

Introduction to Systems Thinking for Early Childhood Leaders

CEELO Leadership Academy Washington DC

Day 2

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**Waters
Foundation**
Systems Thinking in Education



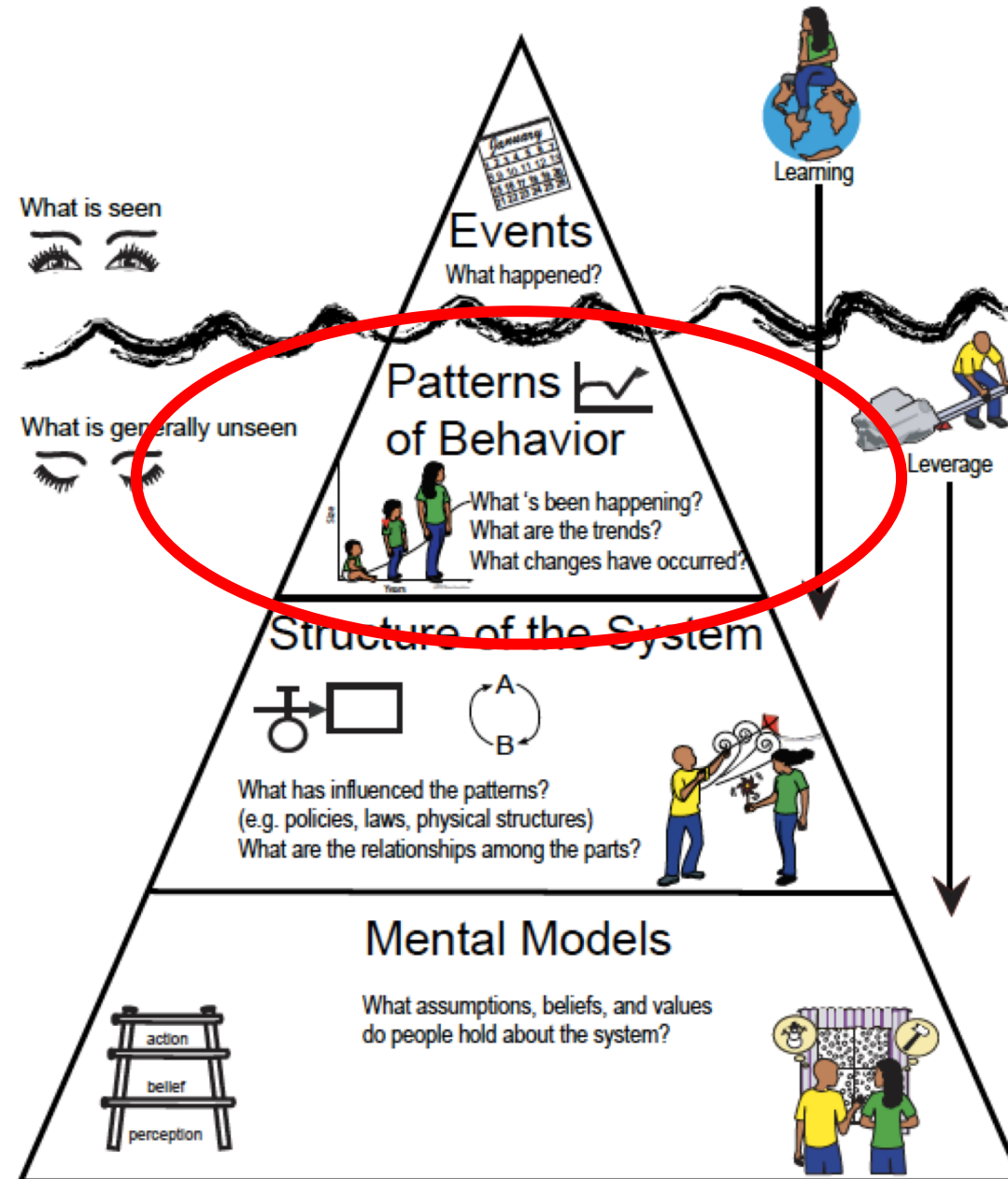
What is one connection you can make between last night's dinner conversation and/or Heads-Up festivities AND a Systems Thinking Habit(s)?

The Big Picture

Seeks to understand the
“big picture”

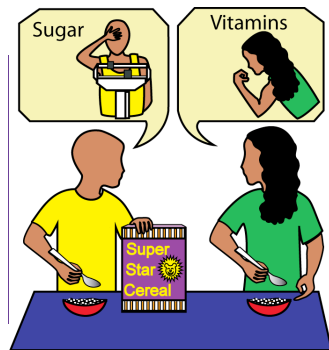
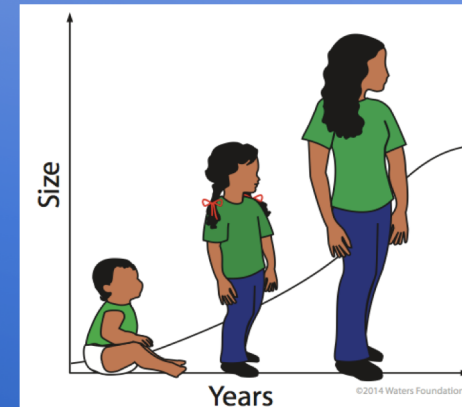


Iceberg... Seeing What's Below the Surface



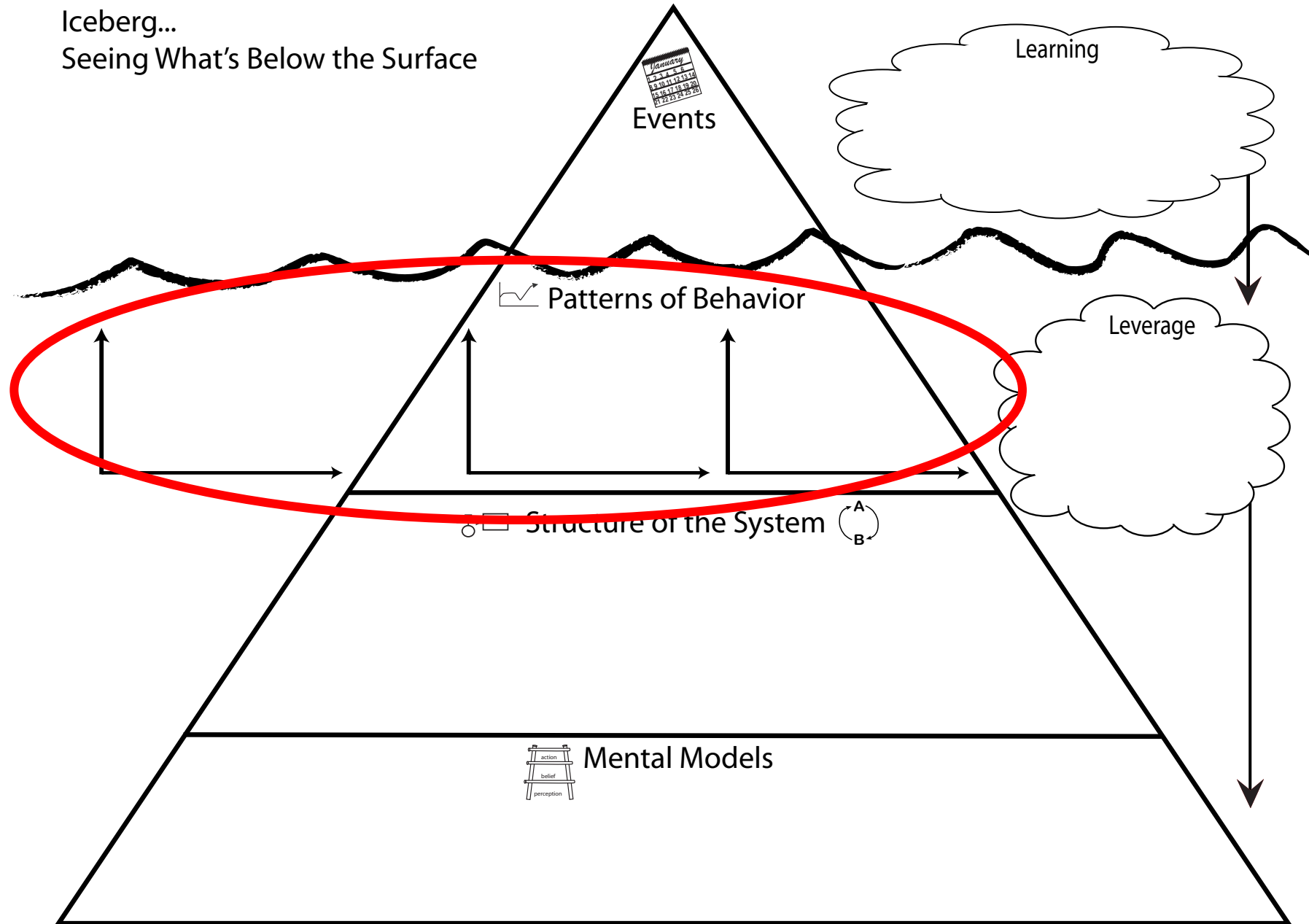
Recognizing Patterns and Trends

What patterns and trends do you need to be aware of as you pursue desired results of your job-embedded project?



Graphs help tell the story.
They also help surface and test assumptions.

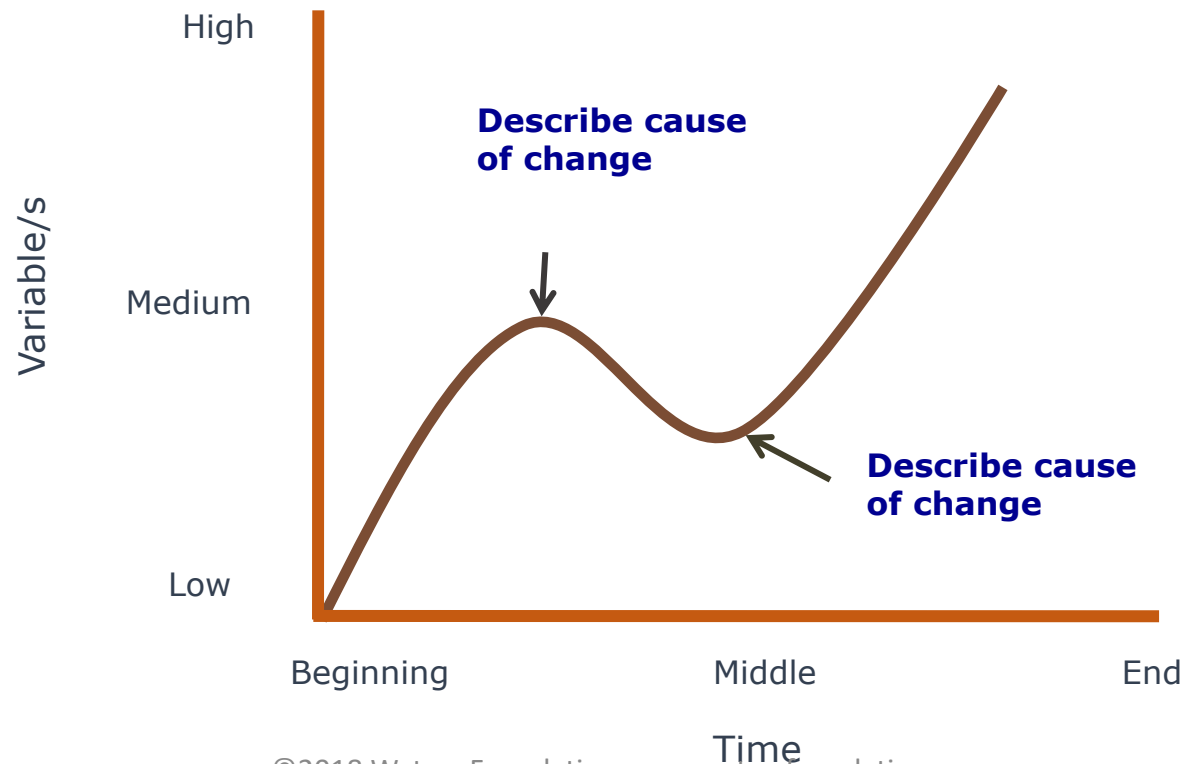
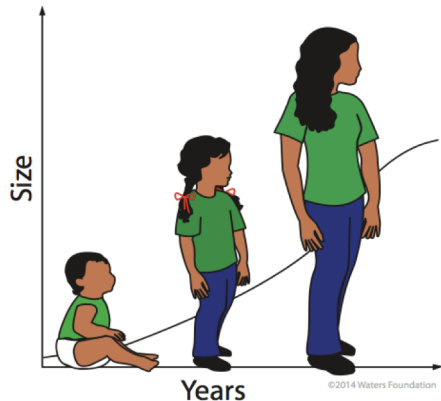
Iceberg...
Seeing What's Below the Surface



Behavior-Over-Time Graph Basics

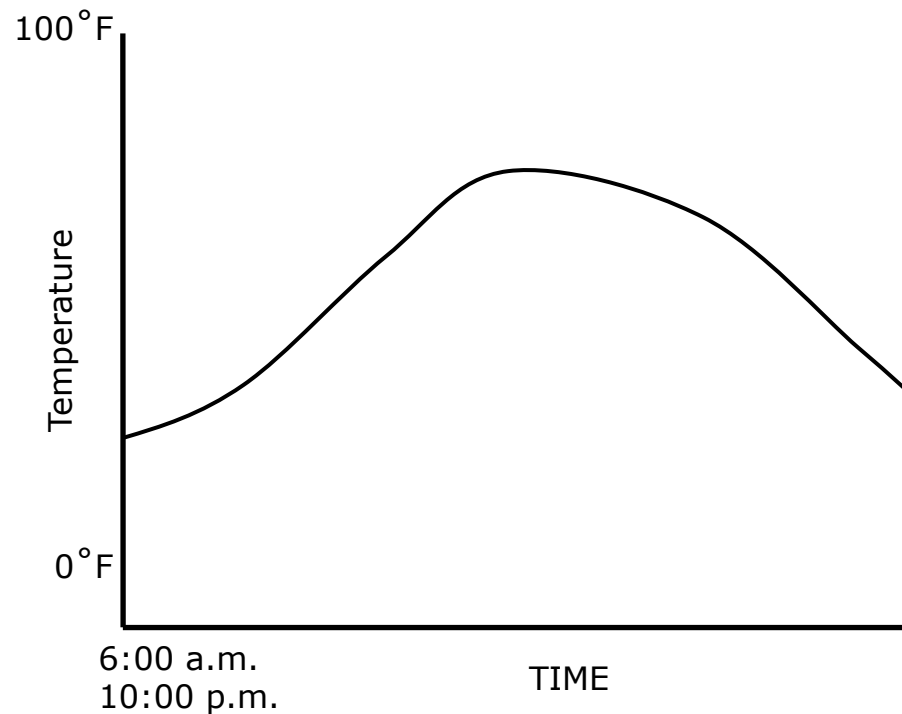
BOTGs show trends and patterns of behavior in a system, rather than discrete events.

They measure change over time and show “what” has happened in the system as represented by the graphed component.



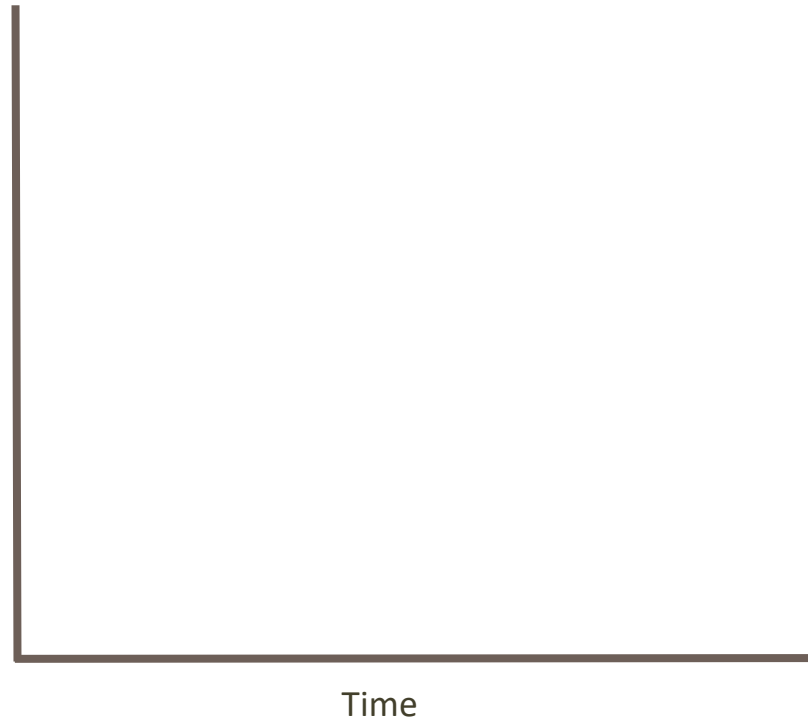
Stories to Graphs: A Day in My Town

The day started out cold at around 40°F and warmed up slowly until the temperature reached about 75°F before cooling off throughout the afternoon and evening.



