What is Systemic Thinking?

Please read this several days before you attend the UCD Course in Systemic Thinking

Systemic Thinking (ST) offers you a powerful new perspective, a specialized language, and a set of tools that you can use to better understand and address stubborn recurring problems in your everyday work and life. ST is a way of understanding reality that emphasizes the relationships between a system’s parts, rather than the parts themselves. Based on a field of study known as systems dynamics, ST has practical every day application that rests on a solid theoretical foundation.

Why is Systemic Thinking Important? ST can help you design smart, enduring solutions to everyday problems. In its simplest sense, ST gives you a more complete picture of reality so you can work with a system’s natural forces in order to achieve the results you seek. ST also encourages you to think about problems and solutions with an eye toward the long view. For example, how might a particular solution you are considering play out over the long term? What unintended consequences might it have? Finally, ST is founded on some basic universal principles/patterns that you will begin to detect in all aspects of life once you learn to look for and recognize them.

What exactly is a system? A system is a group of interacting, interrelated, and interdependent parts that form a complex and unified whole. Systems are everywhere. Some examples are: the HR Dept in every organization, the circulatory system in our bodies, the predator/prey relationships in nature, the ignition system in our cars, and the parking system at UCD.

Ecological systems and human social systems are “living” systems; man-made systems such as cars and washing machines are “nonliving” systems. Systemic thinkers focus most attention on living systems; especially human social systems. Process and design engineers tend to focus more on nonliving systems. Increasingly we are called up on to consider how human social systems affect the larger ecological systems of our planet; thus our lives and the lives of future generations.

System Characteristics:

1) Each system has a purpose within a larger system. The electrical system in a car exists to serve the purposes of the larger vehicle. It goes with the car, and exists to serve the car. University organizations exist to serve the larger University, not the opposite.

2) All of the system’s parts must be present for the system to carry out its purpose optimally. Student Organization systems consist of people, equipment, and processes. If you removed any one of these elements, the system could no longer function properly.

3) A system’s parts must be arranged in a specific way for the system to carry out its purpose. If you rearranged reporting relationships in your dept. so that the head of the department reported to the newest entry level person, the department would likely have a hard time carrying out its purpose effectively.

4) Systems change in response to feedback. The concept of feedback plays a central role in ST. Feedback is information that returns to its source such that it influences subsequent actions. For example if you turn too sharply while rounding a curve. Visual cues (that infernal mailbox) loom into view, and remind you that you are turning too sharply. Given this feedback you jerk back to a safer course; feedback in action!

5) Systems maintain their stability by making adjustments based on feedback. Example: Your body maintains its temperature about 98 to 99 degrees. If you get too warm, or too cold, your internal systems react to bring you back to that range.
Systemic Thinking as a Perspective: Events, Patterns, or Systems? ST is a perspective because it helps us see the events and patterns in our lives in a new light, and respond to them in new more effective systemic ways. For example; suppose a fire breaks out in your town. This is an event. If you respond by putting out the fire, you’re reacting. [That is, you’ve done nothing to prevent new fires]. If you respond by extinguishing the fire, and studying where fires occur, you would be paying attention to patterns of events. You might notice that fires occur in certain areas of town and install a new fire station. You would be adapting, and coping but you still haven’t done anything to prevent new fires.

Now suppose you look at the deeper systems – such as smoke detectors, fire suppression systems, building materials used, and types of heat sources involved in the ignition of fires. Next, you upgrade building codes to incorporate what you’ve learned. Now you are doing something to prevent fires.

This is why looking at the world through a ST perspective is so powerful. It helps you actually make the world a better place. We have to focus on events, patterns, AND the underlying systems to bring about sustainable change.

Systemic Thinking as a Specialized Language As a language, ST has elements that help you communicate with others about the many systems around and within us:

a) It emphasizes the “whole” - rather than the parts, and stresses the role of interconnection-including the role we each play in the systems at work in our lives.

b) It emphasizes circular feedback [ for example A leads to B , which leads to C , which leads back to A ] rather than linear cause and effect [ A leads to B , which leads to C , which leads to D – never comes back to A ] etc.

c) It contains special terminology that describes system behavior, such as reinforcing forces [which build and build] and balancing forces [a feedback which returns things to stability-limiting change].

Systemic Thinking as a set of Tools The field of ST has generated a broad array of tools that let you 1) graphically depict your understanding of a systems structure and behavior 2) communicate with others about your understanding, and 3) design high-leverage interventions for poor system performance.

These tools include: a) Causal Loop Diagrams, b) Behavior Over Time Graphs, c) Connection Circles, d) Stock and Flow Diagrams, and e) Systems Archetypes, all of which promote shared understanding and effective intervention. At the most sophisticated level, systems “flight simulators” help you test the potential impact of proposed interventions.

Whether you consider systems thinking mostly a new perspective, a special language, or a set of tools depends on your level of maturity with the subject. ST has a power and a potential that, once you’ve been introduced, is hard to resist. The more you learn about this intriguing field, the more you will want to know!

Let’s have Fun ... and Learn! ST is a very complex subject. There is not enough time in a one day course to master ST. Some tend to be naturals at this, and many may already have a basic understanding; so we might be at different starting levels. There will be enough time to frame and explore the basics, do some fun group exercises to demonstrate concepts, and tell you how to go deeper.

I hope you find this day fun, informative, and useful in your daily lives. I look forward to meeting and working with you!

Sincerely, Herb Wimmer