# Learning Theory Matrix

1. [How does learning occur?](#) (Q1)

2. [What factors influence learning?](#) (Q2)

3. [What is the role of memory?](#) (Q3)

4. [How does transfer occur?](#) (Q4)

5. [What types of learning are best explained by this theory?](#) (Q5)

# Learning Theory Matrix

| Q1 | Behaviorist Theory | Cognitive Theory | Constructivist Theory | Social Learning Theory | Connectivism | Adult Learning |
|---|---|---|---|---|---|---|
| **How does learning occur?** | Proper response is demonstrated following the presentation of a specific stimulus. The focus is to maintain and strengthen the relationship between the stimulus and response. "The learner is reactive in the environment." (Ertmer & Newby, 1993, p. 55)<br><br>Promotion of desirable behavior and discouragement of non desirable behaviors. Behavior can be learned, it can also be unlearned and relearned (Standridge, 2002) | Learning is about what learners know and how they gain it (Jonassen as cited in Ertmer & Newby, 1993)<br><br>"Learning is an active process where meaning and understanding built from experiences" (Wildman & Burton, 1981, p. 6)<br><br>The learner is very active in the learning process (Ertmer & Newby, 1993) | Learning happens by creating a meaning from experience ( Bednar as cited in Ertmer & Newby, 1993).<br><br>What the learner knows is based on his/her own experience. Learners strive to know, so the experiences should be examined as it is in constant change (Ertmer & Newby, 1993) | Learning is a social process. Learning occur when each learner is engaged in social activities. Knowledge is culturally and socially constructed (Kim, 2001)<br><br>People learn from one another, using modeling, observation, and imitation ([Learning-Theories.com, n.d.](#)) | Through connections in networks (Davis, Edmunds & Kelly-Bateman, 2008) | The learner is involved and takes responsibility of his/her learning process. The learner self-reflect, gathers information, collaborates with others and is self-directed. (Conlan, Grabowski & Smith, 2003) Adopting a multiple perspective in learning; putting the theory into practice (Foely, 2004)<br><br>The need to create change in skills, knowledge levels and attitudes about things. ([Russell, 2006](#)) |

## Learning Theory Matrix

| Q2 | Behaviorist Theory | Cognitive Theory | Constructivist Theory | Social Learning Theory | Connectivism | Adult Learning |
|---|---|---|---|---|---|---|
| **What factors influence learning?** | Environmental conditions, the use of assessment and reinforcements and the arrangement of stimuli and consequences (Ertmer & Newby, 1993). Positive and negative reinforcements; extinction and punishments (Standridge, 2002) | Environmental conditions; instructional explanations which should be built on the learners attitude, previous experiences and beliefs (Ertmer & Newby, 1993). "Meaningfulness, elaboration, organization and links to schema structure" (Ormord, Schunk, & Gredler, 2009) | Both the learner and the environment influence learner. The content must be embedded in the situation. Real settings and the tasks are relevant to the learner's experience (Ertmer & Newby, 1993) | Learners learn through social interactions with more knowledgeable learners. Collaboration with other learners through community of practice. (Kim, 2001) | Developing connections between ideas, concepts and fields; and working with others and stay current (Davis et al, 2008) | Past life and work experiences, and previous knowledge and learning experiences. Learning could be because of a life-changing event. (Conlan, Grabowski & Smith, 2003).<br><br>Motivation, the level of engagement in the learning process, and how the learning is applied (Russell, 2006) |

# Learning Theory Matrix

| Q3 | Behaviorist Theory | Cognitive Theory | Constructivist Theory | Social Learning Theory | Connectivism | Adult Learning |
|---|---|---|---|---|---|---|
| **What is the role of memory?** | Memory is not typically addressed by behaviorists (Ertmer & Newby, 1993) The mind is a "*black box*" the response to stimulus can be observed quantitatively" (Mergel, 1993) | Memory is very important for the learning process. Information is organized in the memory in a meaningful way to facilitate the retrieval of the information (Ertmer & Newby, 1993) The information is received in memory through networks that links to other information in memory; information could be stored in the short-term memory (STM), or transferred to the long-term (LTM) memory or it get lost (Ormord, Schunk, & Gredler, 2009) | The memory is always under construction. The learner does not recall data but utilize the pre-existing knowledge (Ertmer & Newby, 1993) | As this theory is described as a bridge between behaviorist and cognitive theories, memory is a key in retaining and encoding information. Information is based on observation ([Learning-Theories.com, n.d.](#)) | It is used to identify adaptive patterns; it is descriptive of the present state in networks. (Siemens, 2006; [Giesbrecht](#), 2007) | Information is most likely remembered when learning is based on the application exercises and discussions. ([Russell, 2006](#)) I remember information by researching and relating it to my life. |