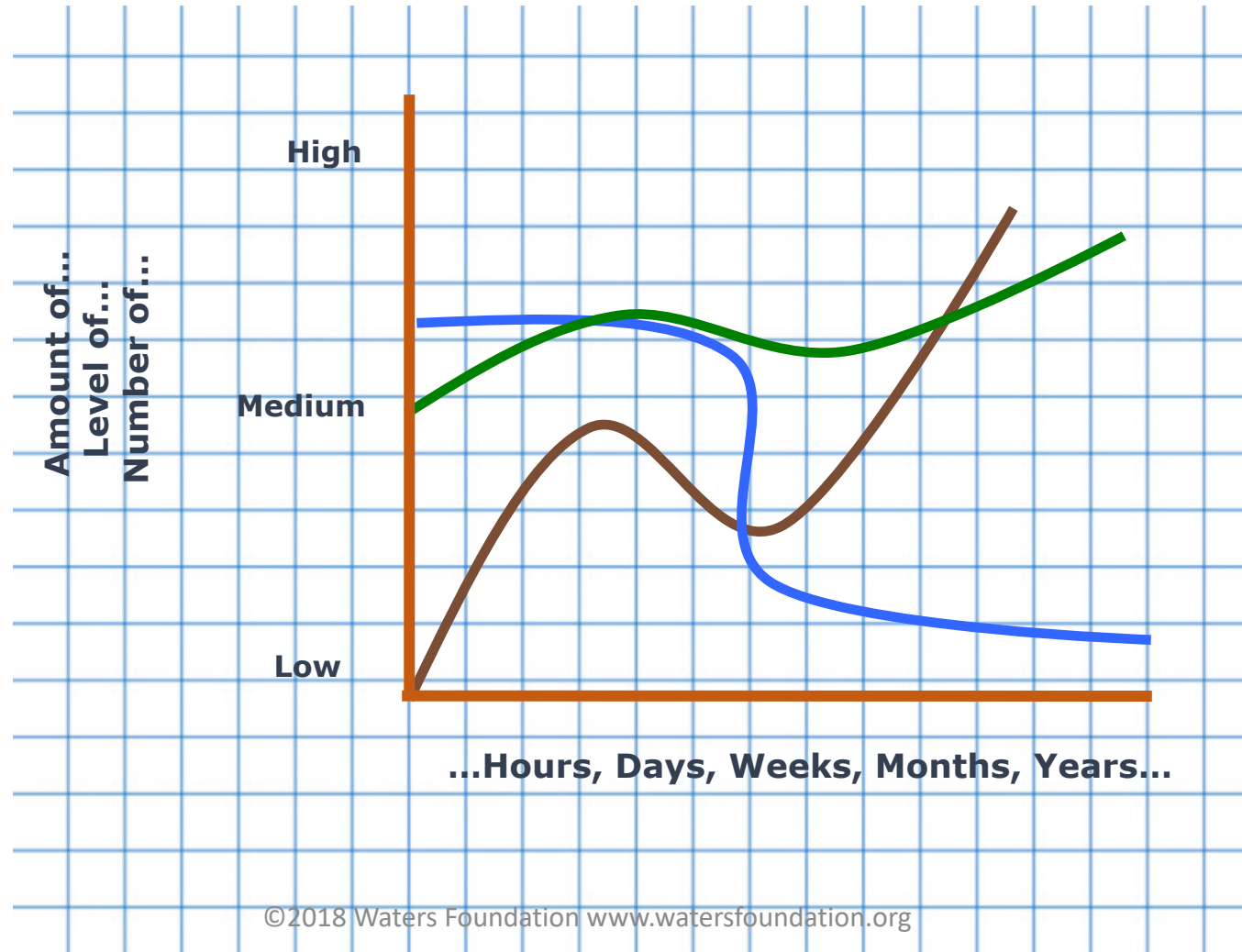
Balloon Dynamics

- ✓ Draw a BOTG of the amount of air in the balloon over time.



BOTG Practice:

Think of something that has changed over time that has been important to where you are today in your career. Graph the change of this variable over time.



Practice the Habit

Exercise #1: Choose one generic BOTG graph from the previous page (e.g. Linear growth or decline, oscillation, s-shaped growth, goal-seeking). Think of a scenario or story from your work or family setting that has a trend that matches the graph you chose. With another person, talk through your story while pointing at various parts of the graph, and see what kind of conversation develops.

Questions to think about:

Which graphs were easiest to apply to your workplace or family setting?

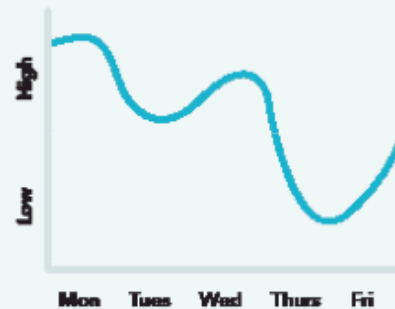
Which trends were more difficult to connect to your workplace or family setting?

Why?

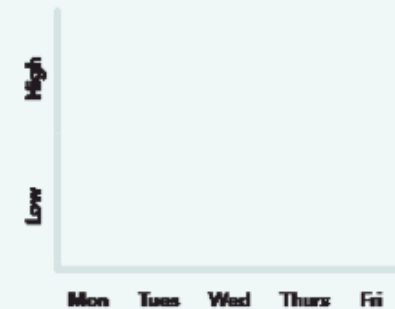
Exercise #2: If you keep a journal, identify important trends in your life that you are trying to impact. In addition to words, draw a BOTG in your journal to track your progress and make the change visible. For example, "I am trying to not be so negative when I am in team meetings." Draw a BOTG as a part of your journal entry and use it to show how your level of negativity changes over a week's time. This is a very quick way to enter a reflection in your journal even if you do not have the time to write a meaningful entry. Use the graph to show the shape of change as influenced by causal factors.



Level of Negativity



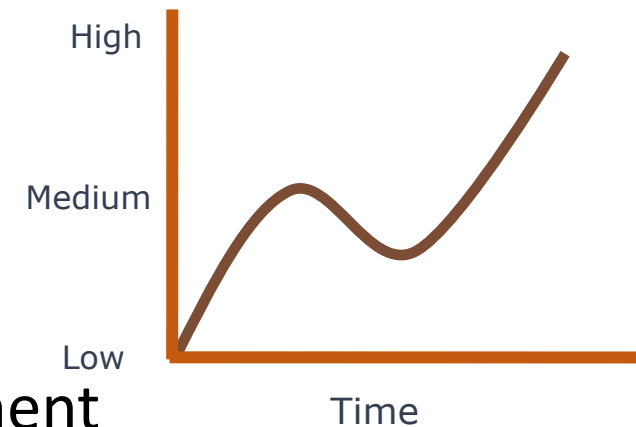
Changing Element _____



"Progress is impossible without change, and those who cannot change their minds cannot change anything." — George Bernard Shaw, author

Which of these things are variables that you could graph over time?

- Job satisfaction
- # of job-related injuries in your district
- Stress level
- Cancelling of a meeting
- A vote to make a decision
- Trust in your department
- Purchase of a new piece of equipment
- Cleanliness of a neighborhood
- New software
- Youth experiencing mental health challenges



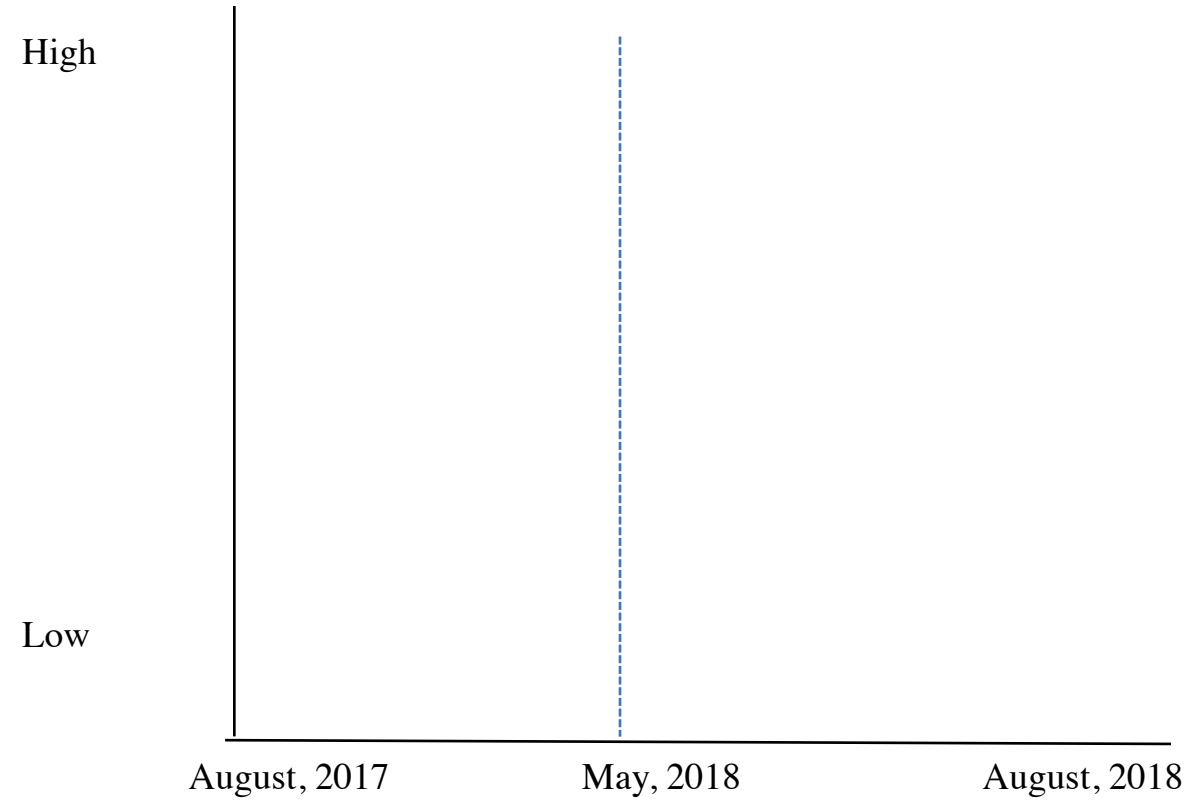
Possible examples of trends to graph

- Hard data:
 - Leaders with EC credentials
 - # of children in certified preschools
 - % of high quality preschools
 - % of schools effectively applying Gold assessments
 - 3rd grade state standardized achievement measures
- Perceptual data:
 - Legislative support for EC
 - Level of commitment to professional development
 - Quality of early childhood professional development

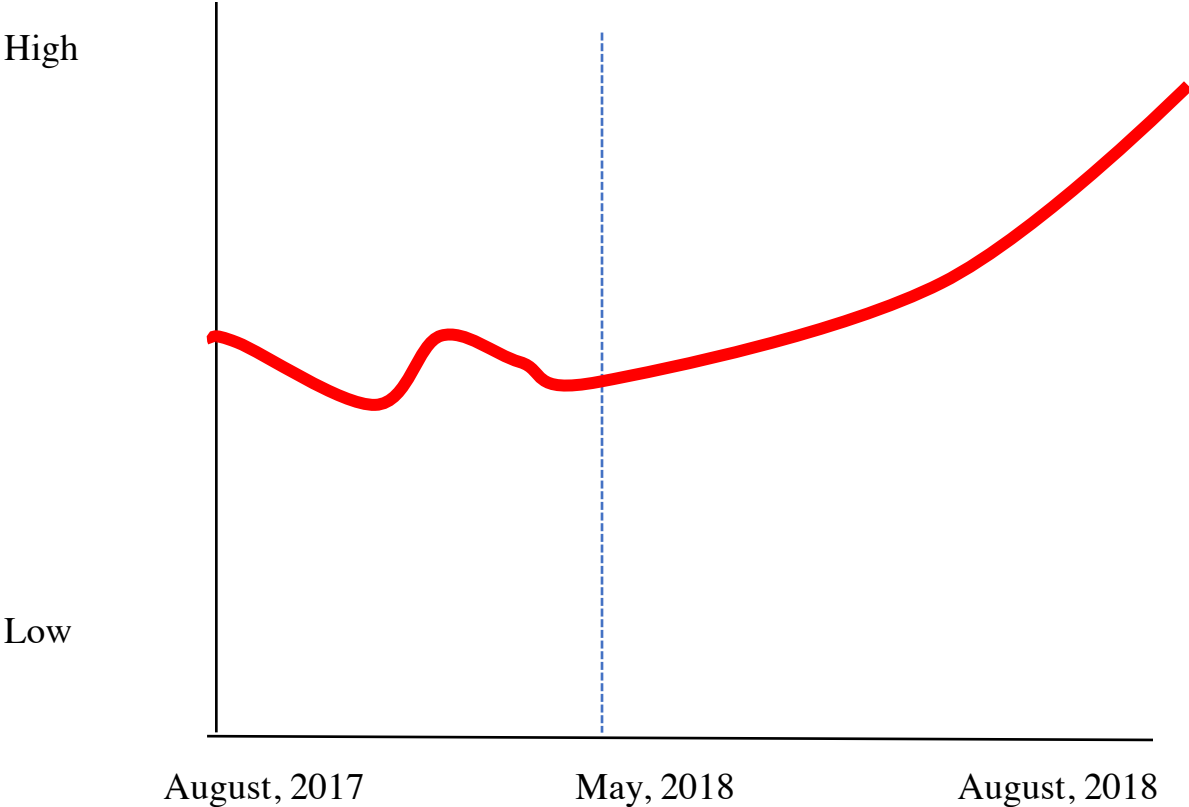
Other examples

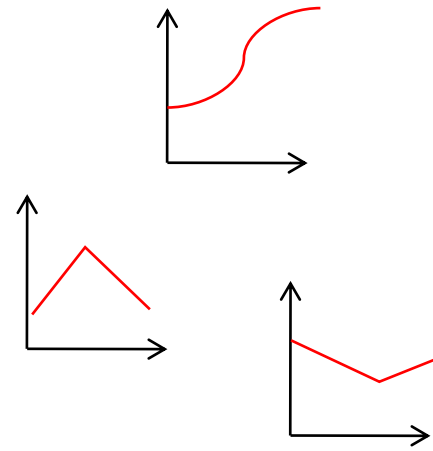
- Quality of cross-sector communication
- Access to professional learning opportunities
- Awareness and skill related to DAP
- Willingness to try new things
- Commitment to children
- Attention to data

Using BOTGs to identify current and desired trends



Using BOTGs to identify current and desired trends





1. Revisit your practice scenario.
2. Identify some of the key elements that change over time in that system and draw 4-6 behavior-over-time graphs.
3. Take turns telling the stories of your graphs.
Make changes as needed.
4. This is a practice field so assumptions will be surfaced and tested.
It is OK to not all agree at this point. Diverse views of the system are to be recognized and appreciated.

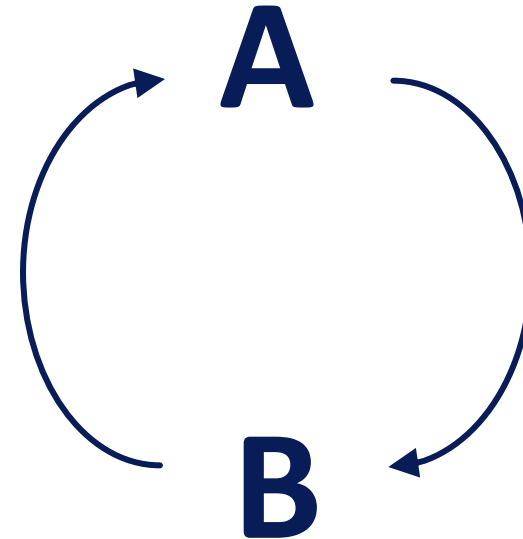


How could you use BOTGs in your leadership position to gather information you currently do not have, e.g. surface mental models?



