

# Youth as Change Makers "Applying Systems Thinking skills to Build a Better Future for Somali's youth"

**M.Tech Student in**

**Hydraulics & Water Resource Engineering**

**@ Indian Institute of Technology Madras**

**Chennai – Tamil Nadu, India**

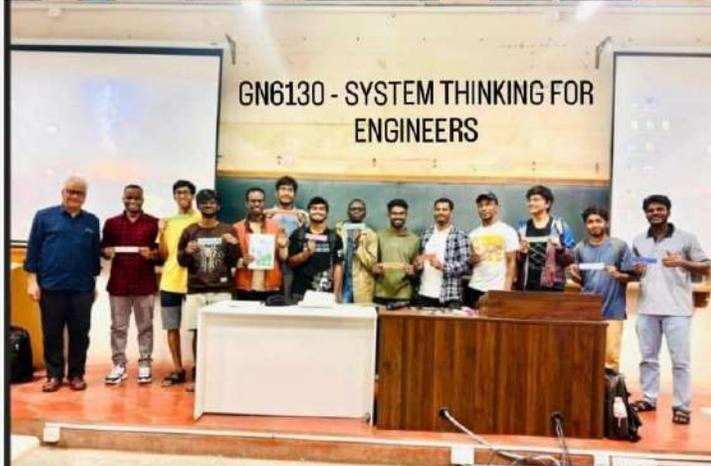
**PRESENTING - ABDURRAHMAN AWEIS      CE24M801**

**<https://aweis4water.org/>**



IIT MADRAS

Thank you, Sir Shiva, for your wonderful lessons. They will always remain in our minds and guide us in life. We truly appreciate your constant support in clearing our doubts and sharing the System Thinker's Toolkit.



## Acknowledging to the Course Instructor - © IITM



**Shiva Subramaniam**

Founder-Director, Biomimicry Compass; Innovation Coach

Shiva is the co-founder of Biomimicry Compass, an IIT Madras incubated company, that enables innovation using nature's design strategies and engineering principles. He is a coach and facilitator, specializing in innovation, creativity, entrepreneurship, and cross-cultural skills. In his career spanning over 3 decades, he has worked with a multitude of organizations, teams, and individuals, helping them with new ways of thinking, exploring connections, expanding their vision and realizing their potential.

He started his career as an advocate at the Madras High Court. Subsequently he worked with Tata Consultancy Services where he was evangelizing innovation. Shiva has also worked with the Indian national cricket team with Greg Chappell on the connections between creativity and sports. Shiva is guest faculty at IIT Madras, where he teaches courses on creativity, entrepreneurship, life skills, cross-culture and biomimicry.

**Member**  
**Professional Certified Coach (PCC)**



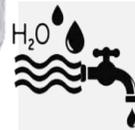
## PROFILE



I am Civil Engineer. A very trustful, hardworking, punctual, reliable and honest, who is capable to work well both as part of a team and on own initiative. A devoted individual with a professional and pro-active approach I know some knowledge about, civil, water and energy works, which are all interconnected in the engineering industry.

My experience includes hydrological modeling, where I use tools like HEC-HMS, SWAT Models, and **QGIS-QSWAT** to study water resources under different climate scenarios. I have a strong track-record of completing engineering projects ahead of schedule and within budget.

I am flexible and open to using various engineering methods, always ready to learn new techniques to make each project successful. My main interest is to understand how water systems respond to changes in climate using hydrological modeling approaches **[SWAT] Model**.



### Assessing the Impact of Climate Change on Streamflow & Evapotranspiration in the Lower Webi Shebelle Beletweyne Sub-Basin Somalia, Using SWAT Model

I'm currently working on the above research project which I'm addressing how climate change is affecting streamflow and evapotranspiration in Somalia's Lower Webi Shebelle; case study in Beletweyne sub-basin, Using SWAT model. I am analyzing current water resources and projecting future climate scenarios to articulate how changing rainfall, relative humidity, wind speed and temperature patterns are threatening the agriculture, daily water supply, river streamflow and natural habitats in this basin, Beletweyne. My work highlights the urgent challenges for over half a million people relying on the lower Webi Shebelle, and I will Inshallah suggest practical steps to help local communities better manage their water resources in sustainable manner and build resilience against climate risks, this work is guide by Professor, Balaji Narasimhan, IIT Madras.

# Shifting an orientation.....Your Minds

Myth



CHETHIYA PRASANCA

An ante rolling a connected sand, for a living

Reality



A Young College Boy – running to a class in IIT Madras

Aduunka waxa ugu adag birta Platinum, iyadane dabaa ka adag, Dabkana Biyaha ka adag ! Biyahan Human minds ayaa ka adag

