-centered rather than content-centered.
2. Integrated and transformative – there is significant change in the learner:
 - a. **integrated** into the individual - lasts beyond the end of course
 - b. **transformative** - impacts personal, professional, social, or civic dimensions.
Changes how students perceive, think, feel, or act in real life.
3. Six components:

Foundational Knowledge: Facts, principles, relationships (contents) students must understand and remember.
Complex Application: Physical and/or cognitive engagement in problem solving, decision-making, creative thinking.
Integration: Identifying and connecting different ideas, subjects, perspectives, theories, trends. Interdisciplinary.
Human Dimension: Gaining self-knowledge and how to interact with others.
Caring: Changing perspectives, gaining a sense of values and interests that can be associated with new knowledge.
Learning How To Learn: Metacognitive ability to be a life-long learner.

3. How can you bring in these areas of significant learning into your course design. Consider especially areas 4 – 6.

Fink, L.D. (2003). *Creating significant learning experiences An integrated approach to designing college courses*. San Francisco: Jossey Bass.

Hierarchy of Needs. Abraham Maslow.

The most basic needs (deficiency needs) – physical, security, friendship & love, and esteem must be satisfied to eliminate anxiety, and for the learner to be motivated to focus on secondary or higher level need for self-actualization. It is possible for motivations from different levels of the hierarchy to happen simultaneously, so that different needs can dominate at different times.

Recent research (2011) by Ed Diener of the University of Illinois explored this concept with people from different cultures all over the world. They found that the hierarchy is not fixed – people whose basic needs had not been met reported having met or pursued higher level needs like social relationships and self-actualization.

4. How in your course design and in teaching approach/strategies can you facilitate some of the basic needs for safety, security, self-esteem that would reduce anxieties and instabilities so that students can focus on learning and take risks to explore and construct knowledge?

Maslow, A. (1954). *Motivation and personality*. NY: Harper.

<http://www.simplypsychology.org/maslow.html> - a good website for quick overviews of many psychological theories. This page on Maslow has a good video explaining the theory.

Self-Theories and Learning Goal Orientation. Carol Dweck

People have theories about themselves. Dweck identified two main perceptions:

- Entity or Fixed Mindset – those who see their intelligence as fixed and stable. Therefore they are motivated and will try as long as they feel the task is within their grasp. But they will avoid taking any risks or errors as failure would imply a lack of intelligence. They are therefore performance goal oriented and tend to give up easily or avoid situations they perceive as risky.
- Incremental or Malleable Mindset – those who see their intelligence as unstable and changeable. Therefore they have a more positive orientation to mistakes as points from which they can learn and improve. They therefore like challenges and are more mastery-goal oriented and willing to take risks. Dweck calls this the learning mindset.

5. What can we do in the way we design our courses and assessment strategies to help students with entity mindsets feel safer about trying, taking risks in learning, and learning from errors?

Dweck, C. S. (2006). *Mindset: The new psychology of success*. NY: Random House.

Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia: Psychology Press.

Developmental Stages. Jean Piaget

Knowledge is not transmitted, but constructed in different developmental stages. We build knowledge and make sense of our world through a sequence of cognitive developmental steps or stages. Piaget explained the construction of knowledge as a process of equilibration moving from assimilation to accommodation.

6. Learning, or the construction of new knowledge, happens through accommodation. But, this means being in an unstable state of cognitive dissonance. What strategies can you use to counter-balance this sense of disequilibrium so that students (especially those with a fixed mindset—see above, Dweck's theory), can approach learning optimally?

Ginsburg, H. P. & Oppen, S. (1987) Piaget's theory of intellectual development. (3rd. Edition). NY: Prentice-Hall.

The Equilibration of Cognitive Structures: The Central Problem of Intellectual Development (Chicago: University of Chicago Press, 1985) [*L'équilibration des structures cognitives* (1975), previously translated as *The development of thought: Equilibration of cognitive structures* (1977)].