Underlying Structures

What has influenced the patterns?
(e.g. policies, laws, physical structures)
What are the relationships among the parts?





Goal: As a team working together, your goal is to lower the pole to the floor.

Rules:

You can only support the pole with the top of one finger per person.

You absolutely must not lose contact with the pole at anytime.

If you lose contact with the pole, raise your free hand and your group must start over.



What happened during this exercise?

What contributed to your team's success?

What got in your way?

Where have you seen examples of this sort of system behavior in your own workplace?

What were some of the structures of this system that produced the behaviors you experienced?

MEANING

For you, a common understanding of the **meaning** and vision of the work is first and foremost. You must understand the purpose of the group work before you choose to participate. If the meaning is not clear, then nothing else can be clear. From meaning comes clarity about what kind of structure is appropriate and what kind of action will reflect the meaning.

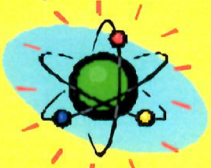


Meaning individuals want to know:

- Why are we doing this?
- What's the purpose?
- Does this matter?
- What is our vision?

STRUCTURE

It is important to you that a **structure** be developed so that everyone knows "the rules of the game." Everyone should be clear about how, and by whom decisions are made, the form of meetings, the way in which visions will be developed, and the progression of the work. If a structure is not in place everything else seems useless or disorganized.



Structure folks often ask questions like:

- When?
- How?
- Who says?
- How long?
- What time?

CARING

For people who choose **caring** as a preference, it is essential that everyone in your group is included, and time is taken to know each other well. It is important to understand the strengths and contributions that each person can make, and that a process be developed that sets group norms which will productively deal with possible conflicts and solutions to problems.



Caring folks ask:

- Is everyone OK?
- How is everyone feeling about this?
- Do we need to take a break?

ACTION

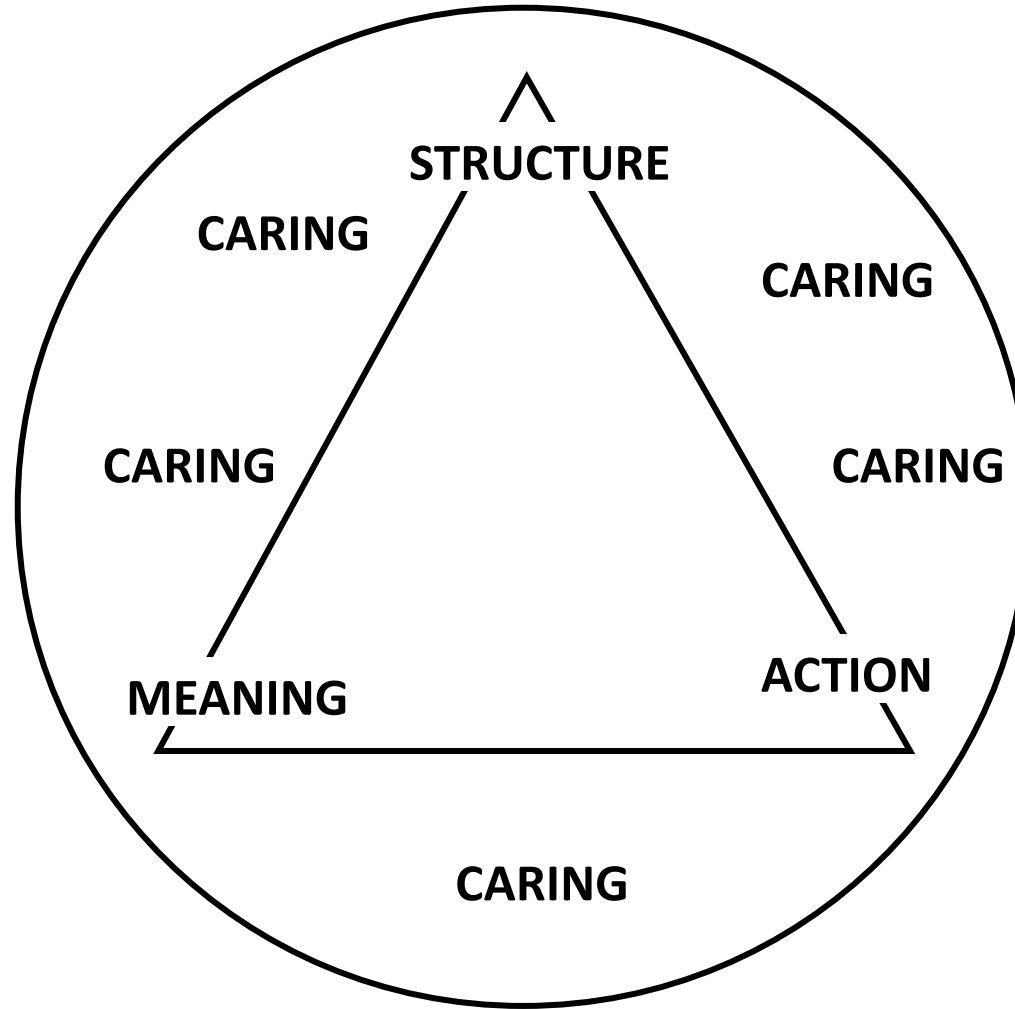
For you, **action** is at the core of meaningful work—don't talk forever, do something! You want to experience the steps of a plan and learn from that experience. Action people lead by example. Your motto is "JUST DO IT!" You believe that a structure and meaning will logically develop from action.



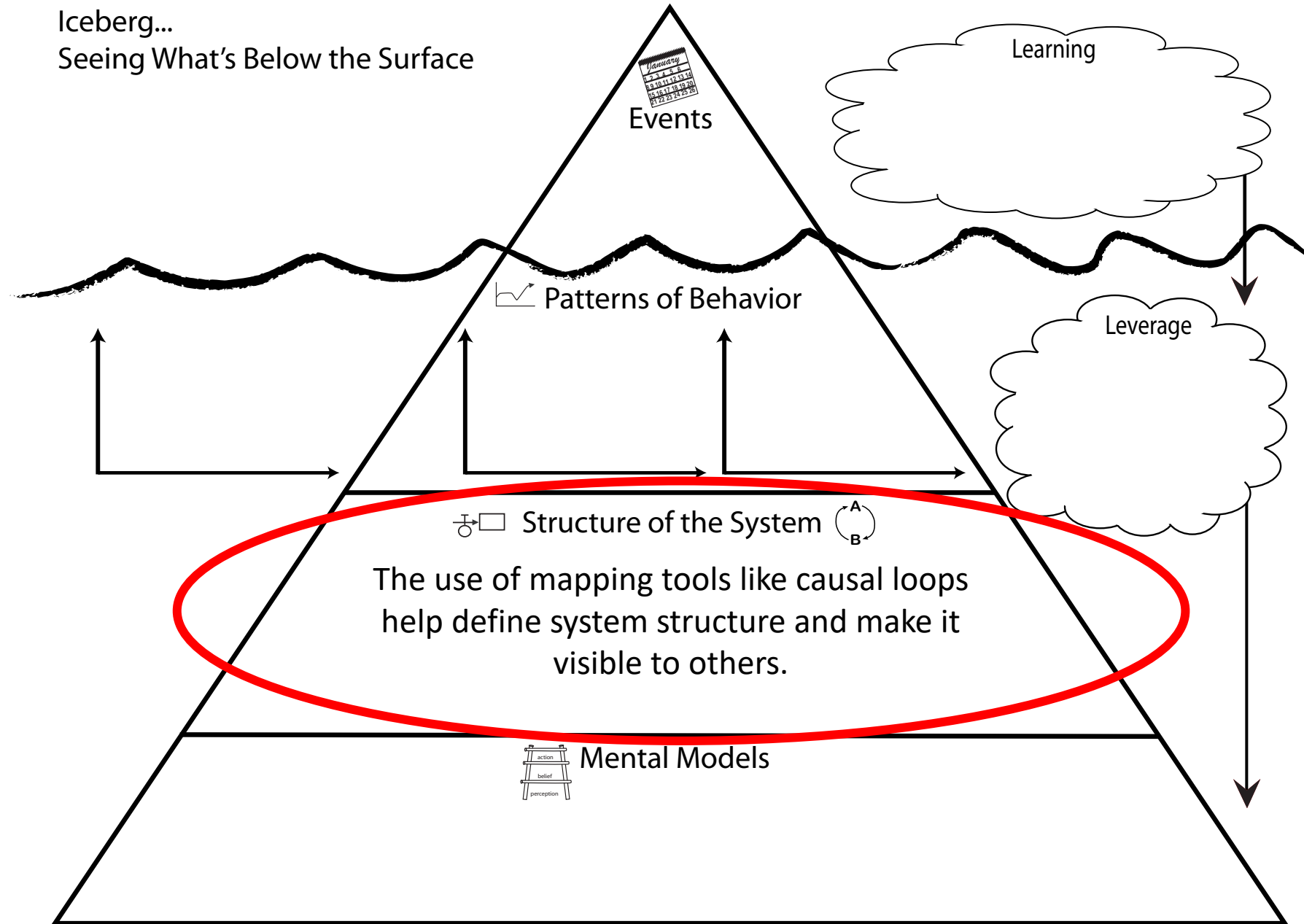
Action individuals tend to say:

- Enough talk, let's move, let's do it!

Four Corners



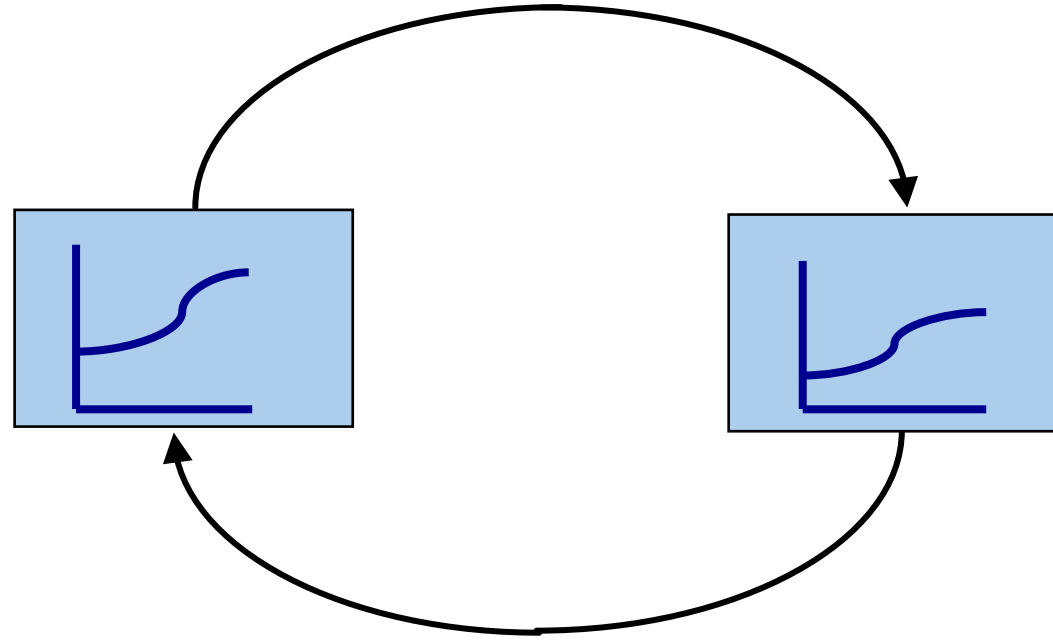
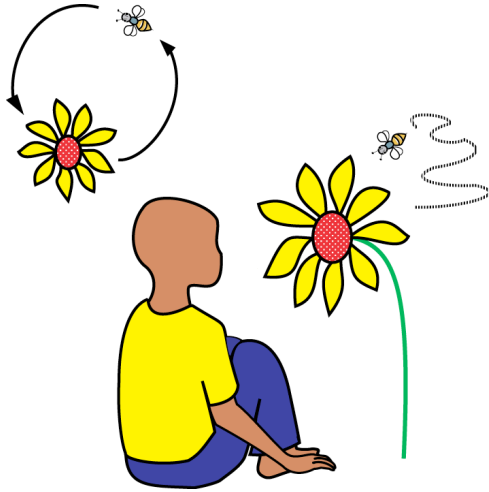
Iceberg...
Seeing What's Below the Surface



Tool Terminology:

Causal Loop Diagram (CLD)

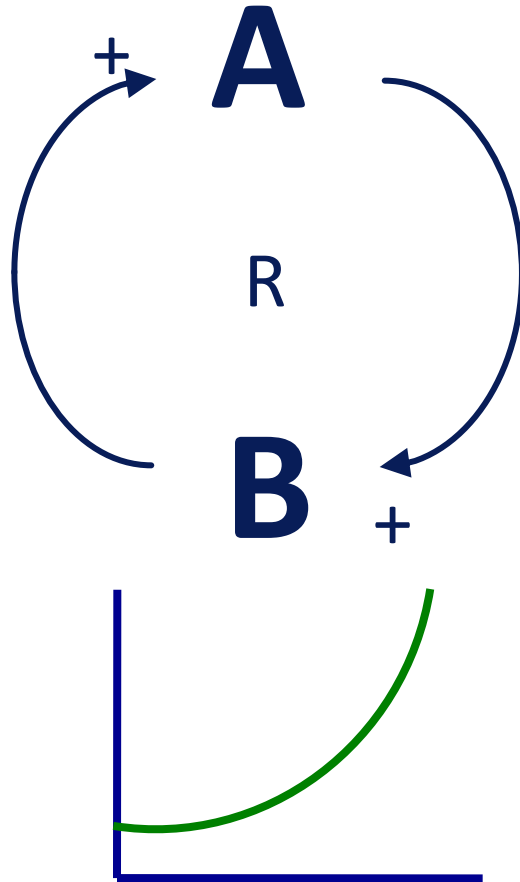
Feedback Loops



Feedback: As different parts of a system affect each other, causes become effects which in turn become causes.

**There are 2 types of feedback loops:
Reinforcing Loops and Balancing Loops.**

Reinforcing Feedback



- “Things are getting out of control!”
- “I can’t keep up!”
- “We are really on a roll now!”
- “It’s spreading like wild fire!”