# HABITS OF A SYSTEMS THINKER

2020 Edition

SEEKS TO UNDERSTAND **THE BIG PICTURE**

OBSERVES HOW ELEMENTS WITHIN SYSTEMS **CHANGE OVER TIME**, GENERATING PATTERNS AND TRENDS

RECOGNIZES THE IMPACT OF **TIME DELAYS** WHEN EXPLORING CAUSE AND EFFECT RELATIONSHIPS

CONSIDERS HOW **MENTAL MODELS** AFFECT CURRENT REALITY AND THE FUTURE

**CONSIDERS AN ISSUE FULLY** AND RESISTS THE URGE TO COME TO A QUICK CONCLUSION

USES UNDERSTANDING OF SYSTEM STRUCTURE TO IDENTIFY POSSIBLE **LEVERAGE ACTIONS**

**CHANGES PERSPECTIVES** TO INCREASE UNDERSTANDING

RECOGNIZES THAT A SYSTEM'S **STRUCTURE GENERATES ITS BEHAVIOR**

**CONSIDERS** SHORT-TERM, LONG-TERM AND UNINTENDED **CONSEQUENCES** OF ACTIONS

IDENTIFIES THE **CIRCULAR NATURE** OF COMPLEX CAUSE AND EFFECT RELATIONSHIPS

PAYS ATTENTION TO **ACCUMULATIONS** AND THEIR RATES OF CHANGE

MAKES **MEANINGFUL CONNECTIONS** WITHIN AND BETWEEN SYSTEMS

CHECKS RESULTS AND CHANGES ACTIONS IF NEEDED: **"SUCCESSIVE APPROXIMATION"**

SURFACES AND **TESTS ASSUMPTIONS**

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For Systems Thinking

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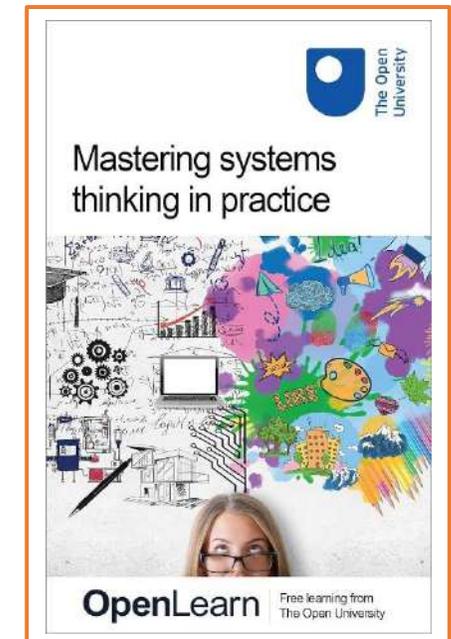
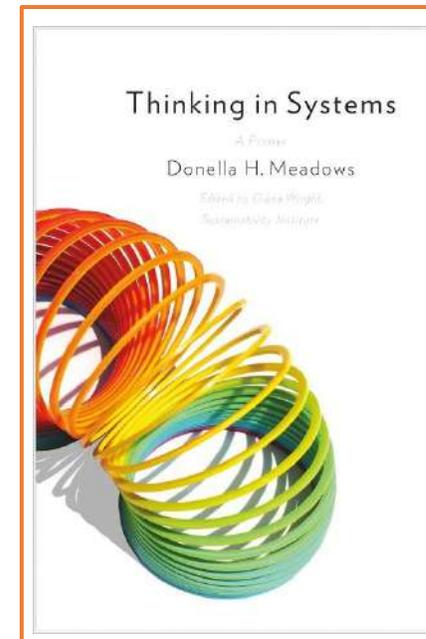
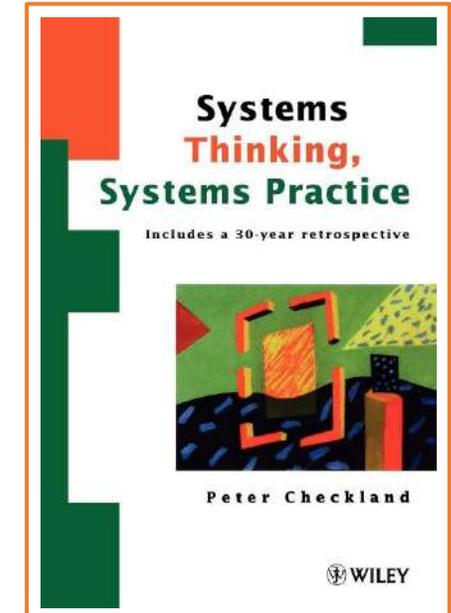
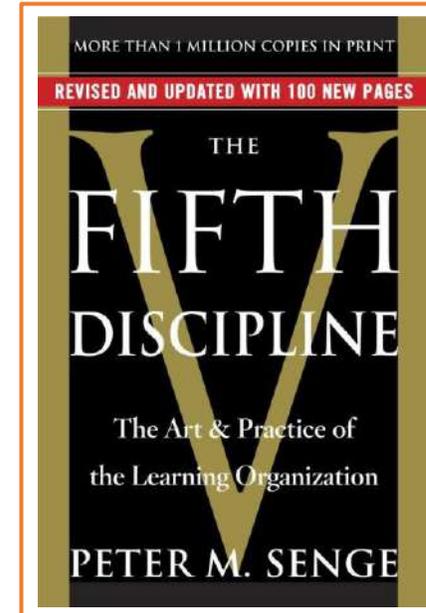
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# Recommended Books – Systems Thinking

## GN6130 Systems Thinking

Books on topics covered in the course

#	Title	Author(s)
1	Thinking in Systems	Donella Meadows
2	The Systems Thinking Playbook	Linda Booth Sweeney, Dennis Meadows
3	Systems Thinking, Systems Practice	Peter Checkland
4	Systems Thinking for Social Change	David Peter Stroh
5	Systems Thinking Made Simple: New Hope for Solving Wicked Problems	Derek Cabrera, Laura Cabrera
6	The Great Mental Models Volume 3	Rhiannon Beaubien, Rosie Leizrowice
7	The Fifth Discipline	Peter Senge
8	The Fifth Discipline Fieldbook	Peter Senge