<http://www.learningandteaching.info/learning/piaget.htm> - a comprehensive but succinct account of the different developmental stages.

http://education.purduecal.edu/Vockell/EdPsyBook/Edpsy4/edpsy4_piaget.htm - explanation of Piaget's theory.

Social Constructivism. Lev Vygotsky

Language/Culture is critical in cognitive development and therefore social interactions are essential in constructing knowledge; knowledge is co-constructed with others. Vygotsky developed the idea of the Zone of Proximal Development (ZPD) which is the zone of potential growth, where the learner needs the interaction and facilitation of a More Knowledgeable Other, who scaffolds experience to make learning possible.

7. Consider the connection between the process of accommodation and Vygotsky's idea of the ZPD. The ZPD is the area outside of current ability or knowledge. That is, entering the ZPD puts one in disequilibrium. To restore equilibrium, one must develop new knowledge structures or skills to accommodate the new experience/abilities. What is the role of scaffolding in this process? How does scaffolding help a learner navigate through the cognitive dissonance of not knowing that is necessary to any learning process?
8. Where in your course design would you most need to pay attention to how you scaffold learning?
9. What kind of scaffolding strategies can you use in planning your teaching?

Vygotsky, L. (1978). *Mind in Society*. London: Harvard University Press.

Flow and Engagement. Mihaly Csikszentmihalyi.

Flow is the condition of being fully engaged in an activity. Optimal experience.

Flow conditions:

- Clear and specific goals (direction and specificity)
- Immediate and constant feedback.
- Balance between perceived difficulty and perceived skills/competence

Flow experience:

- Total concentration, fully focused and immersed in the task
- A sense of control while also open to experience – control seems automatic.
- Lose of consciousness of self
- Shift in experience or perceptions of time – time slows or speeds up
- Enjoys experience for its own sake – autotelic experience

10. Have you ever had a flow experience as a researcher/scholar, teacher, or learner? Can you identify the ways in which the flow conditions were met?
11. As an educator, what might you need to do in designing your teaching so that you can approach facilitating flow experiences for your students? Consider strategies for making learning goals clear and specific to students, feedback methods, activities that would help balance perceptions of competence and task difficulty.

Csikszentmihályi, M. (1996), *Creativity: Flow and the psychology of discovery and invention*, NY: Harper.
Csikszentmihályi, M. (1996), *Finding flow: The psychology of engagement with everyday life*. NY: Basic Books.

Perry's Scheme of Intellectual Development. William Perry

William Perry came up with his 9-position scheme of intellectual development based on his famous study of Harvard undergraduates in the 1950s. He described the developmental pattern of students as moving in a continuum across 9 positions vis-à-vis knowledge and knowing. These positions go from the extreme dualist view of right vs. wrong, to a committed relativistic view of having a perspective that is open to being re-framed as one experiences new ideas and knowledge.

12. How would understanding Perry's scheme of intellectual development help you plan your teaching strategies for different levels of students?
13. To what extent can understanding Perry's scheme of intellectual development help you understand your students' responses to learning?

Perry, W. G. (1970). *Forms of intellectual and ethical development in the college years: A scheme*. New York: Holt, Rinehart, and Winston.

Moore, W. S. (1994). The Perry schema. In K. W. Prichard & R. M. Sawyer (Eds.), *Handbook of college teaching*. Westport, Connecticut: Greenwood Press.

Perry, W.G. (1999). *Forms of Ethical and Intellectual Development in the College Years*. San Francisco: Jossey-Bass Publishers.

Self-determination theory. Edward Deci & Richard Ryan. 2000.

SDT focuses on the interaction between external factors that impact us and intrinsic drives and motivations toward action. It also focuses on how social and cultural factors affect our sense of agency and motivation, primarily looking at our experiences and sense of autonomy, competence, and relatedness. How we experience these three factors determines our volition, motivation, and engagement with anything.

14. Many of our students have been school and/or socialized into being more extrinsically motivated. To what extent can we create teaching-learning processes that help them move further along the continuum toward intrinsic motivation?