R-Reinforcing Loop

B-Balancing Loop

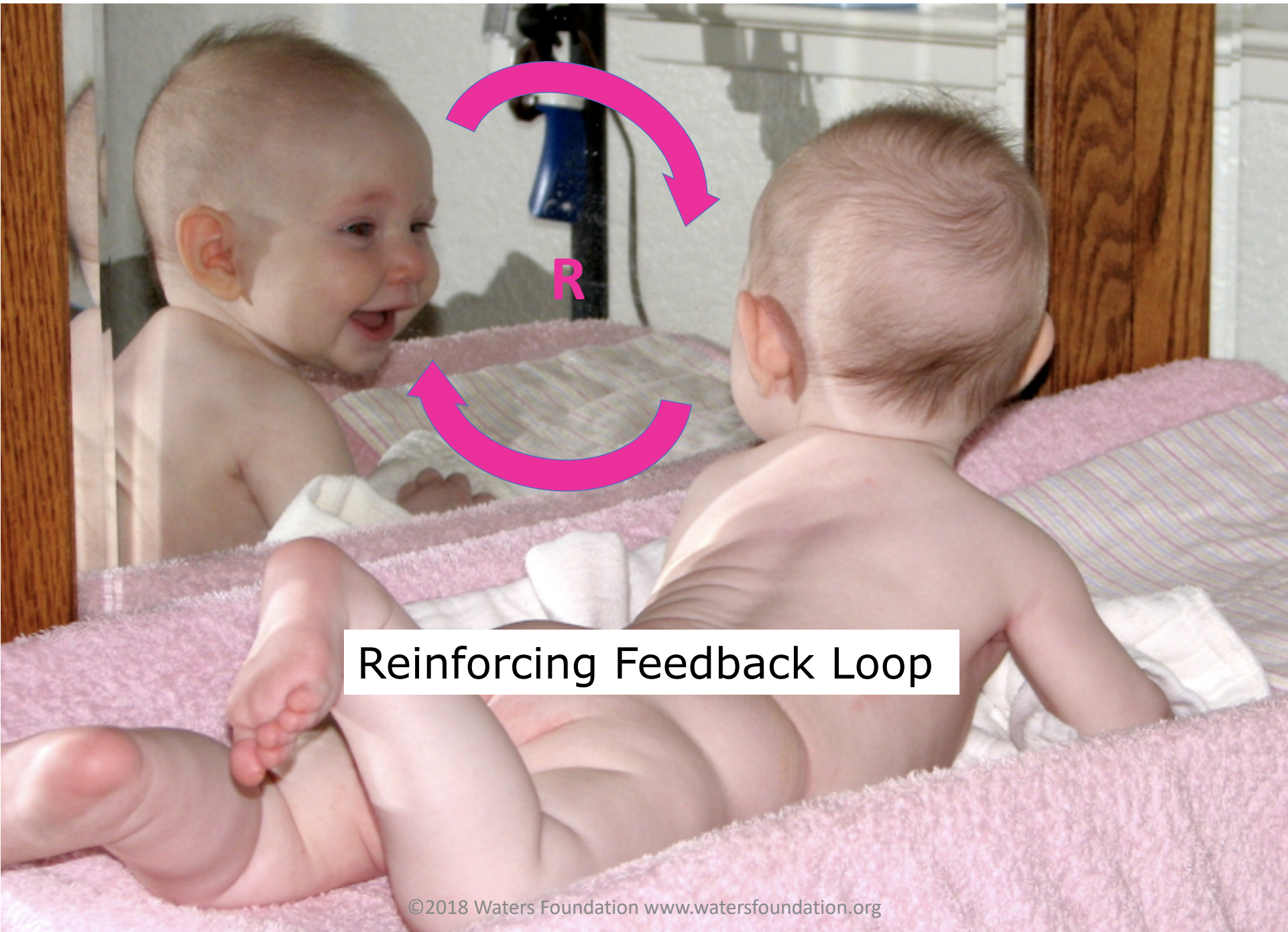
+/- – adds to or same direction

-/+ – subtracts from or opposite direction

Reinforcing Feedback

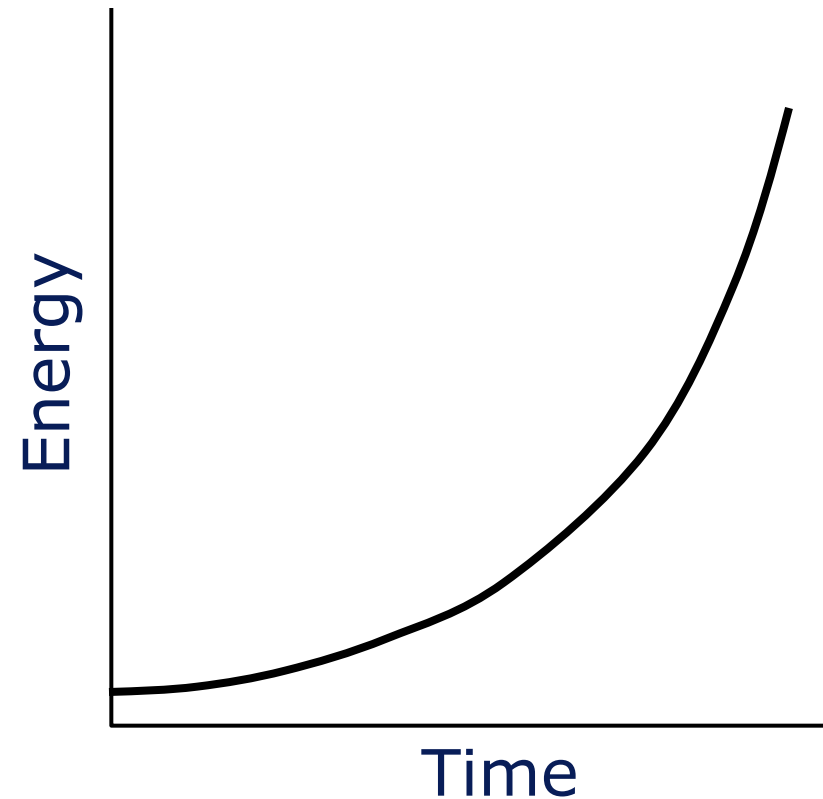
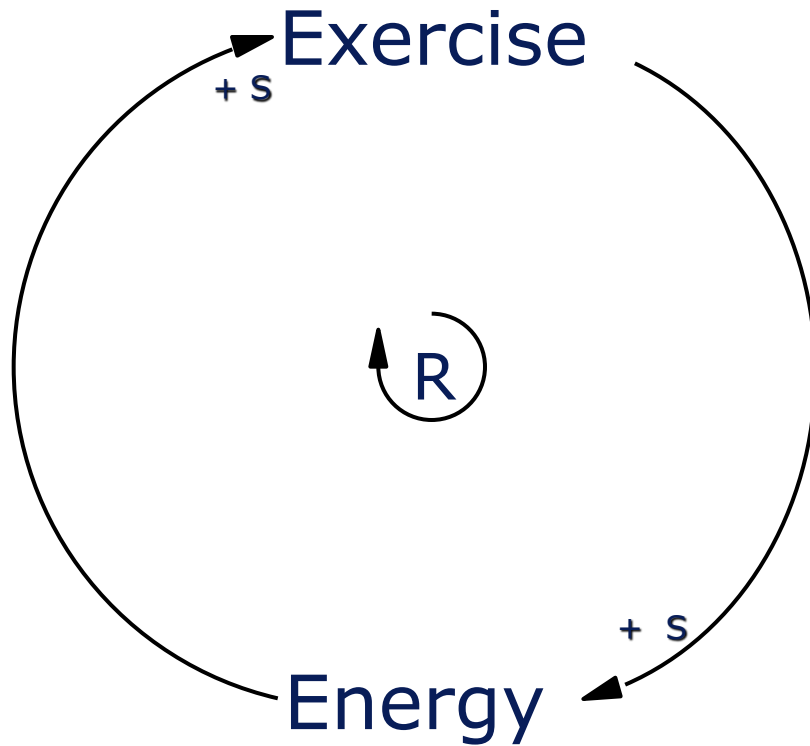
- Creates a reinforcing or compounding effect
- Examples of reinforcing feedback:
 - Rumors: “I told only one person, but soon everyone knew!”
 - Virus: “Only few had the virus at first, but soon it became an epidemic.”
 - Fads: “That fashion fad caught on quickly because soon everyone had to have it.”

Very early reinforcing feedback



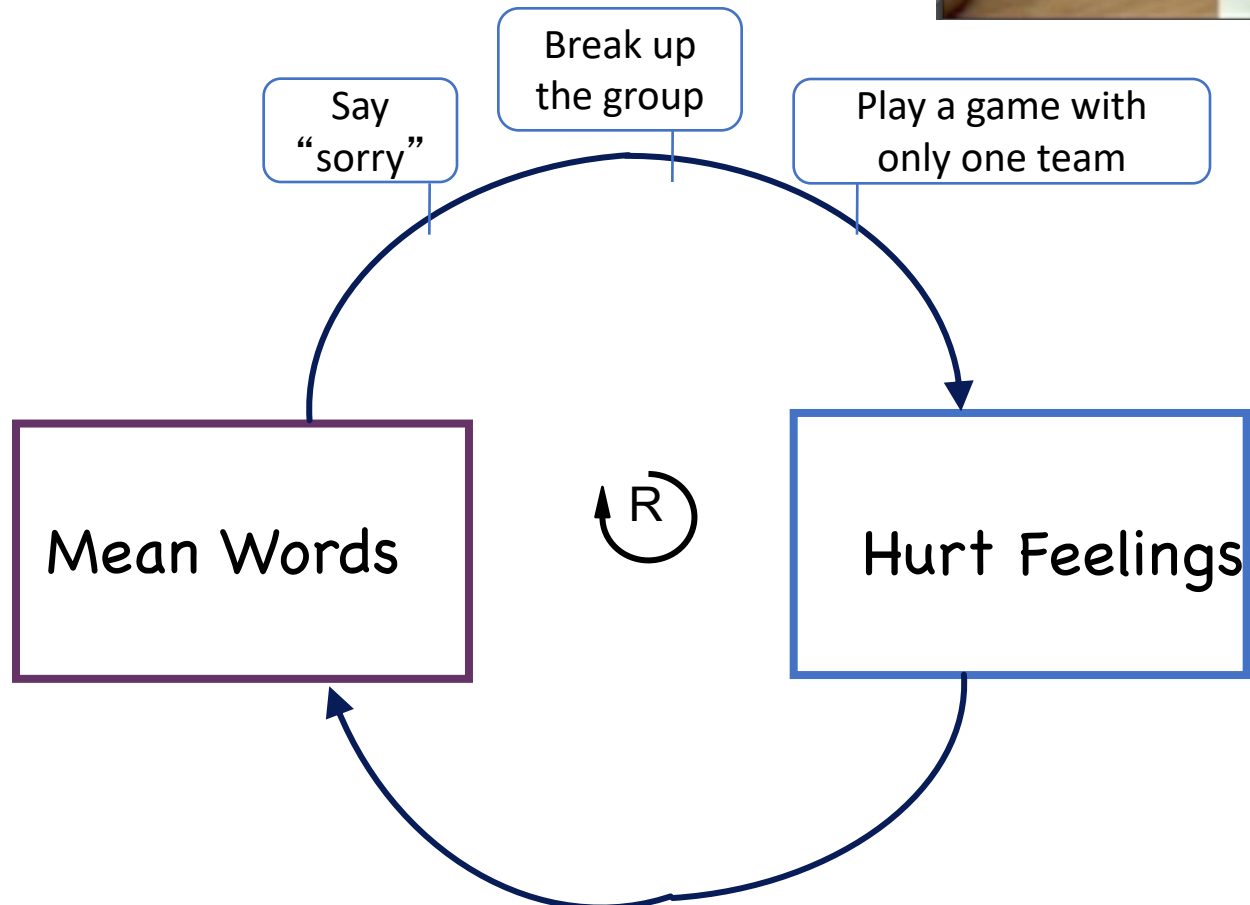
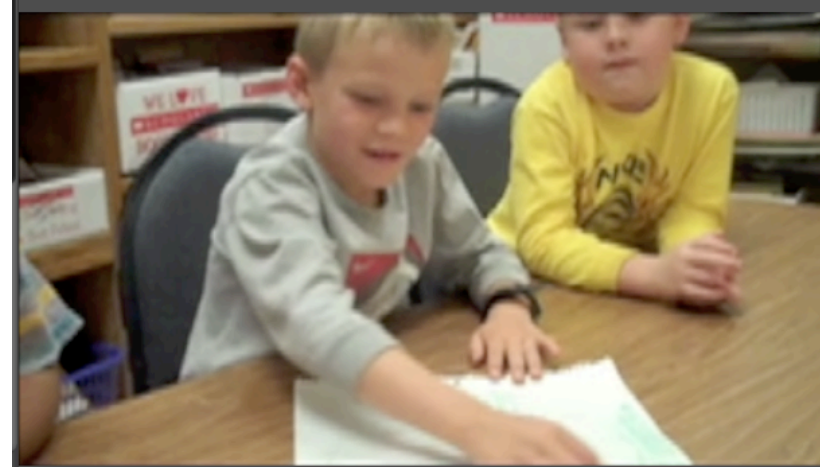
Reinforcing Feedback Loop

