

# Chapter 1 - It's The Pattern That Connects

What you learn and your capacity to learn serves as the basis for everything that you do in your life. Yet, have you ever thought about how you really learn about the world around you? Yes, there are some things you memorize early in life like the times tables, and you learn to remember these, though is that really learning? Do you remember that if you put your hand on something very hot it will burn you, or is that something you learned? And if you learned that, how was it that that learning happened?

## Consider the following

- I have a box that's about 3' wide, 3' deep and 6' high
- It's a rather heavy box
- The has a couple of doors on it
- When you open the doors it's cooler inside the box than outside
- One compartment is much cooler than the other
- When you open the door a light comes on
- There's food inside the box
- The box is in a kitchen
- There are sticky notes all over the front of the box
- There's a collection of papers and stuff on top of the box
- If you move the box you'll probably find a lot of dust under it
- The box is plugged into an electrical outlet
- From time to time you can hear the box running

At some point in this sequence you probably became convinced that what was being described was a refrigerator. Now stop for a moment and ask yourself just how it was that you realized what was being described was a refrigerator? Yes it would have been easier if I had just showed you a picture of a refrigerator though that would have spoiled it, wouldn't it.



Fig. 1 - From the description you knew it was a refrigerator - but how?

As long as you knew beforehand what a refrigerator was the statements could have been given to you in any order and still at some point you would have finally realized what was being described. If you had never seen, nor heard about, a refrigerator before you would still be wondering what was being described and what to call it.

You have also most likely come to understand that all refrigerators are not identical. Some have one door with a separate compartment inside. Some have two doors and a drawer. Some are much smaller than others. Some can fit under a counter and some even fit on top of a counter.

Some can be so large you can walk into them.



Fig. 2 - Many kinds of refrigerators, or freezers - But how do you know?

If you see any of these you quickly decide it's a refrigerator. How does that happen? Gregory Bateson, one of the of the giants of Systems Thinking, said, "It's the pattern that connects." If you reflect on this statement you should come to realize there are actually different ways to interpret what it means. In this particular case the pattern connects you to the following purpose

- The box keeps food from readily spoiling by keeping it cool
- Part of the box is a freezer which keeps food from spoiling for even longer

and you understand it to be a refrigerator. Though now that we've arrived that this point we still haven't addressed the question of how you know. You probably were not actually taught that it's the above purpose that defines the essence of a refrigerator. Most people were not, though they have essentially learned it over time.

## Models

Models are the way we look at, and understand the world around us. All we have are our models. They are the way we understand everything. This is so because we build our understanding based on what we already understand. The world around us simply has too much detail for us to pay attention to everything. A refrigerator has many pieces though how many do you really pay attention to? Probably not many unless you build or repair refrigerators. We filter out much of the detail around us so we don't become overloaded and we choose what to pay attention to. Some times we do this consciously and sometimes subconsciously. In the midst of what we choose to pay attention to there are patterns. Whether we realize it or not it is these patterns that we pay attention to and attempt to make sense of. We understand these patterns by linking them to extend patterns we already understand. And much of the world around us we simply ignore for if we didn't we would just become overwhelmed.

**Remember:** A model is a simplification of reality intended to promote understanding.

## Learning

When we experience something that experience falls somewhere between complete novelty, meaning that we can't connect it with anything in our past experience, and complete confirmation, meaning that it represents something we perceive as already completely understood. The things we experience which lie somewhere between complete novelty and complete confirmation provide a basis for learning. They represent a basis for connecting to current patterns we understand and extending our understanding and what results is learning.

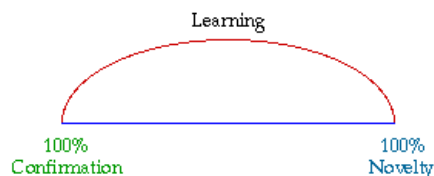


Fig. 3 - Experience between novelty and confirmation as a basis for learning

Consider running into a refrigerator that looks like no refrigerator you've never seen before. From an initial view you are likely not to perceive it as a refrigerator. As you inspect it to find it serves the purpose you've come to understand for refrigerators or if someone tells you it's a refrigerator you then expand your awareness of the range of patterns that constitute a refrigerator.

## A Basis for Flawed Learning

As I have indicated since Bertalanffy's initial work in the 30's numerous models and methods have been developed with claim to embrace the Systems Thinking worldview, that it is the relations between a number of elements which is far more responsible for the nature of a thing than simply the nature of the parts of which it is made. As such we will begin with models that everyone should be familiar with and demonstrate the nature of those models and how they actually occur across numerous disciplines. And in the process we will demystify the myriad of model and methods that embrace Systems Thinking, distilling and demonstrating that the essence of Systems Thinking is essential contains in a single word, "AND".

Really this is an outgrowth of an old Sufi saying.

***Because you think you understand one, you think you understand two, because one and one equals two. But first you must understand AND.***

Because we live in the moment, even though we may think about the past, or the future, we tend to relate to things in the moment. It is this living in the moment that is most responsible for us tending to think in terms of cause and effect, i.e., A caused B. Even when we consider things that have evolved over time we tend to ignore the passage of time, and more often than not simplify situations to one dimensional cause and effect, e.g., Wall Street is responsible for the Financial Crisis; Corporations aren't hiring more people because their taxes are too high; Obama is spending the US into ruin; etc. And as you might have gathered from these examples the simplification often produces beliefs that may not even be true. It's our enduring need to make sense of things, along with our lack of a better way to consider things, that drives us to fabricate meaning, even if it is at times invalid.

The question I hope you might now be asking is, "If the growth depends on the initial value, amount, and growth factor, why doesn't everything just keep on growing?" We know that nothing ever grows forever and that is the case because everything that grows consumes something. Notice that one end of the flow in Fig. 2 isn't attached to anything. For the amount to grow it something has to flow in from somewhere. There are times when the stuff comes from doesn't matter and there are times when it does. We'll get to this in a more advanced version of the growth model.

## References

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## Figures

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