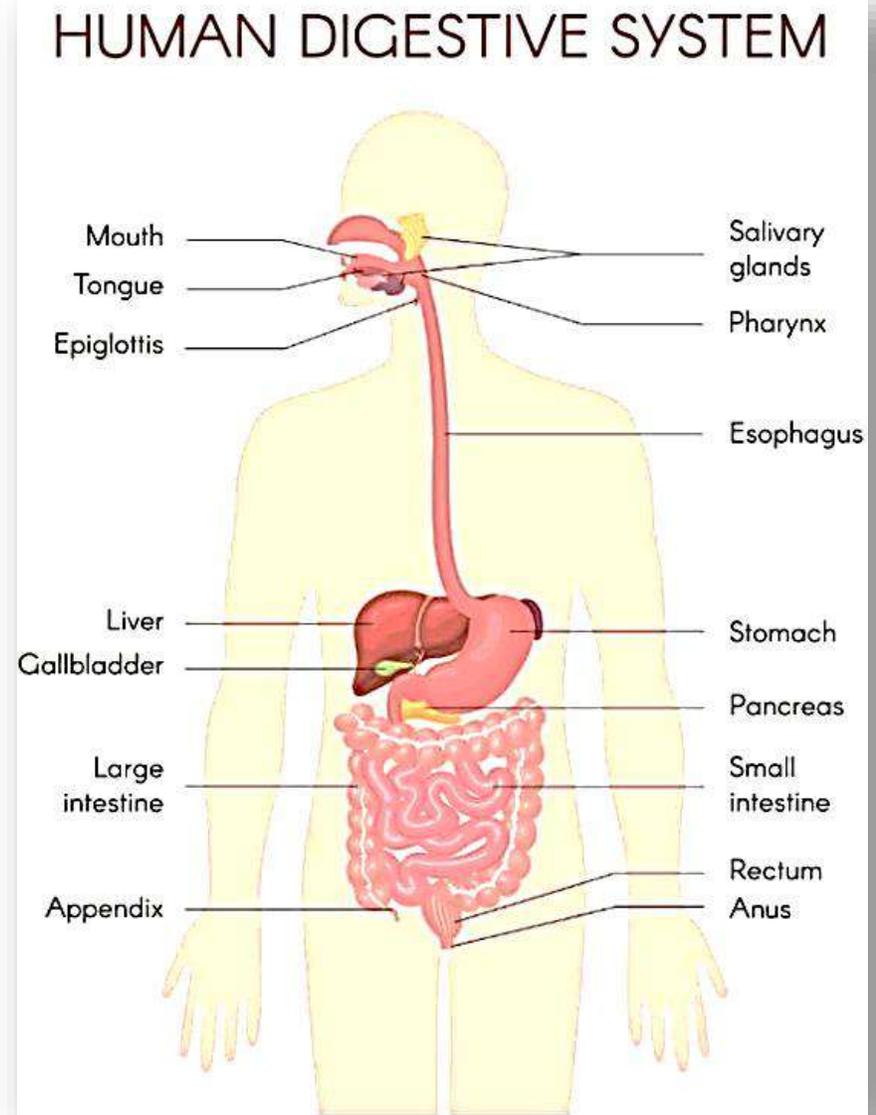


# What is a SYSTEM?

A 'system' is an interconnected set of elements that is coherently organized in a way that achieves something.

A system consists of three things:

- Elements
- Interconnections
- Function or Purpose



## Systems in your Life

### HEALTH / WELL-BEING

- System includes physical and emotional health
- Also includes your state of being happy and prosperous.

### FAMILY

- System considers all the people you choose to identify as your family, both immediate and extended, and may include people of all ages

### WORK

- System could include paid employment, a volunteer position, your life's calling, or any role you play where you make a contribution to others

### SOCIAL LIFE & RELATIONSHIPS

- System considers all the relationships in your social life



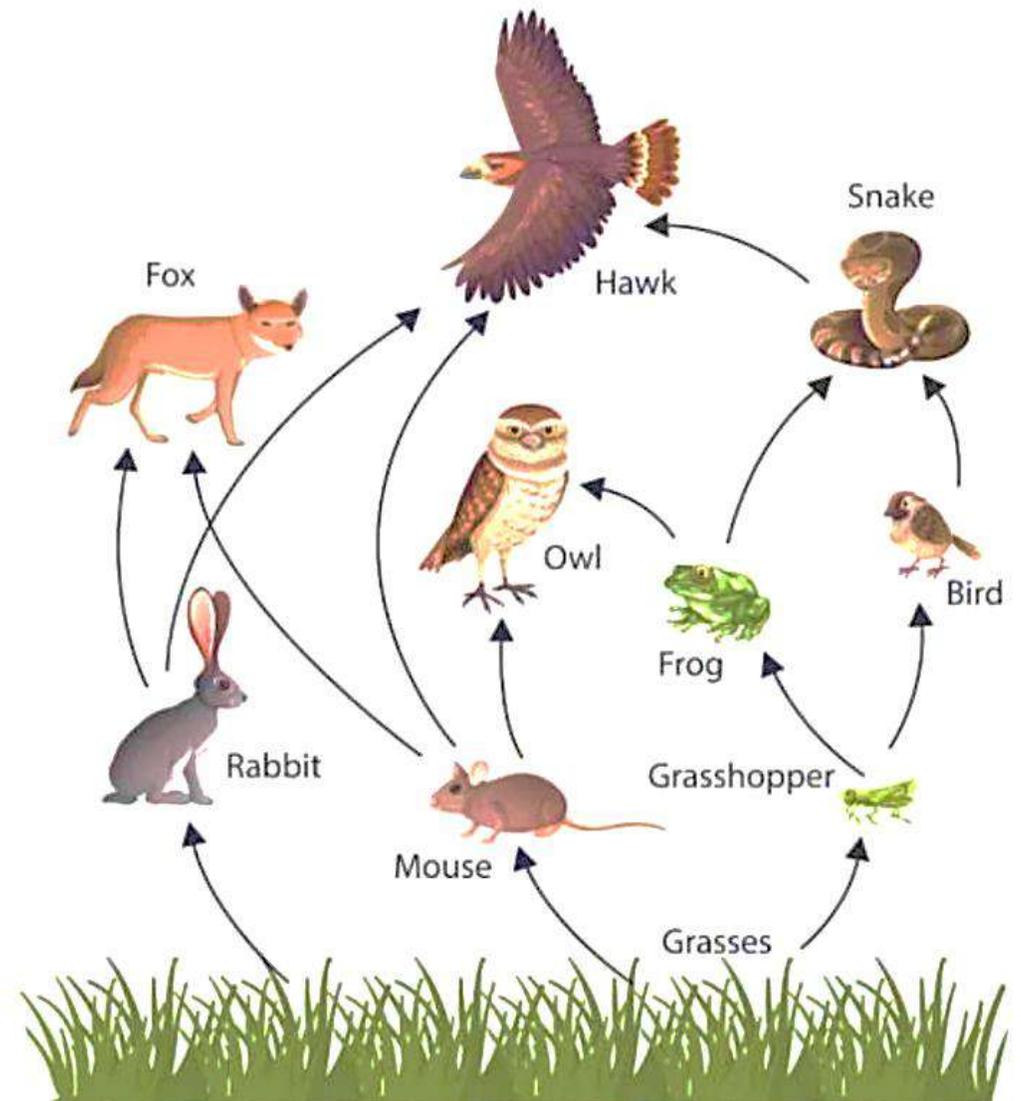
# HEAP vs SYSTEM



# SYSTEMS VIEW

Holistic approach to understand

- how **elements** of a system are **connected** to each other,
- how the system **relates to larger systems/other systems**, and
- how **changes** in any one affect the rest



# HOW CAN SYSTEMS THINKING HELP YOU?

Powerful approach that can help to:

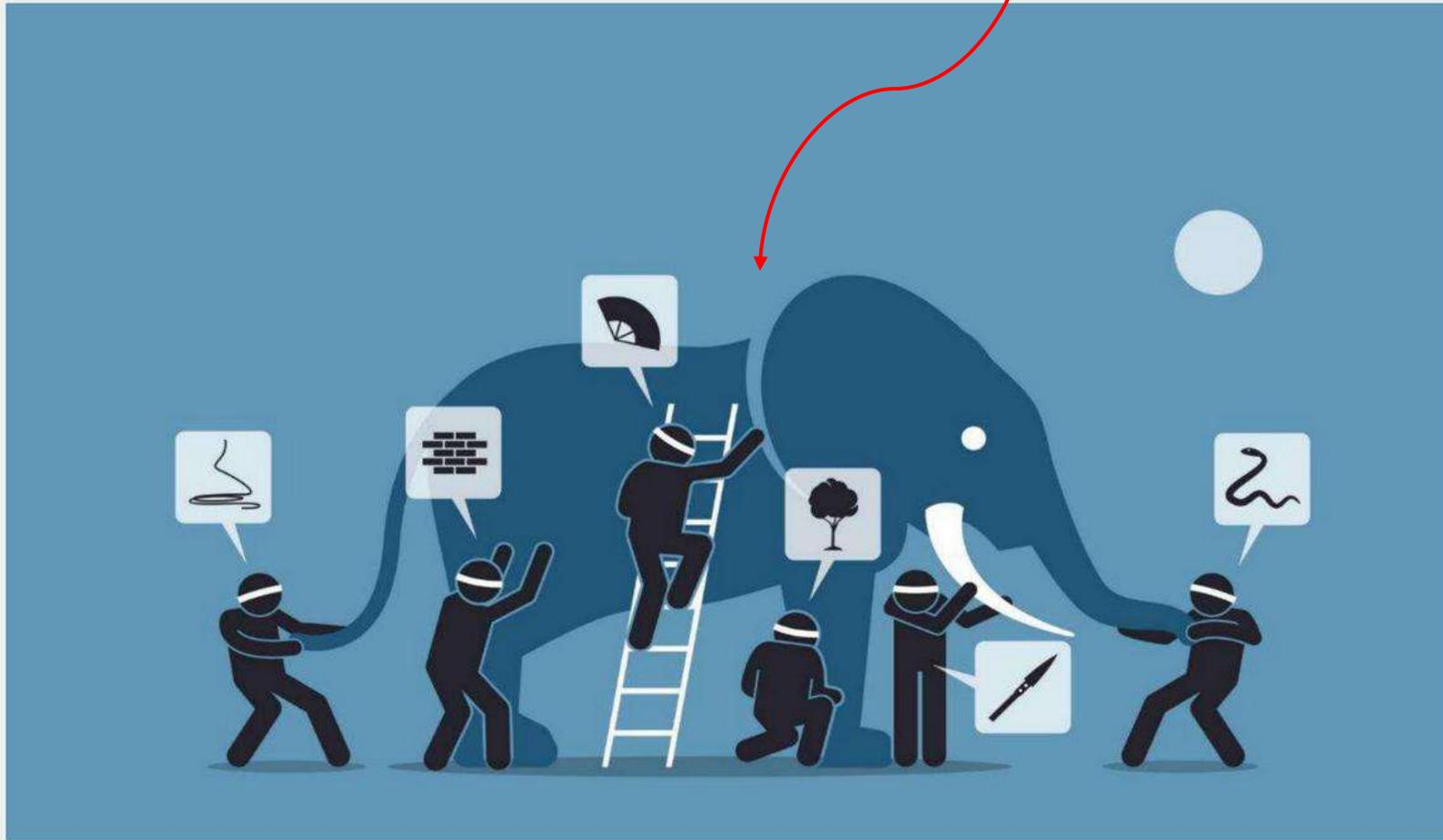
- examine problems
- understand the nature of situations
- diagnose issues
- explore options
- broaden perspectives



# Whole > Sum of Parts

Originating from ancient Indian texts like the Udana in Buddhism (6th century BCE).

it teaches that partial truths lead to conflict, while holistic understanding reveals the full reality.



# IIT Madras - System



## ELEMENTS

- Students
- Faculty
- Curriculum
- Facilities

## PURPOSE

Impart higher education in engineering, sciences, management and humanities

## OTHER SYSTEMS THAT THE SYSTEM INTERACTS WITH

- Government
- Parents
- Alumni

# System - Example

## CRICKET MATCH

- What are the elements in a cricket match?
- What is the purpose?
- What are the interconnections?
- How will the system change if one of the above is changed?



# System - Example

## SPORTS MATCH

- What are the elements in a Sports match?
- What is the purpose?
- What are the interconnections?
- How will the system change if one of the above is changed?



# System - Example

## Air-India – Flights

- What are the elements in an airline?
- What is the purpose?
- What are the interconnections?
- How will the system change if one of the above is changed?



