



## Being a Systems Thinker

What exactly do we see when we look at a forest? We see trees, certainly, as well as other plants, soil, water, birds, animals and often much more. If we placed some trees, soil, a pool of water, and squirrels and chipmunks together, however, we clearly would not have a forest. A forest is the complexity of relationships among these elements and other connected systems such as weather, climate, and human settlements. The systems thinking approach aims to understand the complexity of the world in terms of relationships, connectedness, and context. Only by observing relationships and the impacts of changes on those relationships, can we recognize and analyze the interconnections within the whole versus among its isolated parts. With this observation, we start to develop a comprehensive picture that different parts of a system are so interconnected that if we alter one part of a system it will change other parts. This allows us to ask the important questions that will help us better understand the system. For example, what happens to the soil as plants reach maturity, and eventually die? What happens to the plants and animals as soil health and water quality change?

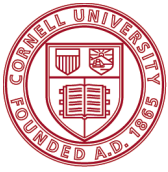
A Systems Thinker:

- Sees the whole: sees the world in terms of interrelated “wholes” or systems, rather than as single events, or snapshots.
- Looks for connections: assumes that nothing stands in isolation; and so tends to look for connections among nature, ourselves, people, problems, and events.
- Pays attention to boundaries: “goes wide” (uses peripheral vision) to check the boundaries drawn around problems, knowing that systems are nested and how you define the system is critical to what you consider and don’t consider.
- Changes perspective: changes perspective to increase understanding, knowing that what we see depends on where we are in the system.
- Looks for stocks: knows that hidden accumulations (of knowledge, carbon dioxide, debt, and so on) can create delays and inertia.
- Challenges mental models: challenges one’s own assumptions about how the world works (our mental models) — and looks for how they may limit thinking.
- Anticipates unintended consequences: traces loops of cause and effect and always asks “what happens next?”
- Looks for change over time: sees today’s events as a result of past trends and a harbinger of future ones.
- Sees self as part of the system: looks for influences from within the system, focusing less on blame and more on how the structure (or set of interrelationships) may be influencing behavior.
- Embraces ambiguity: holds the tension of paradox and ambiguity, without trying to resolve it quickly.
- Finds leverage: knows that solutions may be far away from problems and looks for areas of leverage, where a small change can have a large impact on the whole system.
- Watches for win/lose attitudes: knows dichotomous attitudes usually make matters worse in situations of high interdependence.

Booth-Sweeney, Linda. 12 Habits of Mind. <http://www.lindaboothsweeney.net/thinking/habits>, accessed May 12, 2016.

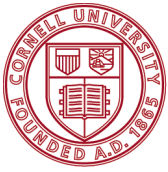
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<p>Seeks to understand the big picture</p> 	<p>Observes how elements within systems change over time, generating patterns and trends</p> 	<p>Recognizes that a system's structure generates its behavior</p> 
<p>Identifies the circular nature of complex cause and effect relationships</p> 	<p>Makes meaningful connections within and between systems</p> 	<p>Changes perspectives to increase understanding</p> 
<p>Surfaces and tests assumptions</p> 	<p><b>Habits of a Systems Thinker</b></p> 	<p>Considers an issue fully and resists the urge to come to a quick conclusion</p> 
<p>Considers how mental models affect current reality and the future</p> 	<p>Uses understanding of system structure to identify possible leverage actions</p> 	<p>Considers short-term, long-term and unintended consequences of actions</p> 
<p>Pays attention to accumulations and their rates of change</p> 	<p>Recognizes the impact of time delays when exploring cause and effect relationships</p> 	<p>Checks results and changes actions if needed: "successive approximation"</p> 

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The art of learning how to notice is invaluable to our understanding of our garden landscapes.

### Inspire Understanding with Discussion

Practice systems thinking and discover how elements in your garden are linked to other elements and systems by selecting some part of your garden with which you are very familiar (a tree, a group of plants, a compost pile, a sitting area, a pond). Investigate it by asking a series of simple questions like: What is it made of? Where has it come from? Who made it?

Then consider more searching questions like: What needs does it fulfill? Is it necessary? What will happen to it in the future? Could it be redesigned to have a smaller environmental footprint?

Each group member might first consider something familiar, individually recording their answers to the questions and beginning to identify connections between their answers, producing a web-like diagram. Then a volunteer might share her initial exploration with the whole group where additional connections might be uncovered. This activity can extend almost indefinitely depending on the enthusiasm of the groups and can lead groups well outside the garden system to economic, social and ecological systems.