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

<http://www.selfdeterminationtheory.org/theory>

Discovery Learning. Jerome Bruner.

Students are active learners who construct knowledge by discovering, organizing and categorizing information. Education aims not to impart knowledge but to facilitate thinking and problem solving abilities, and the application of skills to new situations. Rather than only be concerned with matching developmental stages of readiness – “We begin with the hypothesis that any subject can be taught effectively in some intellectually honest form to any child at any stage of development” (Bruner, 1960; p. 33). This is done through a **spiral curriculum** – information structure to introduce more and more complexity in levels of gradually increasing difficulty.

Bruner, J. (1960). *The Process of Education*. Cambridge, Mass.: Harvard University Press.

Bruner, J. S. (1961). The act of discovery. *Harvard Educational Review*, 31, 21-32

Bruner, J. (1966). *Toward a theory of instruction*. Harvard University Press.

Experiential Learning. David Kolb.

Learning works in an iterative spiral, moving from concrete experience, to observation and reflection of the experience, to the formation of abstract thoughts or ideas based on the reflection (mental models), to testing the new ideas. There are two continuums of learning:

- Active experimentation – Reflective observation
- Abstract conceptualization – Concrete Experience.

This gives 4 learning types:

- Converger (Active experimentation + abstract conceptualization)
- Accommodator (active experimentation + concrete experience)
- Assimilator (reflective observation + Abstract conceptualization)
- Diverger (reflective observation – concrete experience)

Kolb, D. A. and Fry, R. (1975) Toward an applied theory of experiential learning. in C. Cooper (ed.), *Theories of Group Process*, London: John Wiley.

Single and Double Loop Learning. Chris Argyris. Donald Schon

Single Loop learning is where we solve a problem using information we know and either succeed or fail, but where the outcomes do not make us question our fundamental assumptions and goals.

Double Loop Learning is reflective. In trying to reach a goal or solve a problem, the outcomes make us reflect on and question our assumptions, goals, and beliefs. This might lead to shifts in these areas and re-setting norms and goals. In double-loop learning, we break habituated thinking and actions and go beyond familiar norms.

Argyris, C & Schon, D. (1978). *Organizational Learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Argyris, C. (1982). *Reasoning, learning and action. Individual and organizational*. San Francisco: Jossey-Bass.

Websites for Learning Theories

<http://www.learning-theories.com/>

An index of learning theories. Each theory is described briefly, with key principles and terms explained. Good references for follow up reading. Also has quick descriptions of the main paradigms of behaviorism, cognitivism, constructivism, and humanism.

Smith, M. K. (2003) 'Learning theory', *the encyclopedia of informal education*, www.infed.org/biblio/b-learn.htm.

Good overview and explanations of different learning theories. Smith keeps this pretty well updated. Part of Infed – the Encyclopedia of Informal Education.

<http://www.instructionaldesign.org/theories/index.html>

If you want to really get into different learning and motivation theories this website is great. It's got all the main theories and then some – from Algo-Heuristic theory and adult learning theory to Modes of Learning, Multiple Intelligences, and Social Learning Theory and Transformational theory. Each theory is briefly presented, with applications, examples, principles, and further links and readings.

<http://www.learning-knowledge.com/index.html> -

A very useful site with good information on learning, learning theories, good links to other learning theories sites. Interesting personal motivation for this site:

When I was going to school I often asked myself; what is it all for? Now that I am 62 years old I ask myself again; what was it all for? It is not an easy question to answer, for most of what I had so called 'learned', I had no use for in my life, and have forgotten. At school I was one of the students who enjoyed learning school work. So now I can not help but wonder, if I who enjoyed school work, have lost and not retained so much, what of the experience of those who disliked school work? I seem to remember they were the vast majority, and us nerds were the minority. The answers I believe are determined by the answer to a single question. Did they retain it and was it useful and influential in their lives? For most of them, the answer is most assuredly no. So again what was it all for?