# System - Example



## FOOD DELIVERY

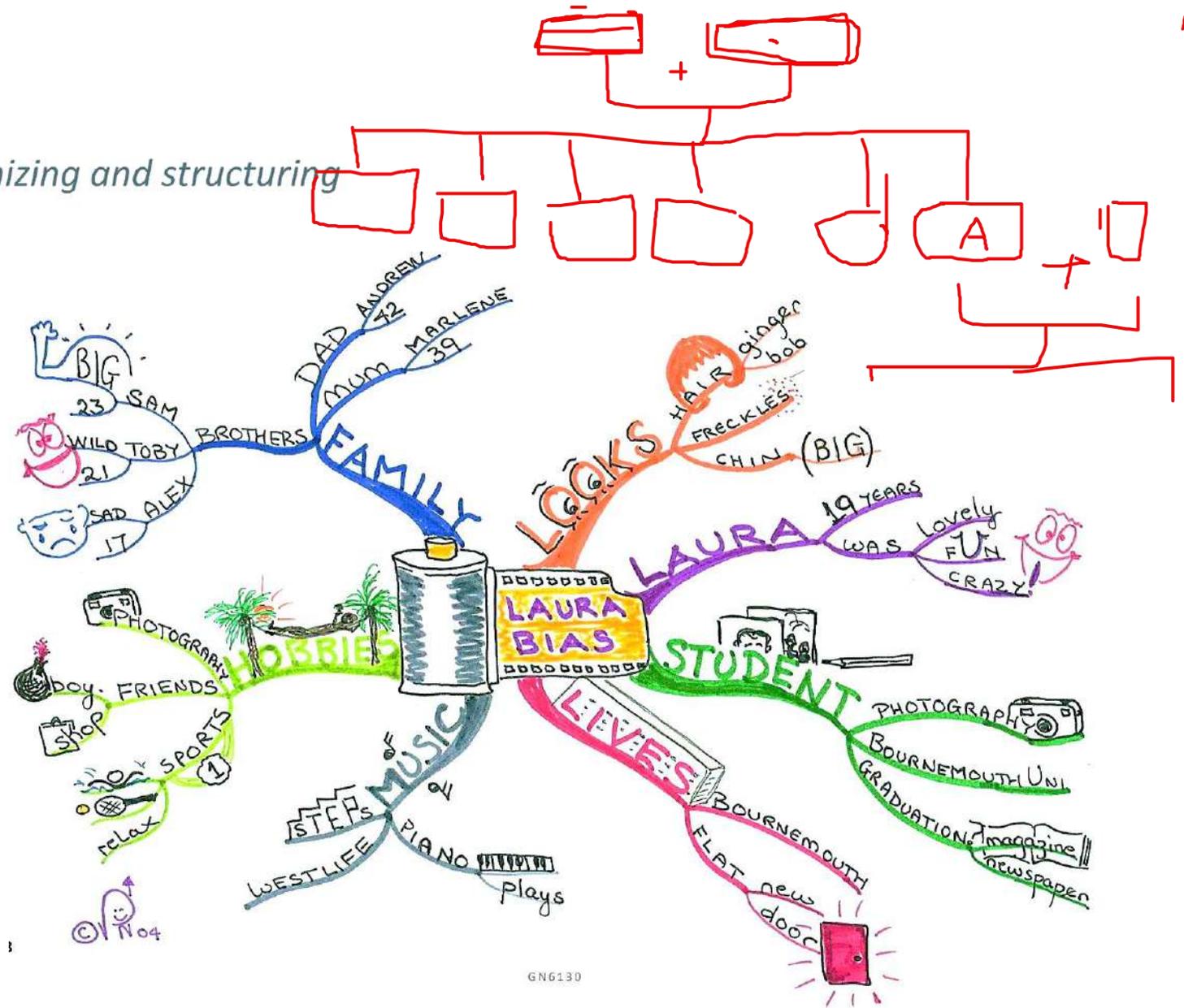
- What are the interconnections that get the food to your doorstep?

## **Everything is connected!**

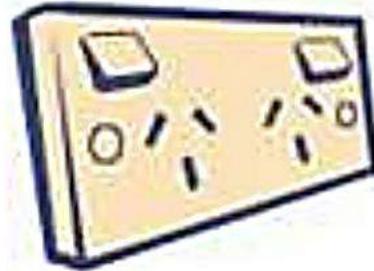
- All entities in the natural world and the human world exist within an interconnected web – resource flows, energy flows, information and other relationships
- No problem or solution exists in a silo
- Systems view -> understand a system at a deeper level and identify points for intervention

# MIND MAPPING

A visual tool for capturing, organizing and structuring information and ideas



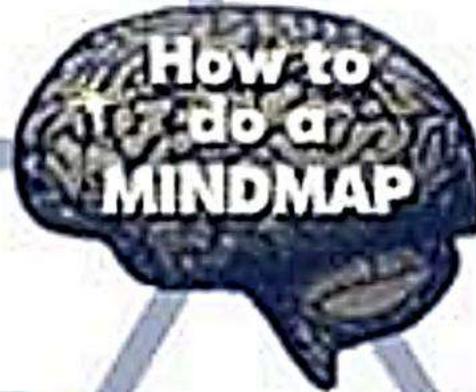
## Look for Relationships



Branches, arrows, colours, groupings can be used to show connections and relationship between ideas.