Reinforcing Feedback Causal Loop Diagram

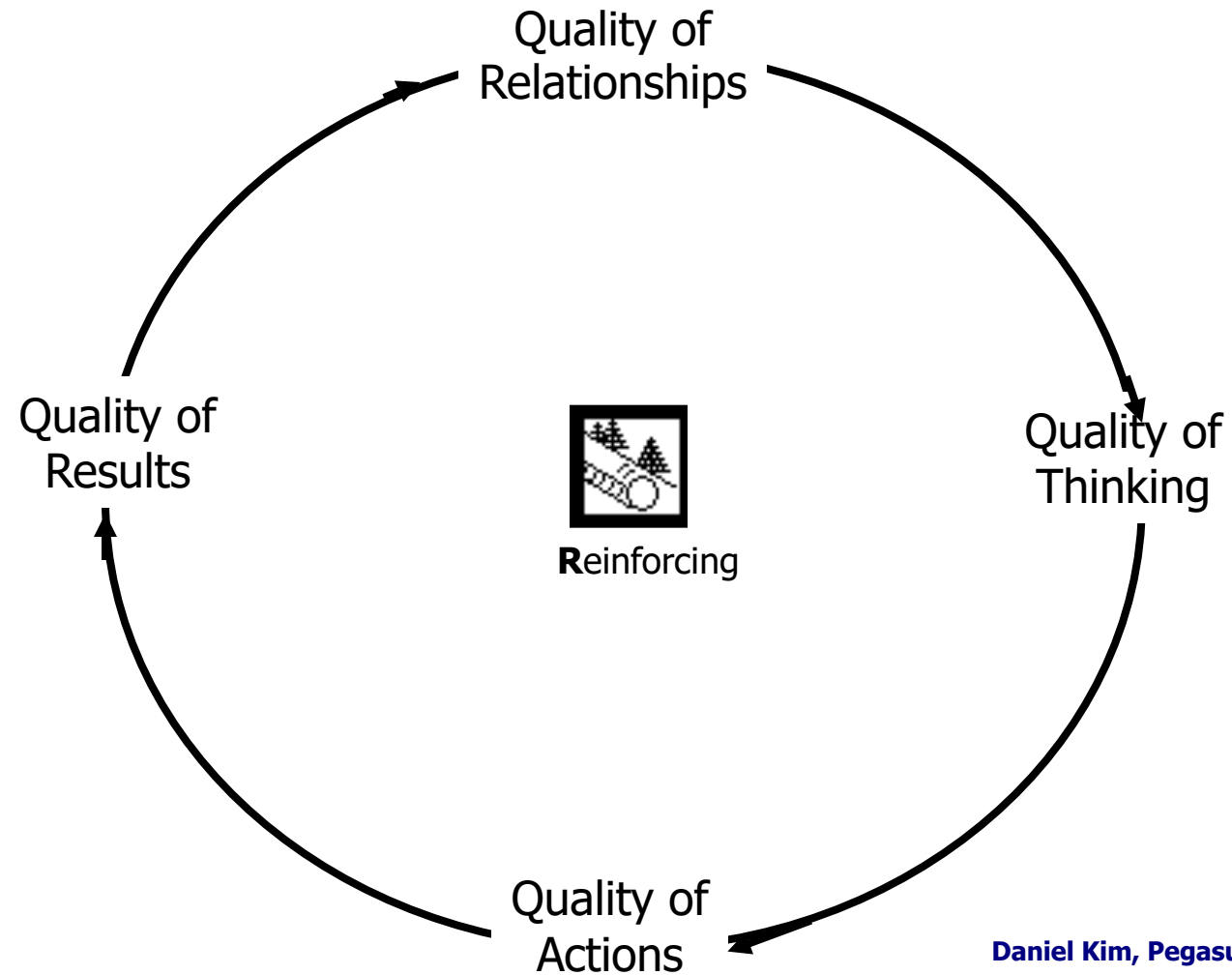


First Grade

Problem-solving



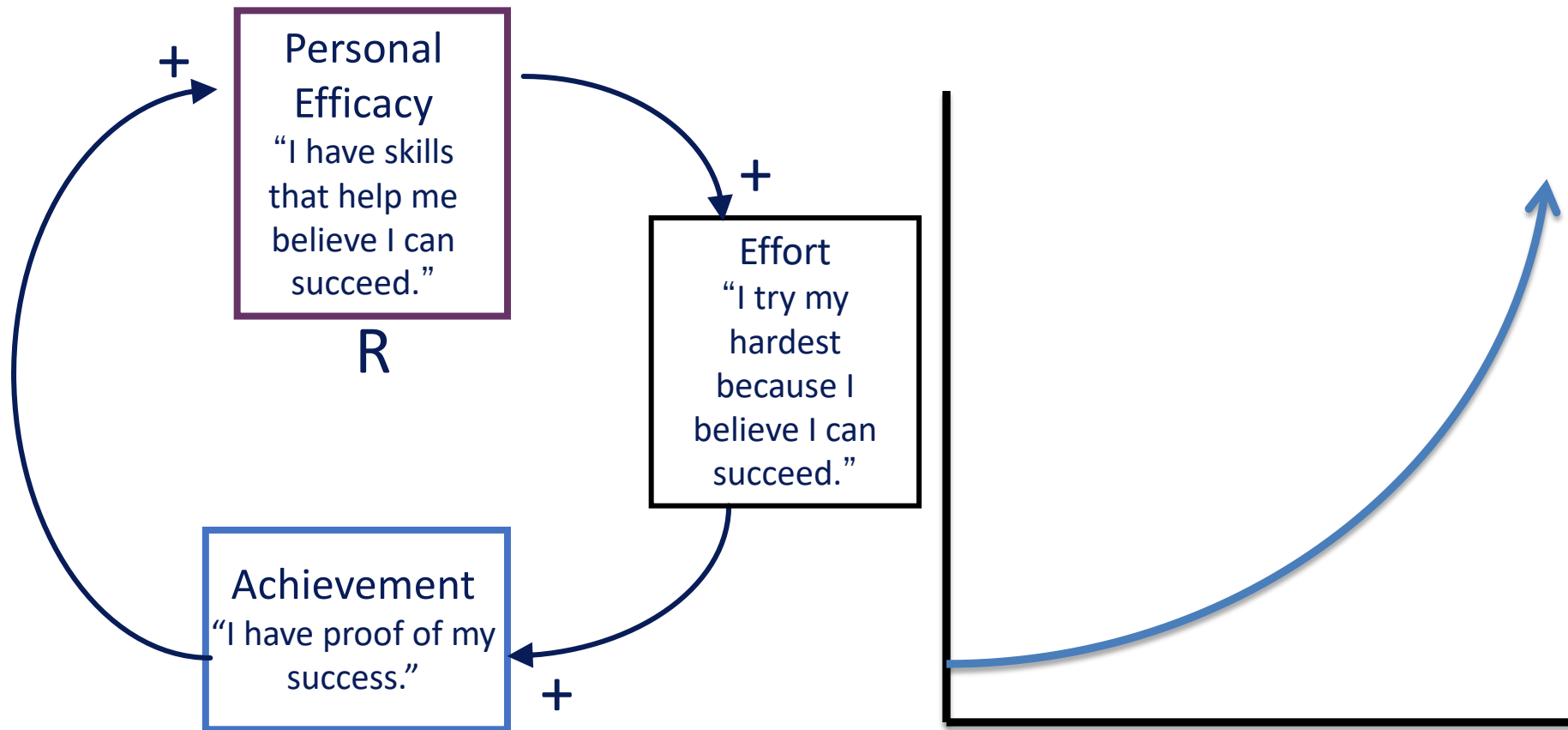
Core Theory of Success



Daniel Kim, Pegasus Communications

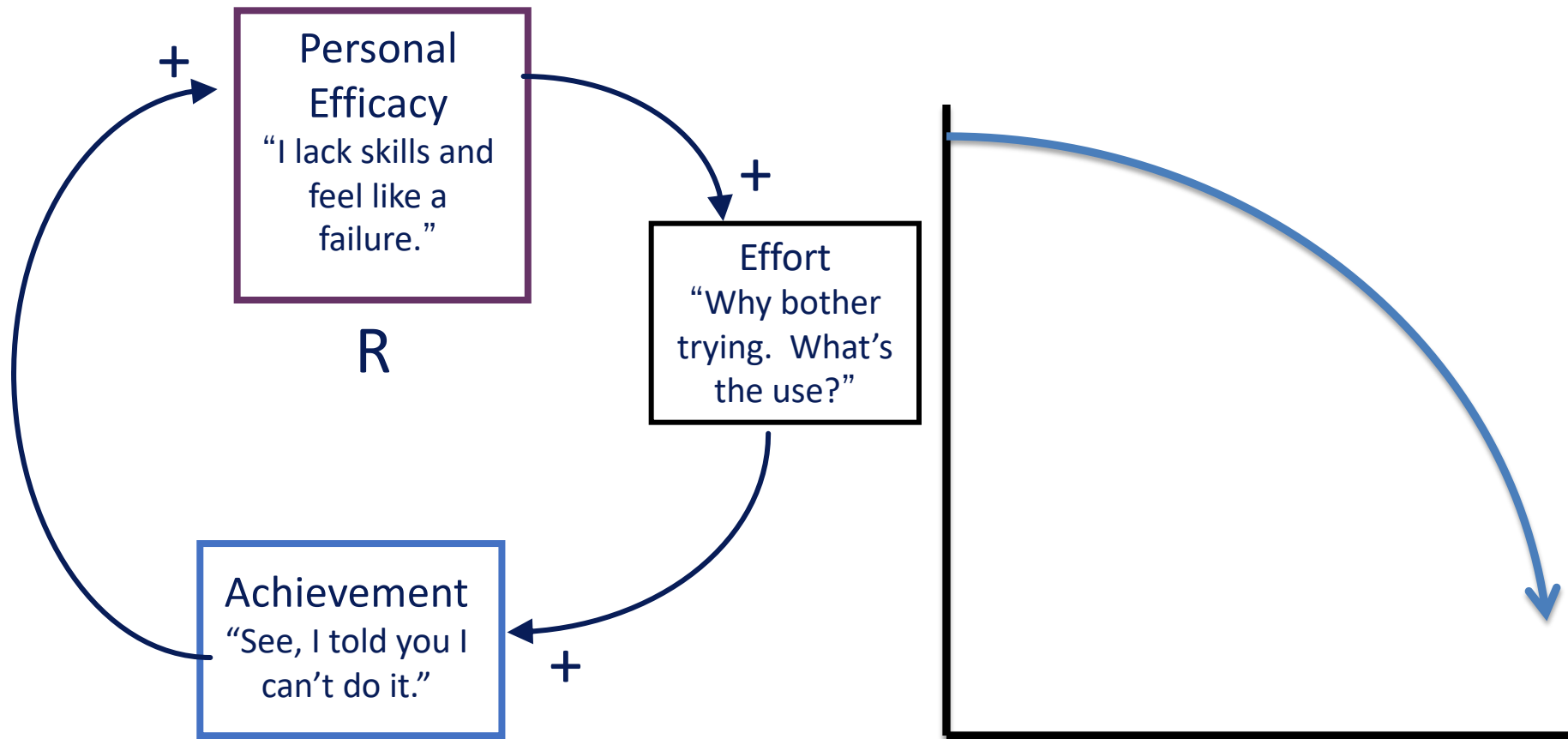
Reinforcing Feedback

Reinforcing Efficacy

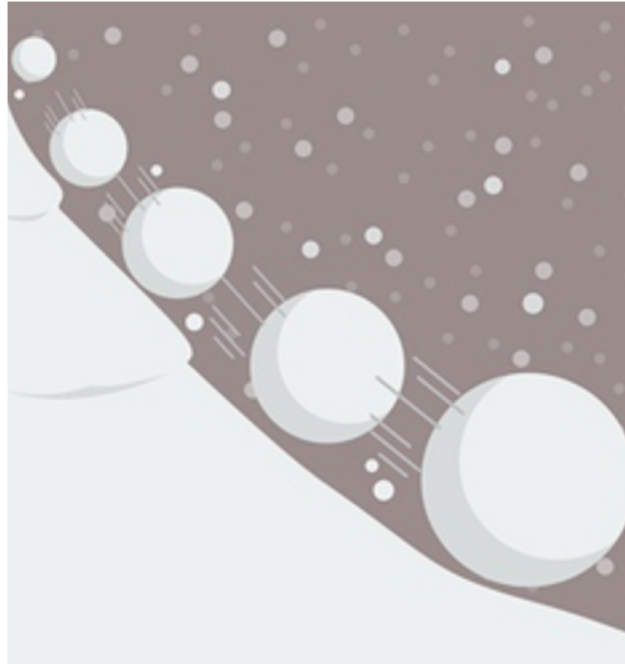


Reinforcing Feedback

Another look at reinforcing efficacy



Where do you see reinforcing feedback in your systems?



Tell the story, draw a loop and retell the story.

Finding and feeling the balance

Steadiness

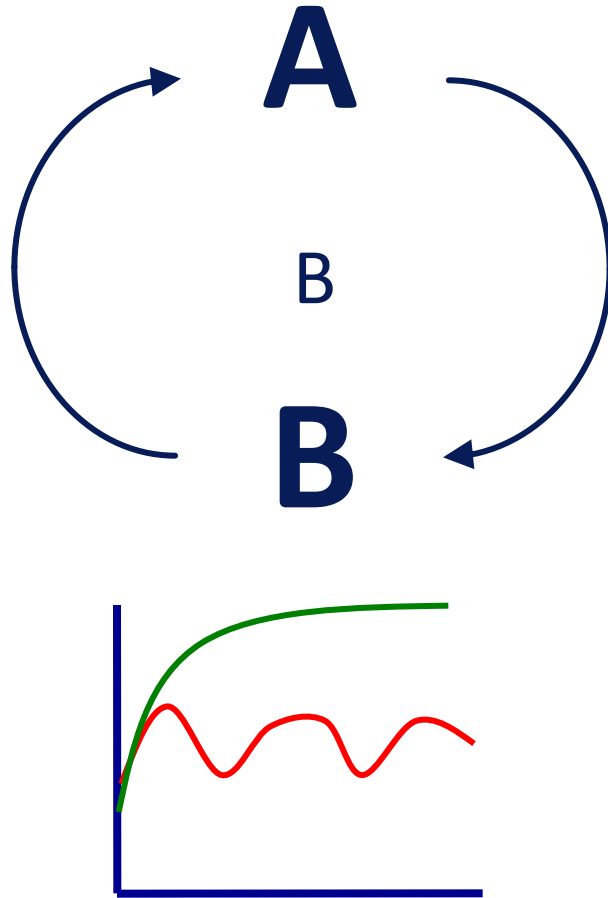
Homeostasis

Stability

Equilibrium

Sustainability

Balancing Feedback

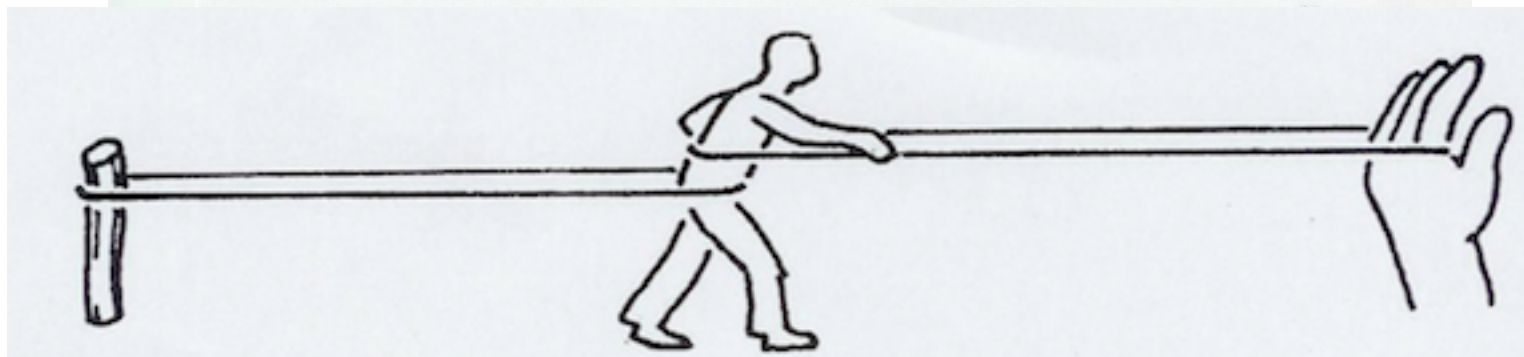
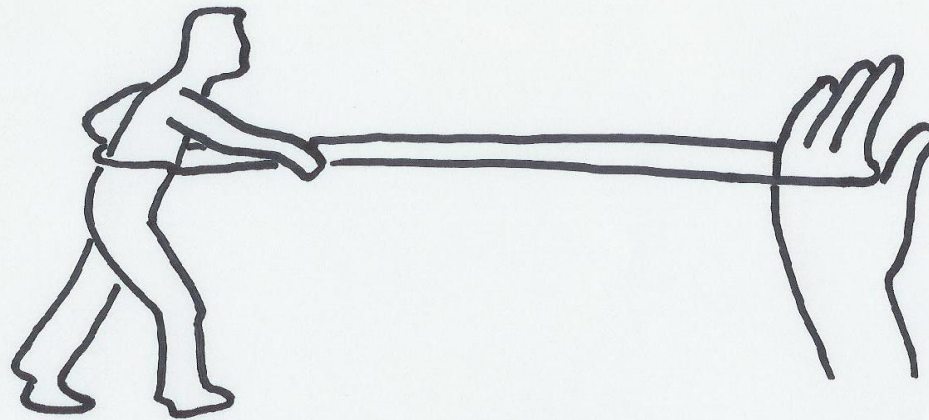


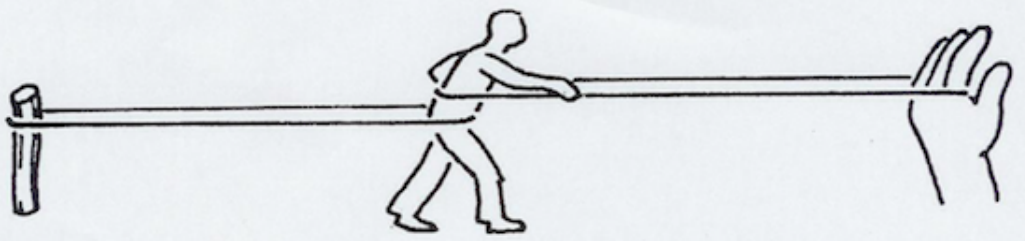
- “We are experiencing some subtle ups and downs.”
- “I can sense that things are beginning to settle down.”
- “We seem to be achieving balance and stability.”
- “Our system is close to reaching our goals.”

Balancing Feedback

- Creates an equalizing or oscillating effect
- Examples of balancing feedback:
 - Room temperature: “When the thermostat is working, the room temperature tends to be constant when it is hot outside.”
 - Exercise: “When I play basketball, my cardiovascular system and muscles are working very hard. I appreciate timeouts that give me short rest, and then I am able to get back in the game and play hard again.”
 - Supply and demand: “When fewer items are available, the price can be high, but when many are available, they tend to go on sale.”
 - Television volume: “Sometimes I have to turn the volume down during commercials to keep the volume at a constant level.”

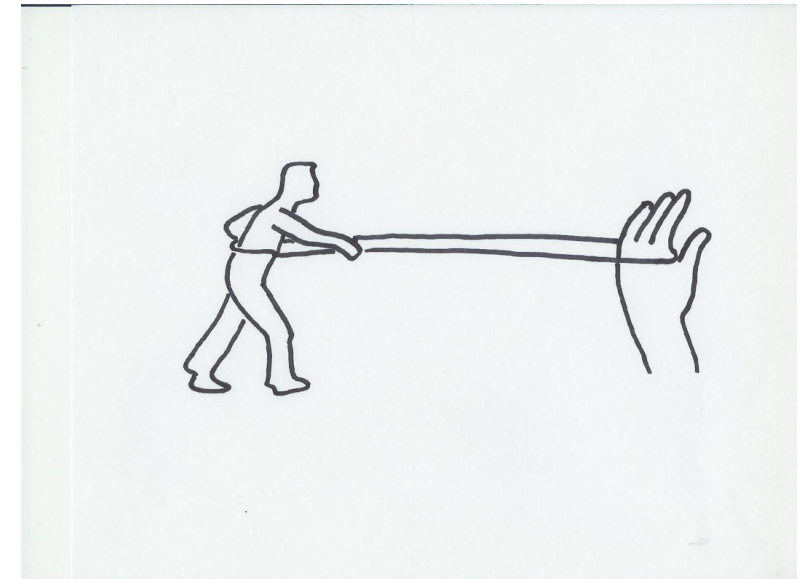
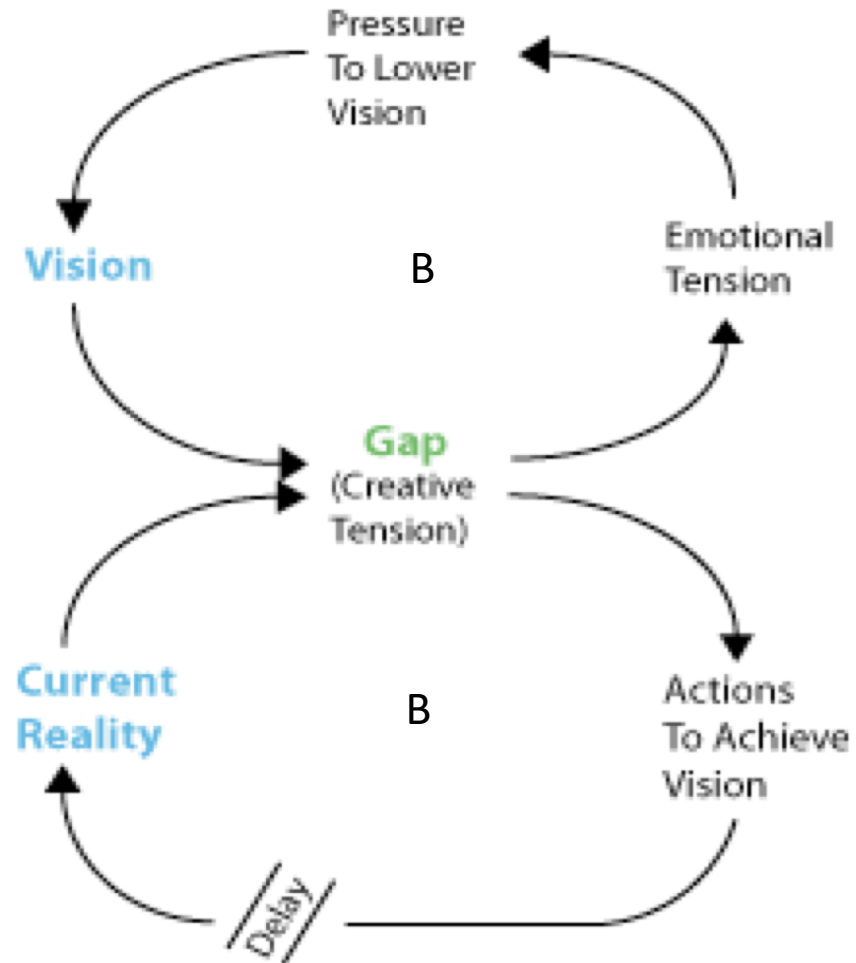
Creative Tension





“Old habits are strong and jealous.”

