Developing Systems Understanding Through Children’s Stories

Presented by Linda Booth Sweeney
Creative Learning Exchange
Systems Thinking and Dynamic Modeling Conference
Durham, New Hampshire
June 30, 2002

A Question:

Are we, particularly in western cultures actually "set up" by the structure of our stories, habituated at an early age to look for linear cause and effect relationships?
Typical Story Elements

– The initial event, e.g., the event that spurs the protagonist into action and sets up the problem.
– A simple reaction, e.g., an emotional response to the initial event.
– The setting of a goal, e.g., a decision to do something about the problem.
– The attempt to reach goal, e.g., outcomes and consequences of the attempts
– The reaction, e.g., the protagonists reactions to the events of the story.

Reference: Educational researchers, Jacobsohn and McMullen (1986)

Some Systems Stories Indicators

• Is someone or something out of control? As the Once-ler is in Dr. Seuss’s The Lorax.
• Is there what can be called a “yo-yo” effect where a character is being pulled back and forth? Or is there a situation that appears to get better, then worse, then better again?
• Is there a demonstration of overt aggression? Aggression can often be an indicator of an attempt to achieve unlimited growth, like the tiger in Marcia Brown’s Once a Mouse.
• Are there unintended consequences? Are there elements of surprise? Such as the effects of star swapping in Dr. Seuss’s The Sneetches.
• Is there a chronic problem? In Taking Care of Melvin, Melvin continues to annoy his friends until they become exasperated.
• Are there goal-seeking behaviors? As demonstrated by the yooks and the zooks in Dr. Seuss’s Butter Battle Book.
• Are characters operating within the same time horizon? In Who Speaks for Wolf, the tribe is focused on the long-term while the settlers are focused on the short-term.
Talking the Language of Circular Causality

If A increases/decreases, then B increases/decreases. And if B increases/decreases, then...” and so on.

OR:

There were a certain number of A, because there were more/less A, there were more or less B because there were B, there were more/less C. Because there were more/less C, there were more/less A.

OR:

As ___A___ increased/decreased (got bigger/smaller) ___B___ increased/decreased (got bigger/smaller) As ___B___ increased/decreased (got bigger/smaller) ___C___ increased decreased (got bigger/smaller), As ___C___ increased/decreased (got bigger/smaller) ___A___ increased/decreased (got bigger/smaller).

Dynamic Systems Behaviors and Structures To Explore Via Children’s Stories

- Simple interconnectedness
- Feedback loops (balancing & reinforcing)
- Emergent properties
- Impact of time, material, information delays
- Change of behavior over time, time horizon selection, “extended present”
- Rational micro behavior leading to unintended (often disastrous) macro results
- Stock and flow relationships
- Self-organization