



From Learn To Do: Cognition and Learning

by Esther Muller and Michael Williams, Ph.D.



Did the learning goals of your education include learning to predict outcomes, diagnose situations, or influence others? Perhaps these skills were components of the learning goals, but not the primary focus of the teaching and learning. Reflecting on how your schooling prepared you to live the life you chose, which subjects and experiences have enabled you? Many adults respond with “I’m not sure.” Or, “Organic chemistry hasn’t helped me personally or professionally, but learning how to negotiate for a better grade with my teacher enabled me to be a more successful entrepreneur.”

Central to learning is acquiring the cognitive processes enabling us to think critically in order to act effectively. Over our lifetimes of learning, we use many cognitive processes that help us survive, grow, and sustain.

Today, the public is pummeled by reports claiming our education systems are dysfunctional; unable to help students develop the cognitive processes necessary to successfully live and work in the 21st century knowledge age. If these claims are true, a common conclusion is that students and our nation will experience significant social, economic, and cultural consequences. Moreover, if true, can we counteract education’s dysfunctionality with new teaching and learning strategies?

Dr. Roger Schank, founder of the Institute for the Learning Sciences and John P. Evans Professor Emeritus in Computer Science, Education, and Psychology at Northwestern University believes education’s dysfunctionality can be counteracted through new ways of teaching and learning. In his book *Teaching Minds: How Cognitive Science Can Save Our Schools*, Dr. Schank provides strategies and actions for reforming our education systems, as well as educating ourselves. His recommendations are as radical as they are simple, straightforward, and practical. Dr. Schank focuses on teaching processes and skills associated with students’ interests. To enable new ways of teaching, teachers and mentors must be aware of the twelve cognitive processes that underlie learning. Dr. Schank writes “Learning is not any one process, but many processes, depending on what you are learning.” He continues “If we wish to teach people, it is important to ask what capabilities we want them to have when we are done, not what we want them to know. Dr. Schank concludes “We need to understand what we have to do in order to make them do better.”

What do you need to understand or learn in order to make you do better? Consider the twelve cognitive processes.

Thinking As Process

The twelve cognitive processes are divided into three categories: conceptual, analytic, and social. Schank offers “thinking is a pro-

cess. It is something we do. We need to see what the doing is like.” When learning a skill we need to identify the associated thinking processes.” Are you focused on understanding how the thinking processes can be categorized and used allowing you to understand what we have to do in order to make you do better?”

The 12 Cognitive Processes

The 12 cognitive processes reside within the three cognitive categories underlying learning. Listing and providing examples of all 12 cognitive processes exceeds the scope of this article. Instead, here are representative samples from each category with associated key concepts concerning their importance to learning to learn.

Conceptual - Modeling: Building a conscious model of a process— Building a conscience model of a process matters a great deal if you want the process to work for you. Designing it, modifying it, and participating in simulations of it work much better as learning methods.

Analytic - Diagnosis: Making a diagnosis of a complex situation by identifying relevant factors and seeking causal explanations— Diagnosis is a matter of both reasoning from evidence and understanding what to look for to gather evidence. Diagnosis is about process; determining evidence, and forming and testing hypothesis. Possessing expert knowledge and diagnostic experience relative to increasingly complex situations fosters analytic ability.

Social - Negotiation: Making a deal; negotiation/contracts— Contracting is fundamental to how we function. Learning to contract with others is a critical life and work skill. Learning to negotiate is learned by doing; succeeding and failing.

Coaching and Cognition

Learning to do the 12 cognitive processes requires receptivity to new ways of thinking about teaching and learning. Moreover, the doing requires practice. Dr. Schank offers “All these processes require practice in order to master them. You cannot learn to master a process without practicing it again and again. Feedback and coaching help one learn.”

To learn to do; we must do the learning.

A coach can enable your learning. Learn, do, thrive. ■

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