Dorothea Jenson





What are ways that you manage creative tension in your work setting?



What are the indicators that tell you the gap is too small or too big among your colleagues and others with whom you work?

Floating Ball Challenge

Exploring Goal and Gap Systems



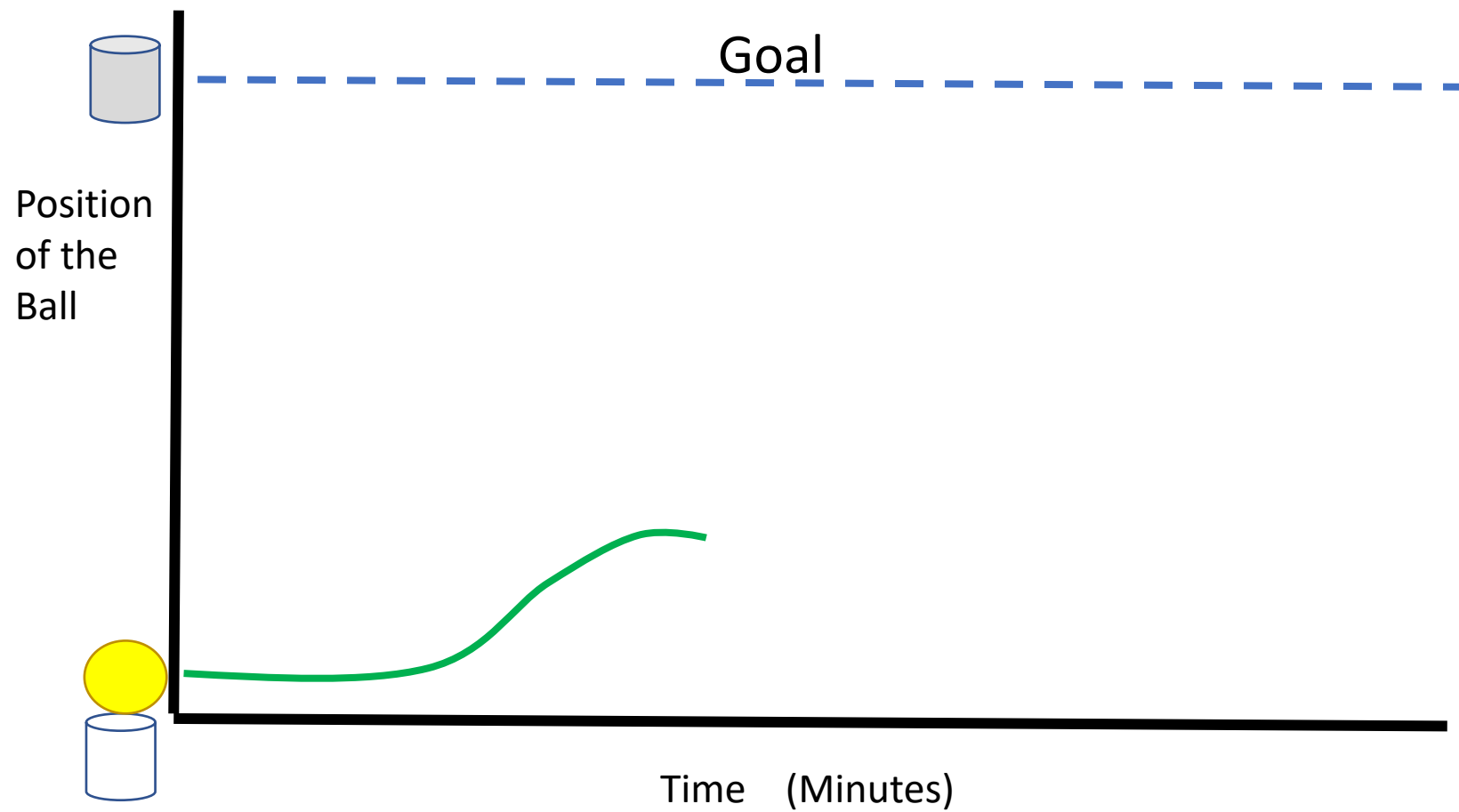
Floating Ball Challenge

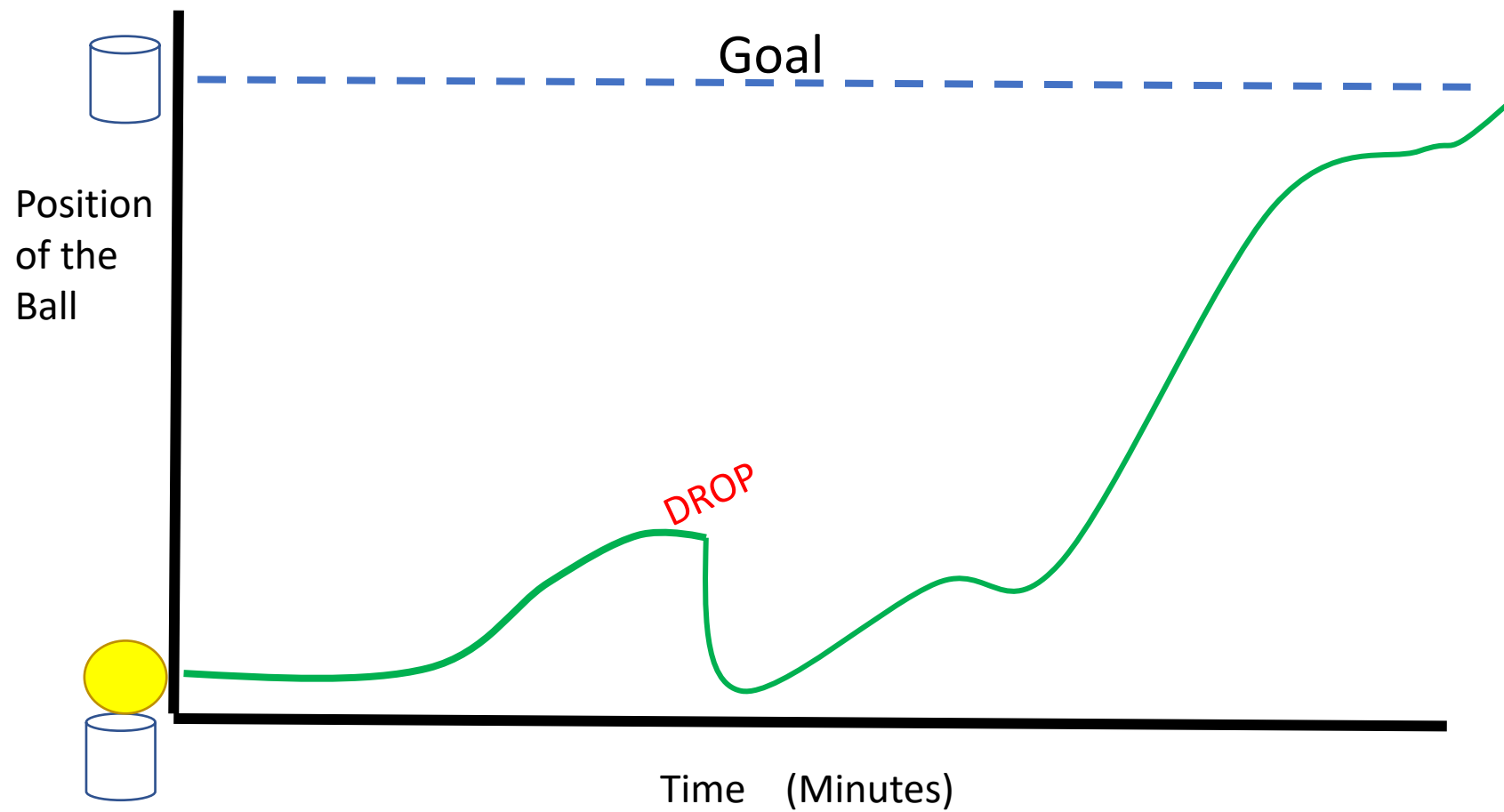
Team Challenge #1:

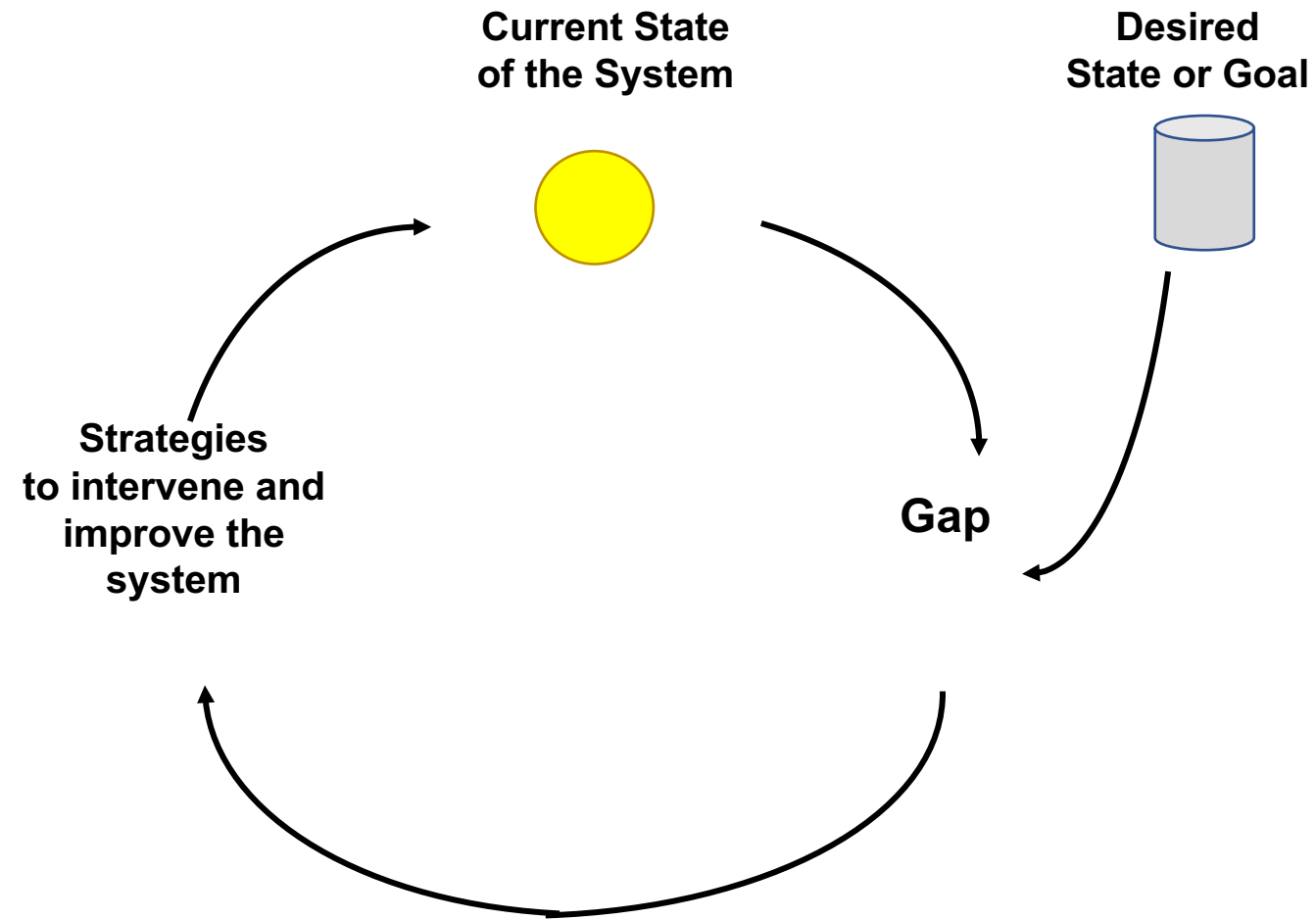
- Identify your goal pedestal.
- Each person holds the end of a string.
- Move your ball to your goal pedestal.

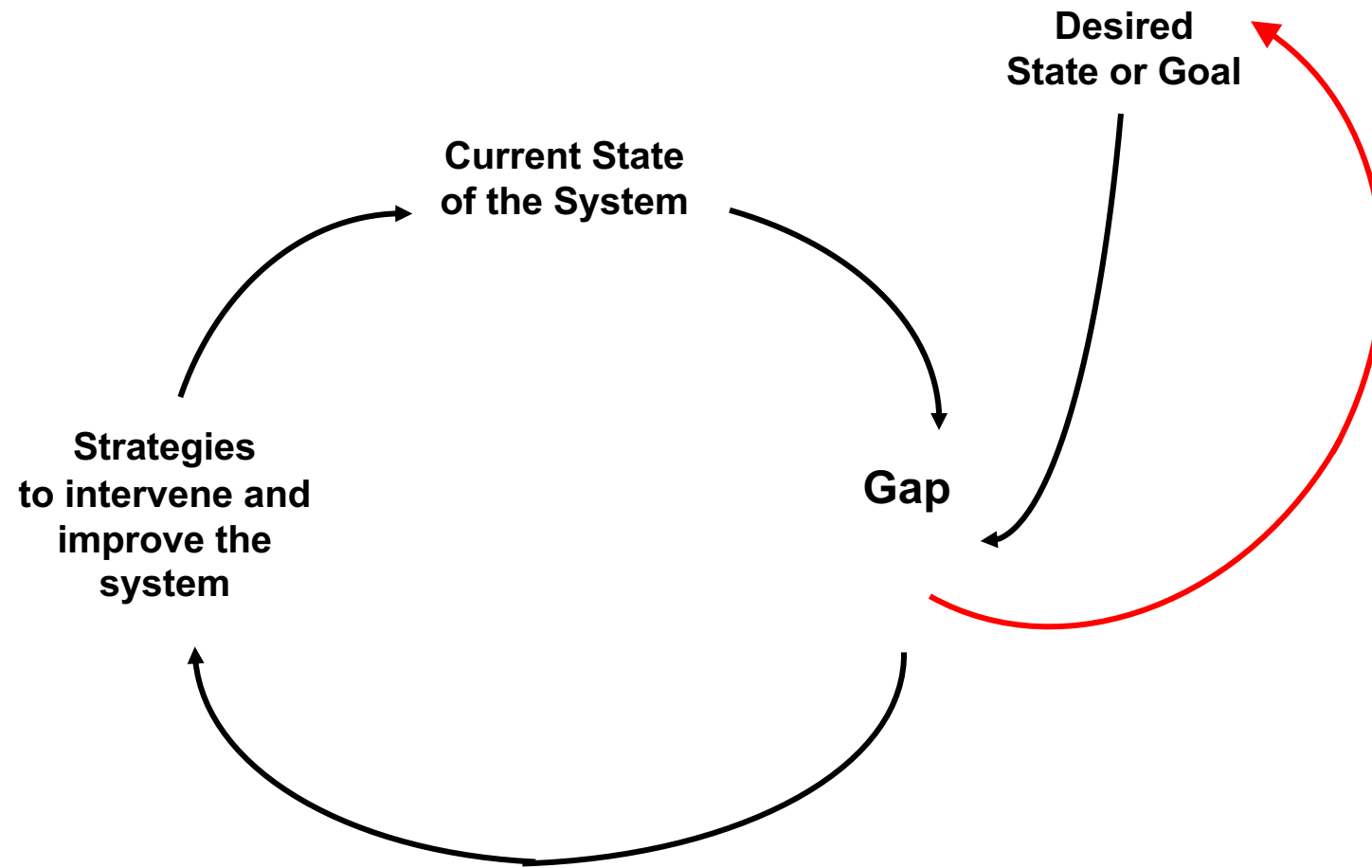
Team Challenge #2:

- Same rules as Challenge #1 and...
- Two people must keep eyes closed.