To add things later

Leave lots of **SPACE**



**Draw Quickly**  
No  
Pausing  
Judging  
Editing  
Lined Paper



These are linear activities and disrupt mindmapping

Put  
Main Idea  
in centre

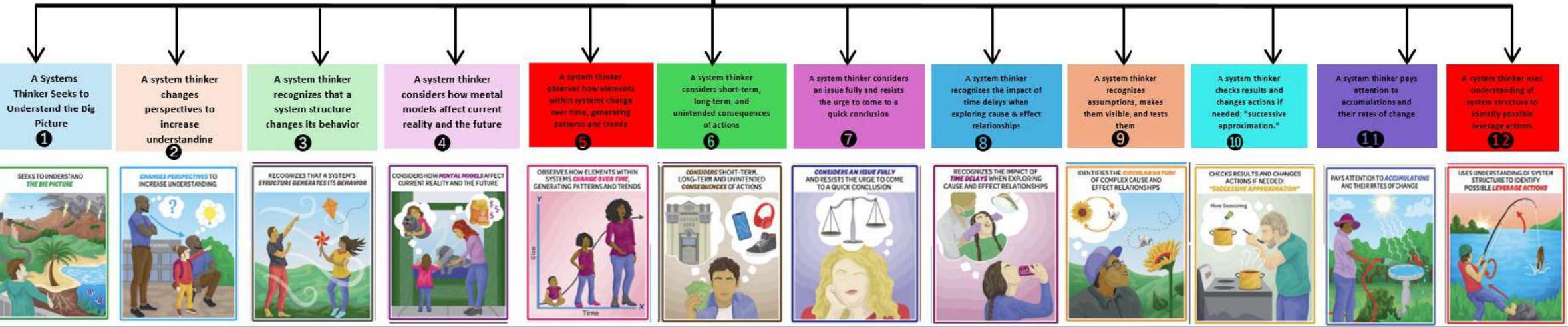
**USE**

**A**  
**CAPITALS**

# Example - Speech made during a retirement party



## HABITS OF SYS. THINKER'S TOOLKIT



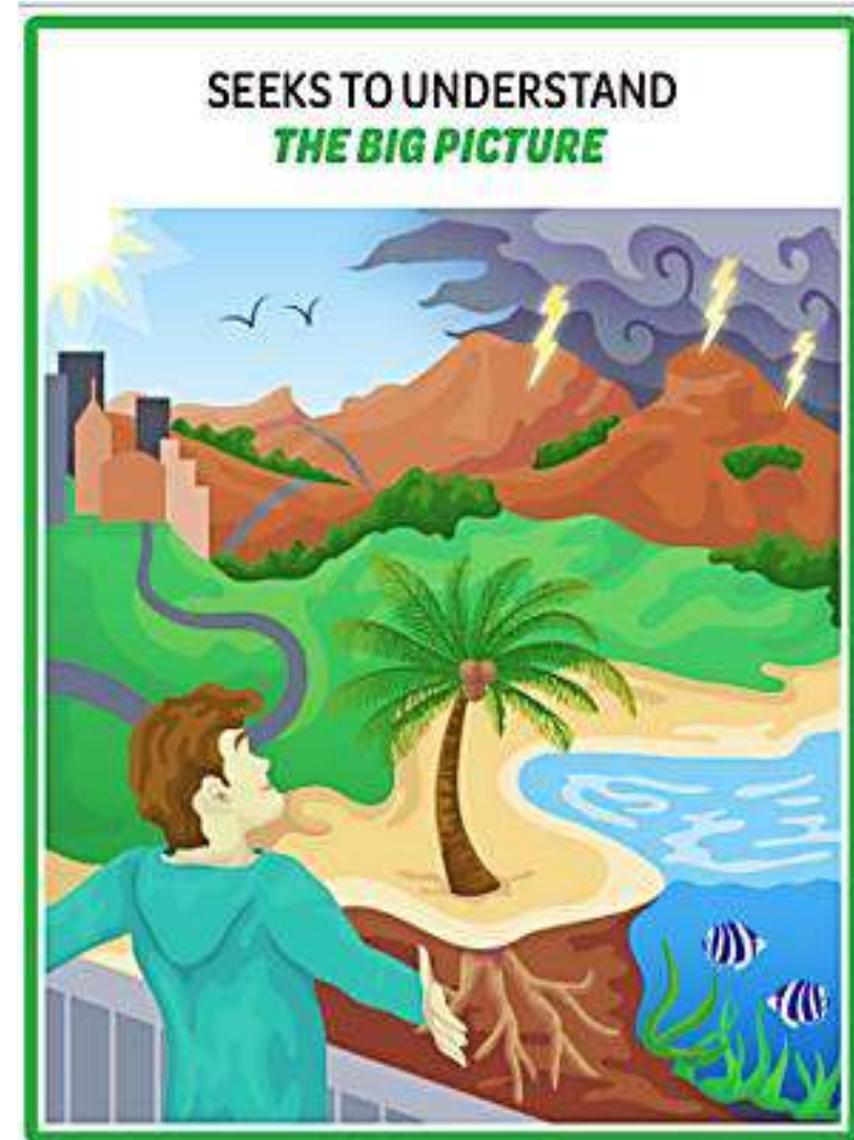
## Workshop outcomes

- Imbibe a systems thinking mindset
- Look for connections and interdependencies in any scenario
- Build creative confidence with systems thinking

# 1 A Systems Thinker Seeks to Understand the Big Picture

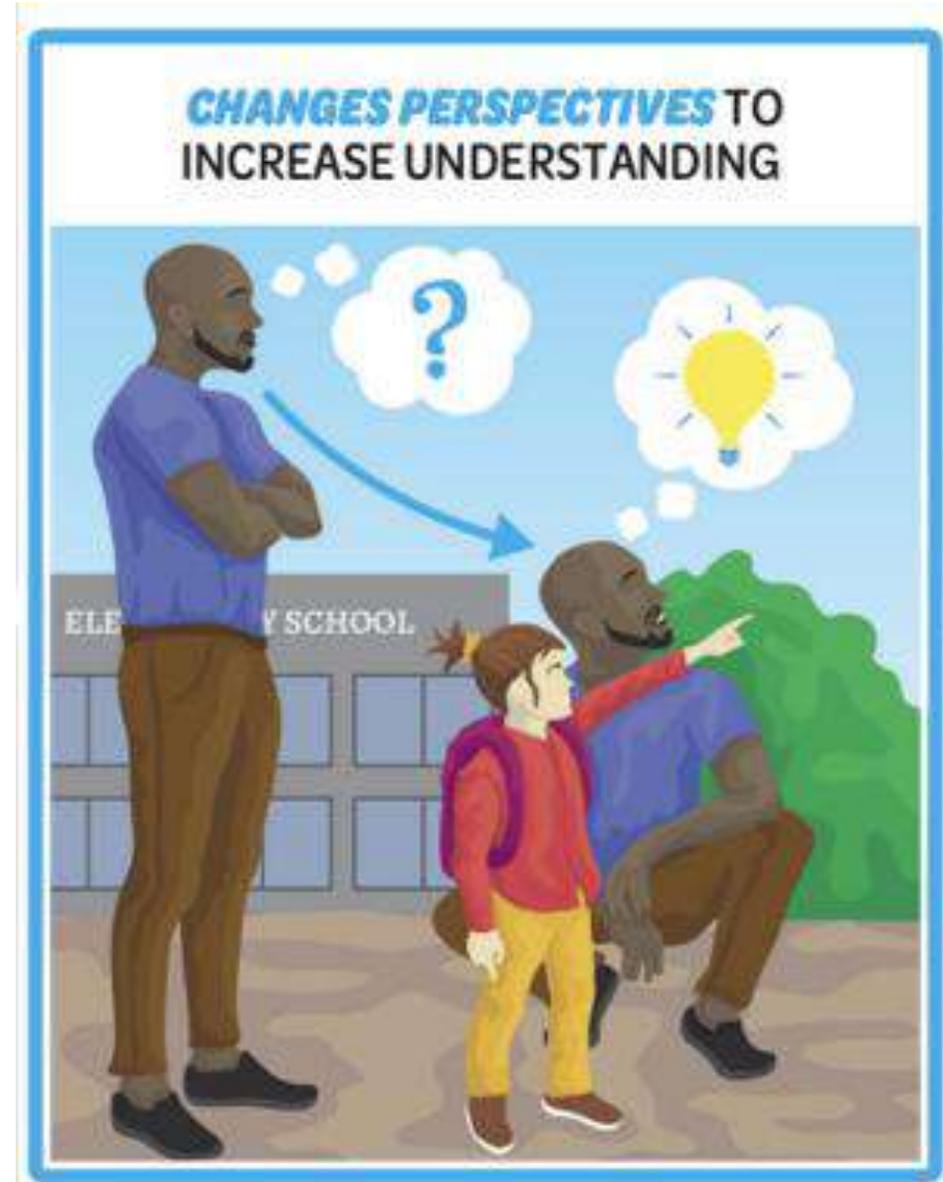
A Systems Thinker seeks big picture orientation and balances that view with timely attention to details when needed.

