

**Class 10, 6/9/04**

Attendance		10
5D Chapters 9 - 21 from Class Plans		40
Break		10
Places to Intervene	discussion	20
Bathtub Dynamics, Cloudy Skies	Overhead projection & discussion	25
Break		10
Team presentations?		45
Reflection papers	discussion	10
		170

**5D. Chapter 20: Rewriting the Code**

- Two types of complexity
  - ♦ detail complexity ... [lots of data and possibly] many variables
  - ♦ dynamic complexity ... “cause and effect” are not close in time and space and obvious interventions do not produced expected outcomes.
- ...one of the subtler lessons of the systems perspective is that this enormous detail complexity renders all rational explanations inherently incomplete. Human systems are infinitely complex. “You can never figure it out,” ... because it’s “un-figure-out-able.” Nonetheless, we *can* enhance our mastery of complexity.
- ... there is an aspect of our minds that deals quite well with detail complexity — in fact, which is designed for the task. ... “the subconscious” ... automatic mind or “tacit knowledge.”
- In fact, all learning involves an interplay of the conscious mind and the subconscious that results in training the subconscious. ... we practiced ... and more of the task is “taken over” by the subconscious ... This frees our conscious mind (with its limited information processing ability) to focus on the next stage of learning.
- ... language programs the subconscious. ... language appears not so much to affect the *content* of the subconscious but the way the subconscious *organizes and structures* the content it holds.
- If all we have is a linear language, then we think in linear ways, and we perceive the world linearly — that is, as a chain of events.
- ... if we begin to master a systemic language, ... the subconscious is subtly retrained to structure data in circles instead of straight lines. ... we become ... “looped for life.”
- Charles Kiefer: “When this switch is thrown subconsciously, you become a systems thinking ever thereafter. Reality is automatically seen

systemically as well as linearly (there are still lots of problems for which a linear perspective is perfectly adequate). Alternatives that are impossible to see linearly are surfaced by the subconscious as proposed solutions. Solutions that were outside our ‘feasible set’ become part of our feasible set. **‘Systemic’ become a way of thinking (almost a way of being) and not just a problem solving methodology.**”

- This is why practice is so important. For any meaningful interplay of conscious and subconscious, practice is essential.
- Yet today the primary threats to our collective survival are slow, gradual developments arising from processes that are complex both in detail and in dynamics.
- The spread of nuclear arms is not an event, nor is the “greenhouse effect,” the depletion of the ozone layer, malnutrition and underdevelopment in the Third World, the economic cycles that determine our quality of life, and most of the other large-scale problems in our world.
- Learning organizations themselves may be a form of leverage on the complex system of human endeavors.
- Given the influence of organizations in today’s world, this may be one of the most powerful steps toward helping us “rewrite the code,” altering not just what we think but our predominant *ways of thinking*.
- In this sense, learning organizations may be a tool not just for the evolution of organizations, but for the evolution of intelligence.

## **5D. Chapter 21: The Indivisible Whole**

- Floating in space, Rusty [Schweickart] discovered the first principles of systems thinking. But he discovered them in a way that few of us ever do — not at a rational or intellectual level but at a level of *direct experience*. The earth is an indivisible whole, just as each of us is an indivisible whole.
- Nature (and that includes us) is not made up of parts within wholes. It is made up of wholes within wholes.
- All the boundaries, national boundaries included, are fundamentally arbitrary. We invent them and then, ironically, we find ourselves trapped within them.
- Something new is happening. And it has to do with *it all* — the whole.