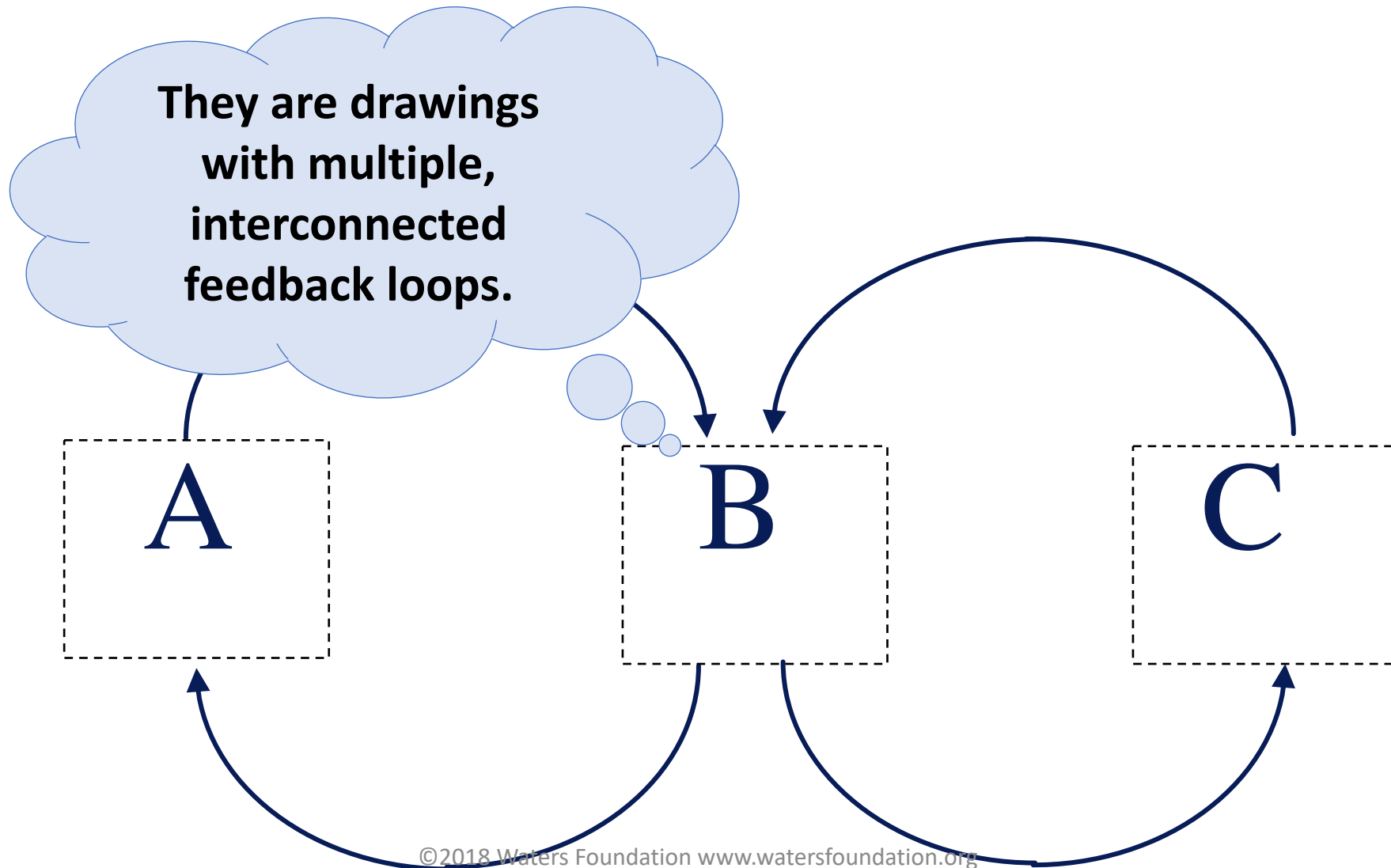


Causal Loop Archetypes

Archetypes capture “**common stories**” that occur repeatedly in diverse settings.



What do they look like?



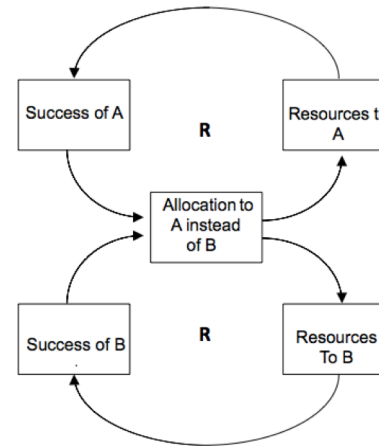
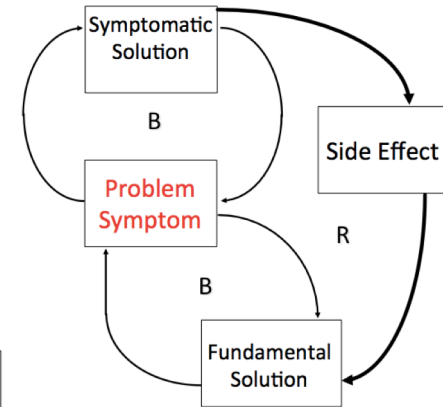
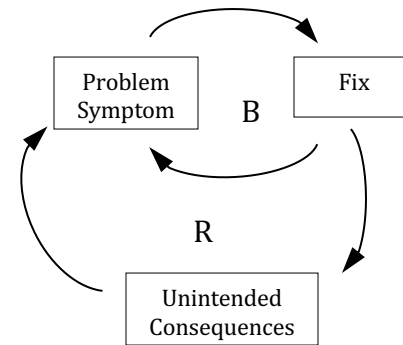




Archetypes help us **see causal connections**.
And, they help us **anticipate possible problems**
before they occur.

There are many archetype stories.

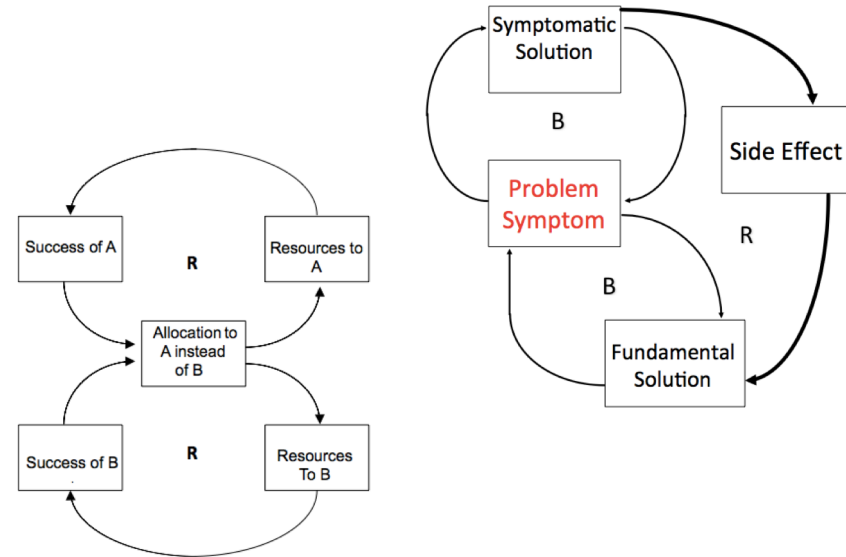
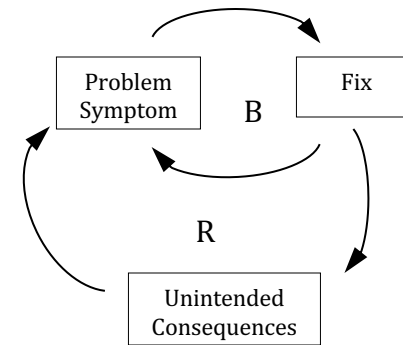
- Fixes that Backfire
- Shifting the Burden
- Drifting Goals
- Success to the Successful
- Escalation
- Accidental Adversaries
- Tragedy of the Commons
- Growth and Underinvestment
- Limits to Success
- Revolution
- Story Structure



We will learn and focus on 3.

- **Fixes that Backfire**
- **Shifting the Burden**
- **Success to the Successful (if time)**

- Drifting Goals
- Escalation
- Accidental Adversaries
- Tragedy of the Commons
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- Revolution
- Story Structure

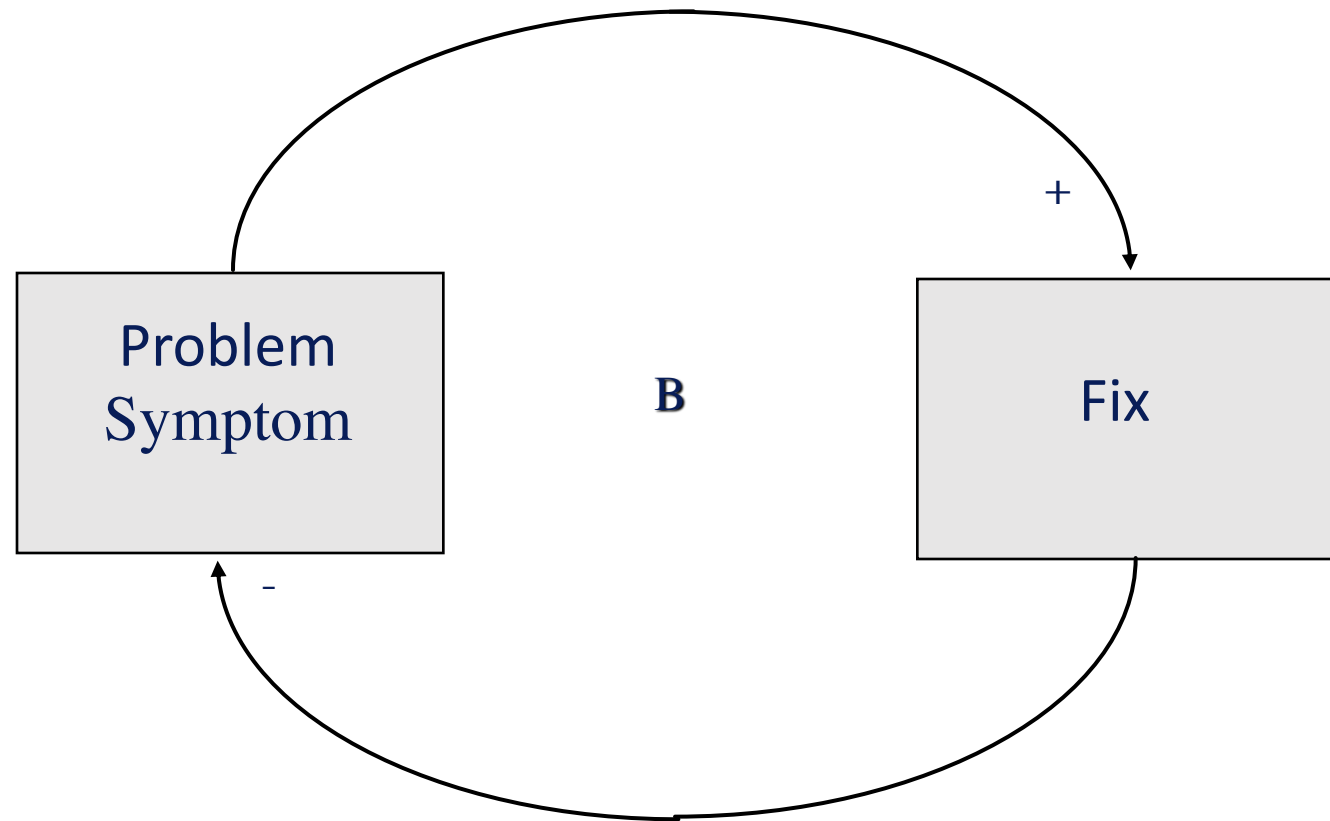


Fixes that Backfire Questions

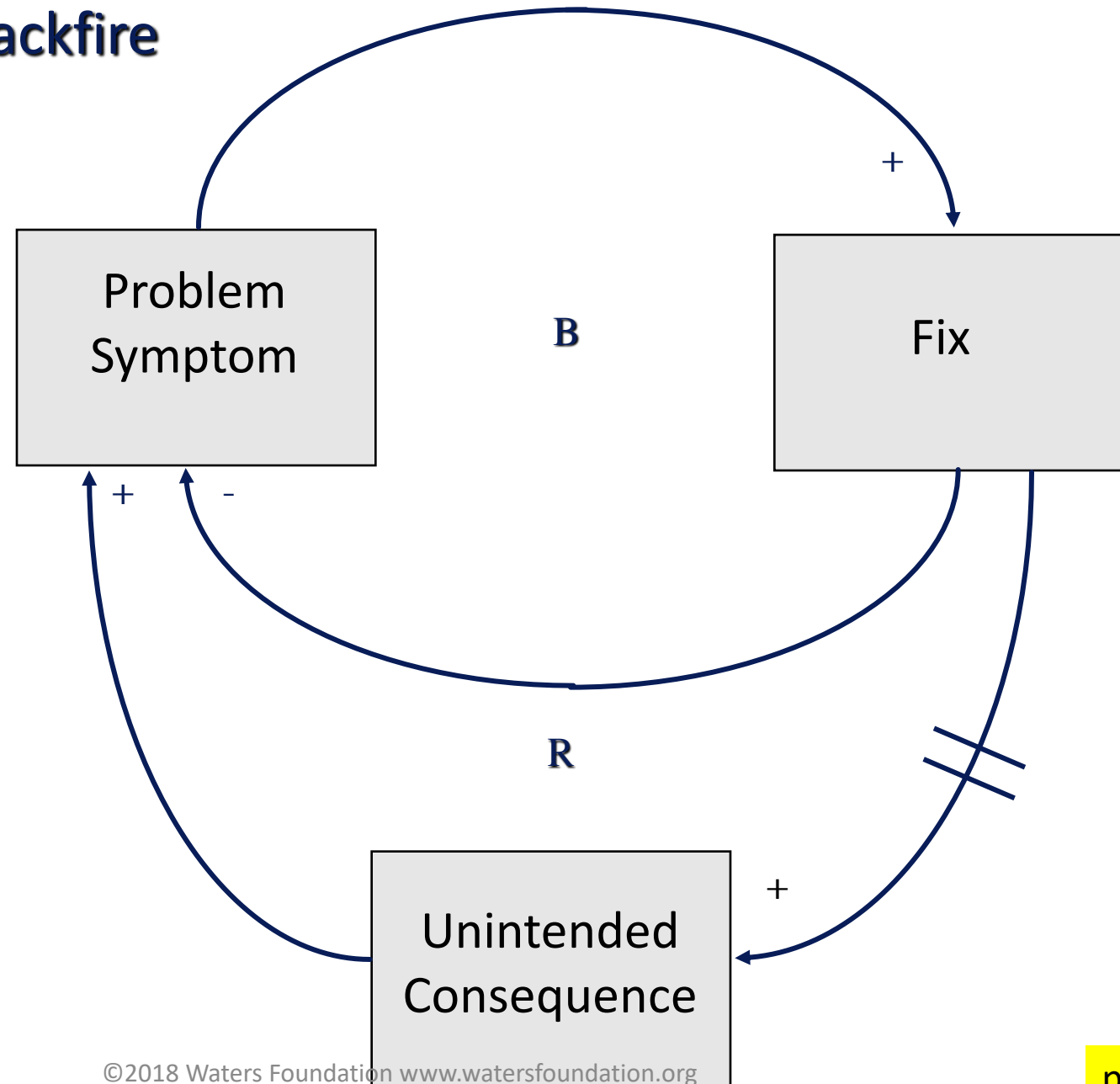
Has the need to respond quickly to a problem been greater than the importance of investigating potential unintended consequences?

Did the response help to reduce the problem in the beginning, but overtime, did consequences actually contribute to the original problem?