- How can I see the big picture without losing sight of important details?
- How can I increase the boundaries of my system to see a larger whole?
  - System size
  - Time \*



## 2 A system thinker changes perspectives to increase understanding

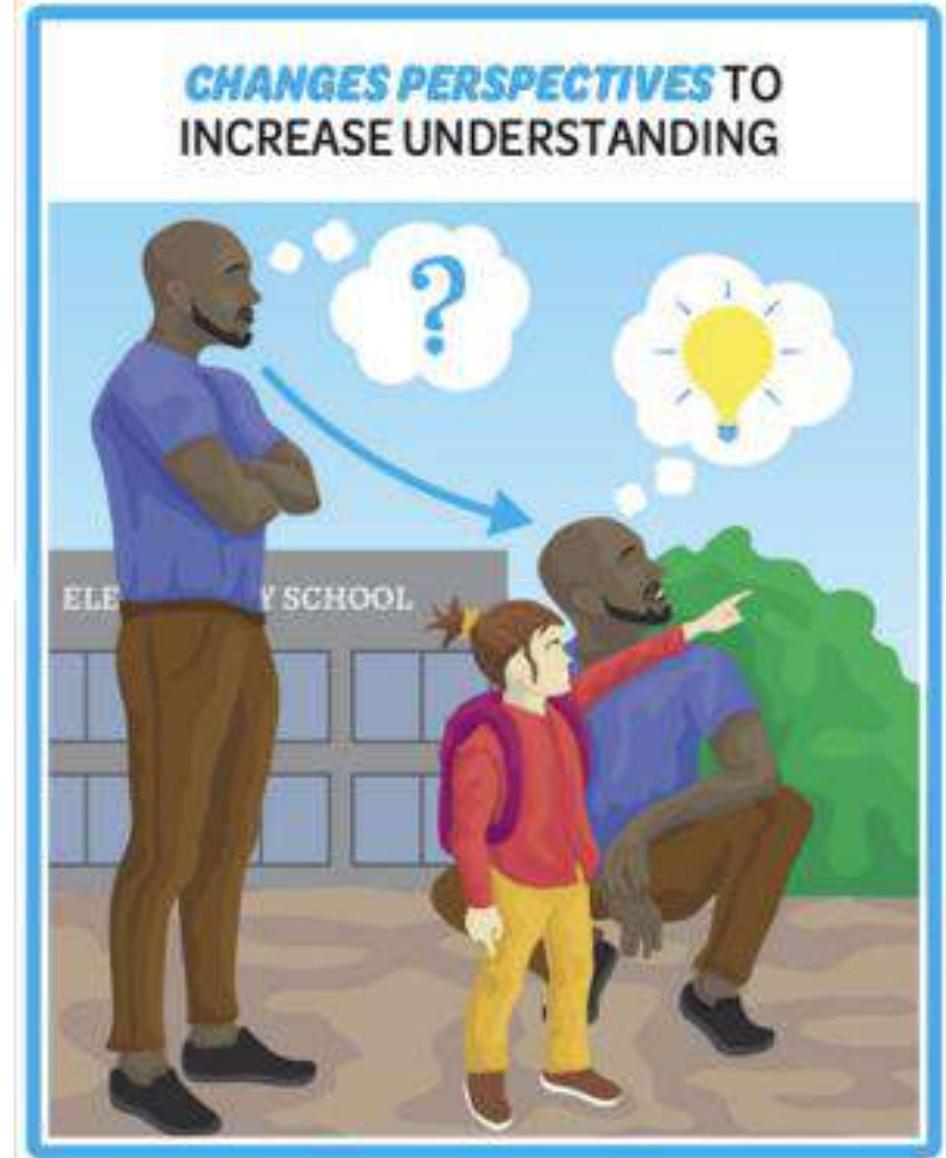
- A Systems Thinker aims to see situations, experiences, viewpoints, through the eyes of others.
- By doing so, we can see beyond our own deeply-held viewpoints and increase our understanding.\*
- Practice seeing/telling from a different perspective
- Reflect on your own deeply-held beliefs and consider how they influence your perspective
- Learn about dialogue as a discipline and the difference between “hearing” and “listening” \*



## ② A system thinker changes perspectives to increase understanding

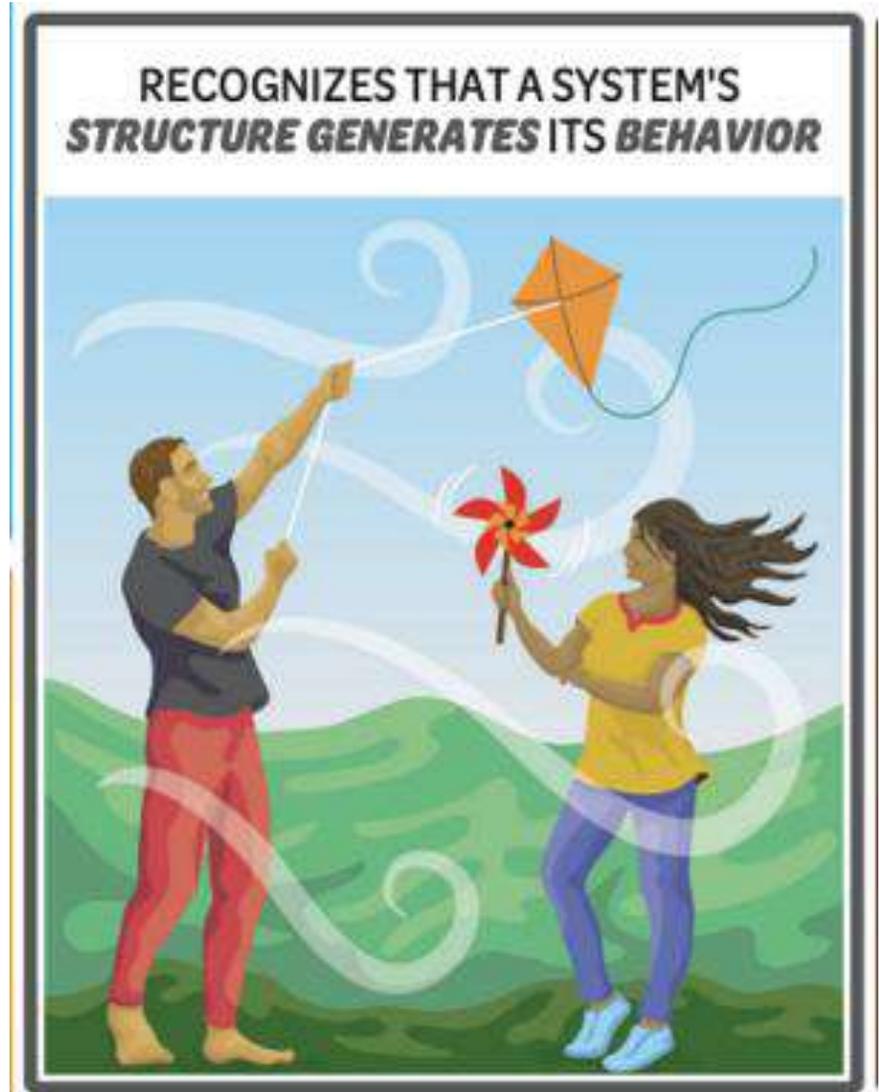
Increase understanding by changing the way you view aspects of the system

