The readings that we had for the past two weeks all revolve around learning and cognition and the different theories that explain the way humans learn and obtain knowledge. At the end, as a learner I feel that all three theories of learning, behaviorist, situative, and cognitive approaches, are complimentary and that learning happens by all three means but it depends on the setting and the situation which impose any of the three methods. I would like to focus my discussion of the readings on three themes that I found to be interesting in my field of study and work.

**Experts v/s novices**

Not only does an experts’ level of knowledge differ from a novice’s level of knowledge, but the function of their schemata differs as well. Instructional design for both levels of expertise needs to be taken into consideration while developing a tool. I like Greeno et al.’s (1996) description of knowledge, learning and transfer and motivation from behavioristic, cognitive, and situative perspectives. In designing a tool for novices, it is important to take into consideration the “decomposition hypothesis” mentioned in Greeno et al. which refers to the presentation of simple to more complex tasks to the learner where associations are built along the way in order for the learner to reach the desired outcome. Those associations are developed by a stimulus/response process which leads to the strengthening and adjustment of those associations which make up the learner’s schemata in a certain area of knowledge. A learning tool that is developed for novices may include a reward system every time the learner achieves the desired outcome. This reward system could be a more advanced task until the learner reaches the final task which could be the most complex. Bransford et al (2000) provide a great explanation and several examples on the learning process of experts and novices. However, one striking fact they mention is that novices’ knowledge depends on memorization and that’s why, they’re unable to notice new knowledge that they are exposed to and they cannot apply existing knowledge in new situations. In sum, novices take baby steps in order to become experts. If novices want to move from the periphery to the central of knowledge, a more cognitive, and situative method is required.

The difference between novices’ and experts’ schemata is the way the latter functions. According to Bransford et al (2000) experts possess schemata that can help them identify knowledge related to the schemata easily, they possess organized schemata that show deep understanding of a topic, and they can apply their knowledge in different situations. Rumelhart (1980) compares schemata to theories and procedures where they can represent our understanding of the nature of events, situations, and objects, and they can represent computational devices that function depending on situations. Experts possess this type if schemata that is active rather than passive such as in novices. In developing tools for novices, those schemata should be put in action. Using the knowledge that an expert possesses, he/she can possess higher levels of problem solving skills.

**Learning and transfer**

Transfer of knowledge is necessary for the development of knowledge in new situations. For transfer to occur, an existing schema that has been acquired in the past should be part of the process (Rumelhart, 1980). Greeno et al explain transfer from 3 perspectives: behaviorist, cognitive, and situative. From all three perspectives, transfer happens when a schema is well formed in initial learning i.e. the learner has a strong image of a previous experience that he/she could remember in a new situations. I believe that memory plays an important role too in transferring learning. A learner who does not remember previous learning may not have a tool to build on new knowledge. However, Bransford et al (2000) elaborate that learning may result in effective memory but poor transfer. They give a description of what effective transfer looks like. They mentioned that transfer needs to be active rather than passive and initial learning shouldn’t be much contextualized but rather abstract. Bransford et al also explain that new learning is always based on old learning and therefore these existing schemata should be the guide for designing instruction.

**Cognition and Technology**

In instructional design, the instructional designer (ID) analyzes his/her learners looking for information about their prior knowledge, their needs, and to figure out if there is a problem to find a solution or develop an opportunity for them to strengthen and modify their existing knowledge. As I mentioned previously in the first theme addressed above, in designing instruction for a particular group of learners, the ID needs to be aware of the instructional methods and activities that he/she should develop in order to reach the novices and the experts. All in all, the ID should be aware of the learners’ existing schemata and build on it in order for constructive learning to take place. Also the ID should be able to design learning that is not very contextualized so that the learner can transfer the learning to other situations.