Fixes that Fail

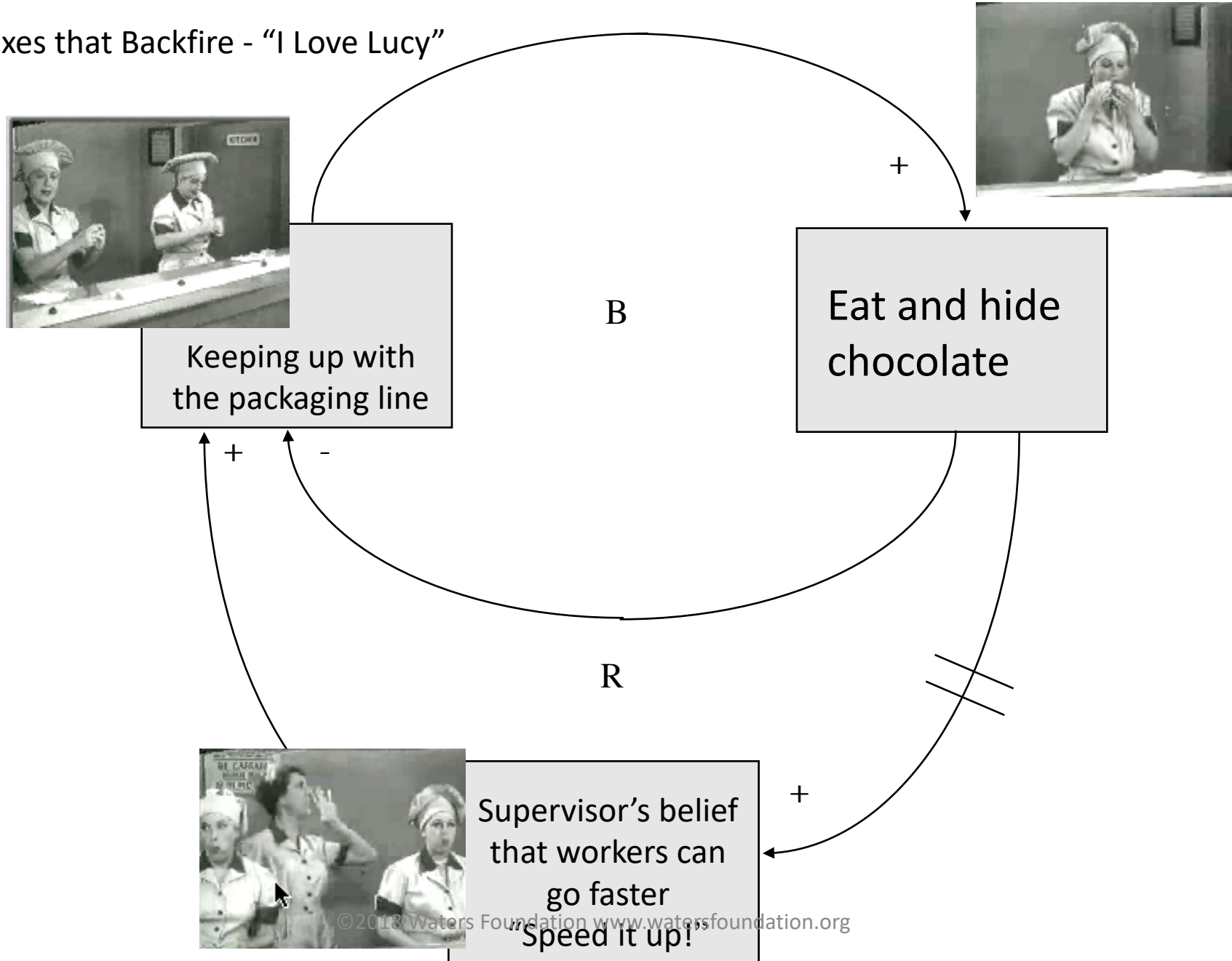


Fixes that Backfire

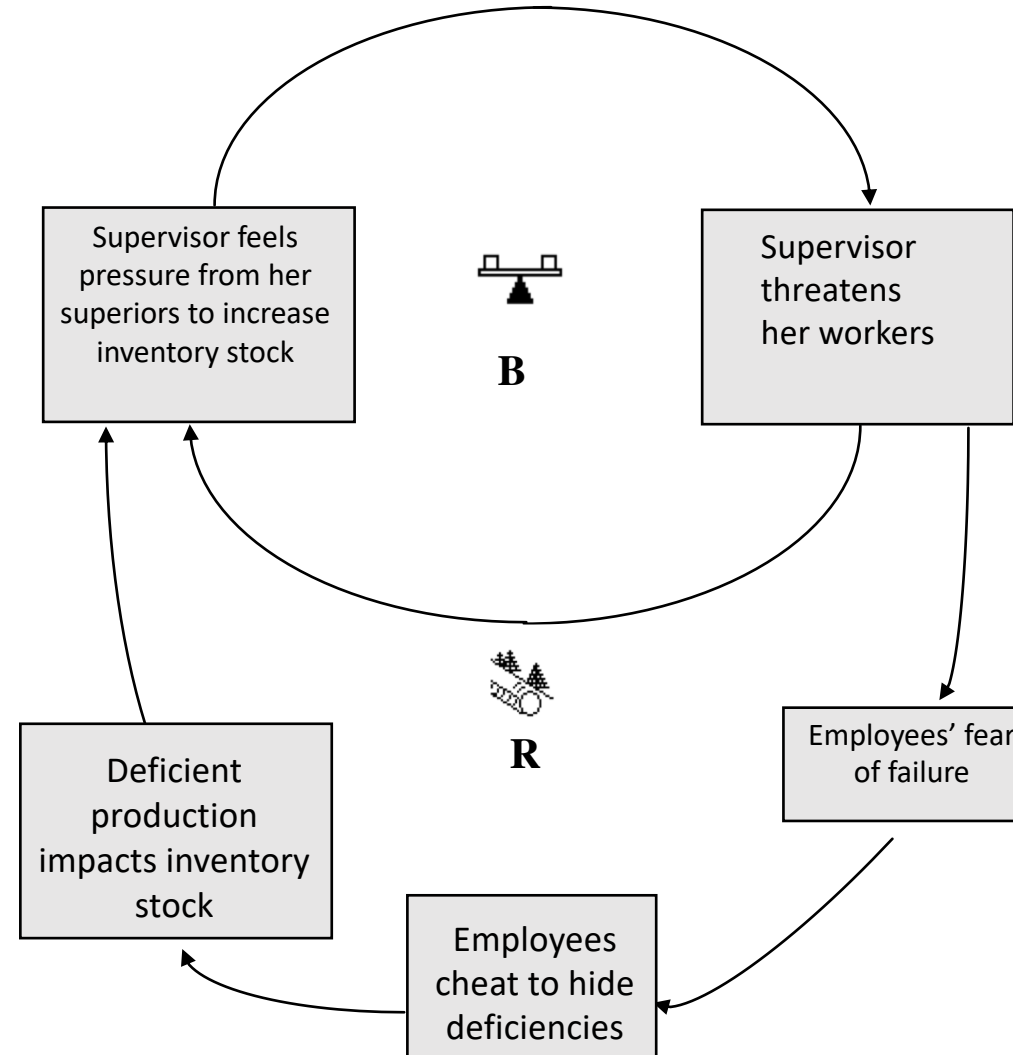




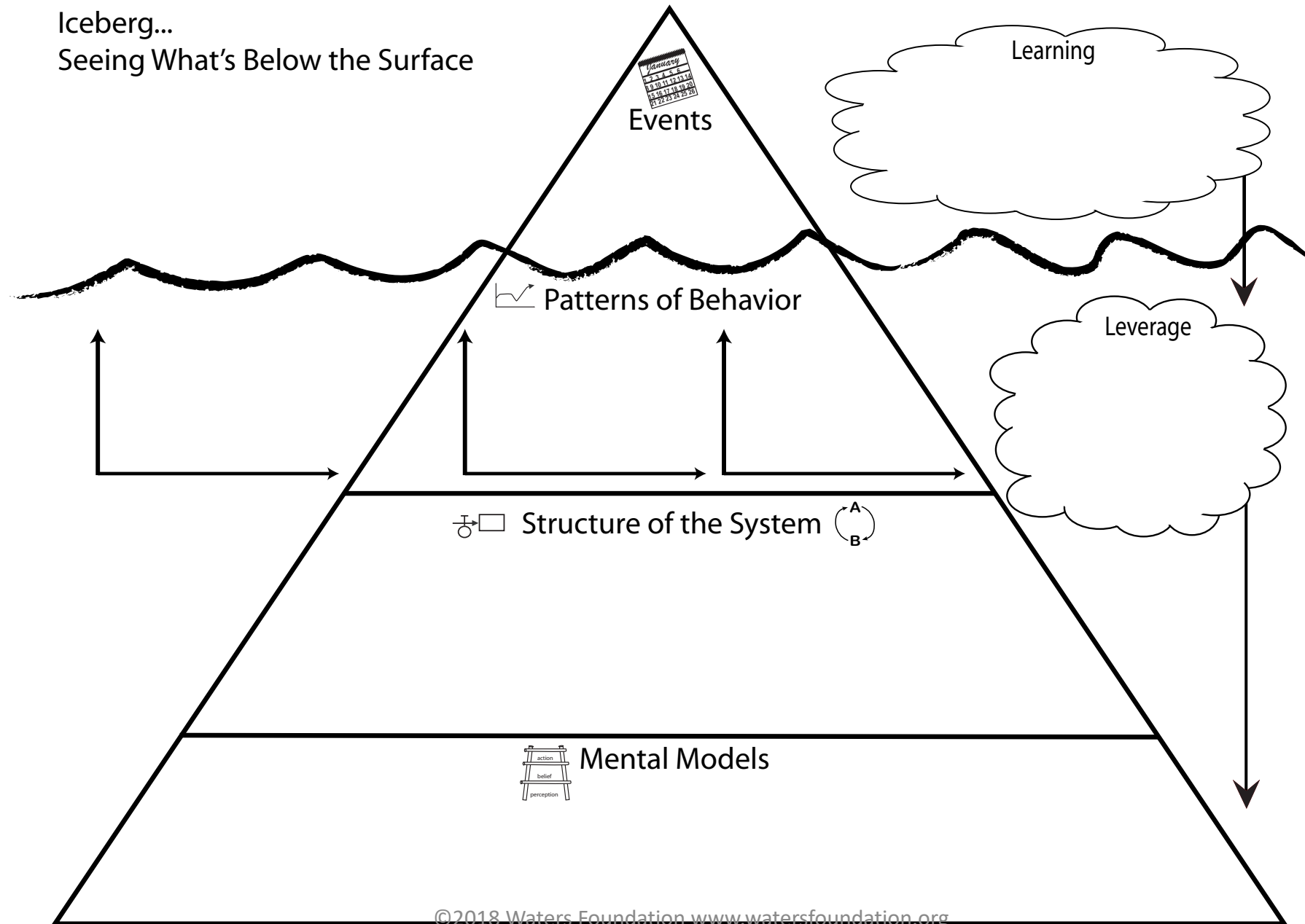
Fixes that Backfire - "I Love Lucy"



Fixes that Backfire – From the Supervisor's perspective



Iceberg...
Seeing What's Below the Surface



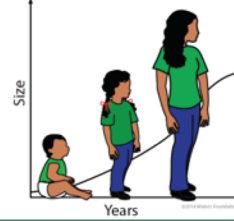


Mind Full, or Mindful?

Seeks to understand the big picture



Observes how elements within systems change over time, generating patterns and trends



Recognizes that a system's structure generates its behavior



Identifies the circular nature of complex cause and effect relationships



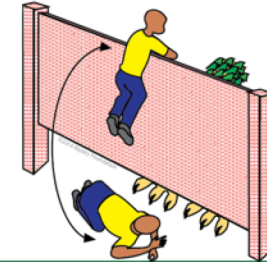
Makes meaningful connections within and between systems



Habits of a Systems Thinker



Changes perspectives to increase understanding



Surfaces and tests assumptions



Considers an issue fully and resists the urge to come to a quick conclusion



Considers how mental models affect current reality and the future



Uses understanding of system structure to identify possible leverage actions



Considers short-term, long-term and unintended consequences of actions



Pays attention to accumulations and their rates of change



Recognizes the impact of time delays when exploring cause and effect relationships



Checks results and changes actions if needed: "successive approximation"

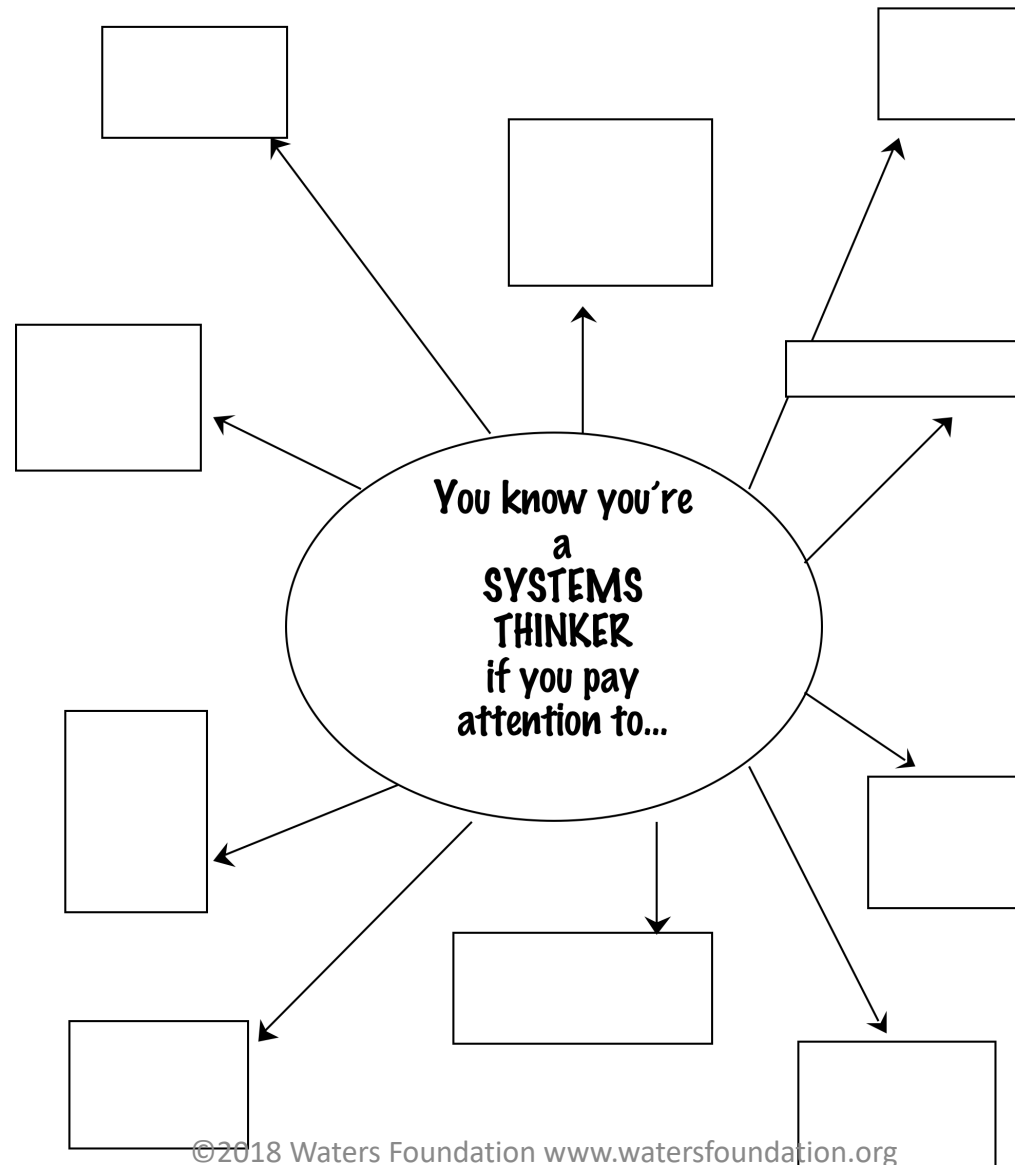




Review your Habits cards and choose one or two that you see as growth areas and would like to work on.
What are some ways you can incorporate intentional practice into your daily work?



Habits of a Systems Thinker



CHECKOUT

What approaches, exercises or strategies
will you plan on using
to intentionally practice
and continue your development as a
Systems Thinker?

What is one action step you plan on taking when you return to work?