

Systems Thinking with Dr. Russell Ackoff

In the following three videos Russell Ackoff provides a very understandable introduction to Systems Thinking.

Part 1

- Change of Age started after WWII
 - Way of thinking changes, recognized by Einstein, "You can't solve the problems created by current pattern of thought using current pattern of thought."
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- Scientific Method - 3 Step Process called Analysis
 - Take it apart
 - Try to understand what the parts do
 - Assemble the understanding of the parts into an understanding of the whole
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- Our entire culture is built on analytical thinking
 - In a university you don't study business you study the parts with the assumption that when you understand the parts you will be able to integrate them into an understanding the whole. This is analytical thinking.
 - Analysis permeates all of our institutions, corporations, etc.
 - You run a corporation by dividing it into parts and then you run each part and then attempt to integrate a running of the parts into the running of the whole. It's an analytical process. Organizational structure is a complete reflection of analysis.
 - All this started to get us into trouble in the 1950s
 - Ludwig von Bertalanffy - Austrian Biologist wrote General Systems Theory in 1954
 - It was the concept of a system which broke the camel's back of the previous era.
 - How and why requires that we understand what a system is and why analysis can't answer critical questions about systems.

Part 2

- Automobile
 - Could you find out why the motor is in front by taking the car apart?
 - Could you find out why it's a six passenger vehicle by taking the car apart?
 - Could you find out why the English drive on the other side of the road by taking a British car apart?
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- Why questions about objects called systems can not be answered by the use of analysis
 - Answers to why questions are called explanations
 - The product of explanations is understanding
 - Science produces no understanding, it produces knowledge
 - The product of analysis is how things work, never why they work the way they do.
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- We needed a new way of thinking to provide explanation and therefore understanding
 - Explanations always lie outside the system, never inside it
 - Analysis takes you inside the system and how it works and provides knowledge, but not understanding
 - Synthesis - another way of thinking which provides explanations of the behavior of the system
 - Synthesis consists of three steps exactly the opposite of analysis
 - What is this a part of? Identify the containing whole of which this is a part.
 - Try to explain the behavior of the containing whole
 - Disaggregate the understanding of the containing whole by identifying the role or function of what I'm trying to explain in that whole.
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- System - a system is a whole which is defined by its function in a larger system of which it's a part
 - Every system is contained in a larger system
 - Its role or function in that system is what defines it
 - For a system to perform its function it has essential parts
 - Essential parts are necessary for the system to perform its function but not sufficient
 - Implies that an essential property of a system is that it can not be divided into independent

parts.

- Its properties derive out of the interaction of its parts and not the actions of its parts taken separately.

- If you apply analysis to a system you take it apart and it loses all its essential properties, and so do its parts.

- A system is never the sum of its parts. It is the product of the interactions of its parts.

Part 3

- There are many places where making the performance of the part worse will improve the performance of the whole.

- Architect knows this intimately

- Architect draws the house first, the whole, then he adds the rooms, the parts

- Systems principle - Only improve a room in a way that improves the house

- If he can make the room worse and make the house better he will do it

- Objective is to build the best house, not the best rooms

- Systemic thinking - consider the effect of changing the parts on the whole

- Performance of a system depends on how the parts interact, never on how the parts act separately.

- The fundamental thing that management in the new age must learn is how the parts of the system they manage interact, not how they act separately.

- There is no such thing as a production problem, marketing problem, financial problem, etc.

- Over 90% of the problems that arise in a corporation are better solved somewhere other than where they appear.

- It's easier to ask for forgiveness than to get permission.
- The only thing more difficult than starting something new is stopping something old.
- There is no way of running a risk-less transformation or revolution.
- If you want to create a transformation in an organization you must be willing to run the risk of initiating radical ideas and taking the consequences good or bad that will come with that.

References

- [Systems Thinking](#)
- [Systemic Perspective](#)
- [Beyond Continuous Improvement](#) with Russell Ackoff
- [Systems Based Improvement with Dr. Russell Ackoff](#)
- [ICSTM 2004 Keynote](#) with Russell Ackoff
- [Idealized Design](#)
- [Russell Ackoff Memories](#)

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