Prepared by Dalia Hanna, Manager, Teaching and Learning

# Learning Theory Matrix

| Q4 | Behaviorist Theory | Cognitive Theory | Constructivist Theory | Social Learning Theory | Connectivism | Adult Learning |
|---|---|---|---|---|---|---|
| **How does transfer occur?** | "Transfer is a result of generalization" (Ertmer & Newby, 1993, p. 56) | When information is spread through the memory in which it is linked to other information or recalled (Ormord, et al, 2009) | Learning takes place in a context without the use of set tools. The transfer occur when the learner is engaged in the use of the tools in real world situations (Ertmer & Newby, 1993) | Learning happens through effective modeling starting with attention, retention, reproduction and motivation ([Learning-Theories.com, n.d.](#)) | By linking to the sources of knowledge (Siemens, 2006) so it is based on the connections in a network and the nodes (Davis et al, 2008) | *Acquisition:* understand knowledge *Reflection*: construct knowledge and create new meanings *Practice-based*: practice meaningful activities *Co-emergent*: learn through relationships (Foley, 2004) |

# Learning Theory Matrix

| Q5 | Behaviorist Theory | Cognitive Theory | Constructivist Theory | Social Learning Theory | Connectivism | Adult Learning |
|---|---|---|---|---|---|---|
| **What types of learning are best explained by this theory?** | Instructional cues, practice and reinforcement (Ertmer & Newby, 1993) Helps in determining goals and outcomes (instructional objectives) (Laureate Education Inc., 2009) | Communicate information to the student efficiently and effectively by using simplification and standardization (Ertmer & Newby, 1993) Teaching the learners how to learn. In problem solving: how to encode the problem, retrieve related information from LTM. Metacognition: self-regulated, self motivated, check comprehension and self-imposed learners (Laureate Education Inc., 2009) | Learning is for the advanced learner who can deal will unstructured and complex problems (Ertmer & Newby, 1993) | Problem-based learning, shared teaching, peer collaboration and learning with others (Schunk as cited in Kim, 2001) | Complex learning; based on abundant information and use of technology in complex environments (Laureate Education Inc., 2009) | Social education.  Courses to be designed "with more student choice, open-ended projects, experientially based assignments and interactive materials" (Foley, 2004, p.195) |

# Learning Theory Matrix

**References:**

Conlan, J., Grabowski, S., & Smith, K. (2003). Adult learning. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and*

   *technology.* Retrieved from http://projects.coe.uga.edu/epltt/index.php?title=Adult_Learning

Davis, C., Edmunds, E., & Kelly-Bateman, V. (2008). Connectivism. In M. Orey (Ed.), *Emerging perspectives on learning, teaching,*

   *and technology.* Retrieved from http://projects.coe.uga.edu/epltt/index.php?title=Connectivism

Ertmer, P.A. & Newby, T. J.  (1993). Behaviorism, Cognitivism, Constructivism: Comparing Critical Features from an

   Instructional Design Perspective. *Performance Improvement Quarterly, 6*(4).

Foley, G. (Ed.). (2004). *Dimensions of adult learning: Adult education and training in a global era*. McGraw-Hill Education.

Giesbrecht, N. (2007). *Connectivism: Teaching and learning*. Retrieved December 18, 2011 from

   http://sites.wiki.ubc.ca/etec510/Connectivism:_Teaching_and_Learning

Kim, B. (2001). Social constructivism. In M. Orey (Ed.), *Emerging perspectives on learning, teaching, and technology*. Retrieved

   from http://projects.coe.uga.edu/epltt/index.php?title=Social_Constructivism

Laureate Education Inc. (2009). *Behaviorism and instructional design*. [Transcript]. Baltimore, MD: Ormord

Laureate Education Inc. (2009). *Information processing and problem solving*. [Transcript]. Baltimore, MD: Ormord

Laureate Education Inc. (2009). *Connectivism*. [Transcript]. Baltimore, MD: Siemens

## Learning Theory Matrix

Learning-Theories.com (n.d.). *Social learning theories (Bandura)*. Retrieved from http://www.learning-theories.com/social-learning-theory-bandura.html

Mergel, B. (1993). *Instructional design and learning theory*. Retrieved from

http://www.usask.ca/education/coursework/802papers/mergel/brenda.htm

Ormrod, J., Schunk, D., & Gredler, M. (2009). *Learning theories and instruction* (Laureate custom edition). New York: Pearson.

Russell, S. S. (2006). *An overview of adult learning processes: Adult-learning principles*. Retrieved December 18, 2011 from

http://www.medscape.com/viewarticle/547417_2

Seimens, G. (2006). Connectivism: Learning theory or pastime of the self-amused?. Retrieved from

www.elearnspace.org/Articles/Connectivism_response.doc

Wildman, T. M., & Burton, J. K. (1989). *Integrating learning theory with instructional design*. Journal of Instructional

Development, 4(3), 5-14. Retrieved from: http://www.springerlink.com/content/5781767116m5h001/fulltext.pdf