- Am I open to other points of view?
- How do different points of view influence the way I understand the system?
- Who should I approach to help me gain new perspectives on an issue?
- As I learn about new perspectives, am I willing to change my mind?\*



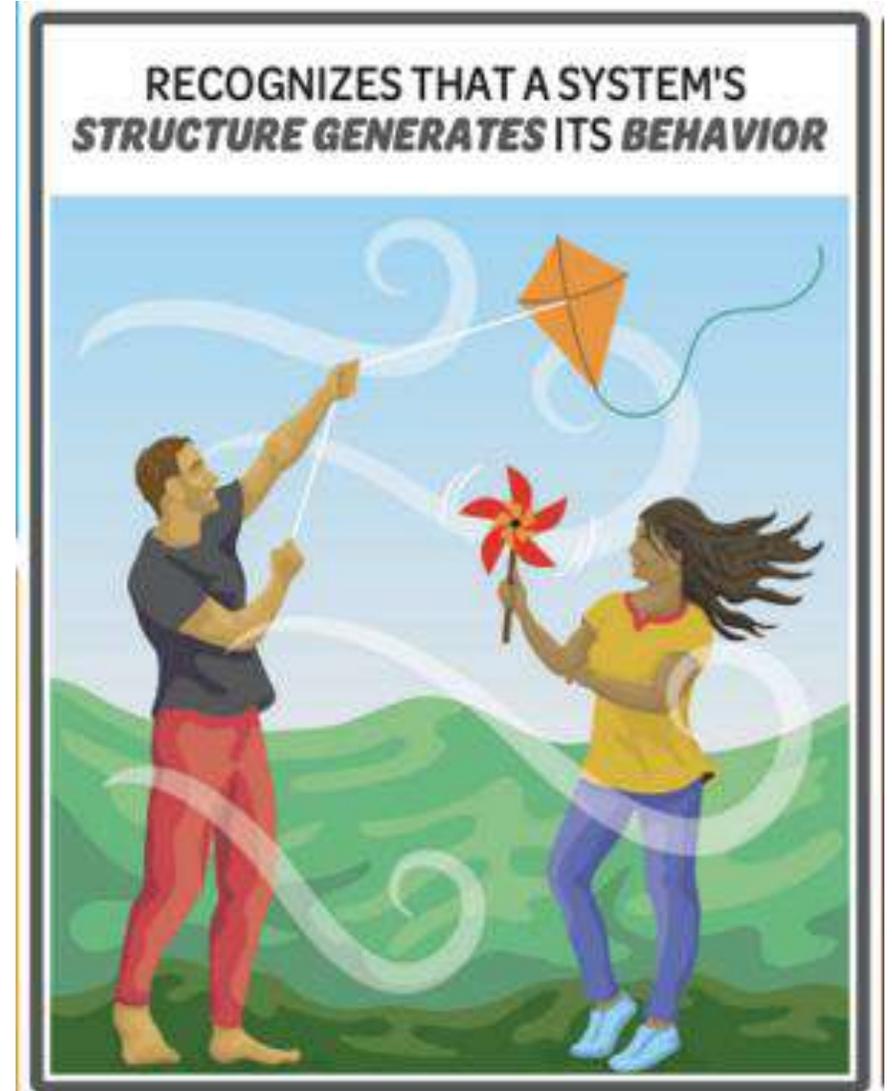
### ③ A system thinker recognizes that a system structure changes its behavior

- Structures can be tangible – like the design of a space. E.g. a commercial kitchen vs. a kitchen in a home.
- Physical structure influences behaviour - space, furniture placement, lighting and acoustics
- E.g. Arrangement of tables and chairs in a classroom.



### ③ A system thinker recognizes that a system structure changes its behavior

- Structures can be intangible:
  - Laws and policies
  - Regulations and rules
  - Social structures like traditions and routines
- Intangible structures affect behaviour as well
- E.g. Enforcing fines for not stopping behind the 'white line' at traffic lights



### ③ A system thinker recognizes that a system structure changes its behavior

- Systems thinkers visualize the desired system behavior and then they create the structures that will produce the desired outcomes.
- If you desire to change the way a system behaves, you do so by changing the structure of the system. \*

#### **Focus on system structure and avoid blaming when things go wrong**

- How do parts affect one another?
- How does the organisation and interaction of the parts create the behaviour that emerges?
- When things go wrong, how can I focus on internal causes rather than dwell on external blame? \*

### ③ A system thinker recognizes that a system structure changes its behavior

Discuss the following:

- What is a personal habit that you want to work on? It may be something you want to change or something you want to add to your routine.
- What current structures are making this addition or change more difficult?
- How could you adjust those structures in order to increase your chances of success with the new habit?\*

## 4 A system thinker considers how mental models affect current reality and the future

### What are Mental Models?

MENTAL MODELS are like shortcuts for reasoning, a lens with which we view the world.

- *To learn, one must attend school;*
- *A problem can be solved by breaking it down into smaller parts;*
- *To ensure compliance to a rule, we should penalize people for non-compliance. \**



## 4 A system thinker considers how mental models affect current reality and the future

### What are Mental Models?

- Mental models are not facts – they are a set of beliefs, assumptions and ideas that we consciously or unconsciously form based on our experiences.
- Mental models guide our thoughts and behaviours.
- We use mental models to make sense of the world.\*



## 4 A system thinker considers how mental models affect current reality and the future

### DENIAL – *Mental Model*

- When we encounter a serious thought about reality, and we decide to ignore it  
*E.g. a parent whose child dies in an accident may deny that their child is no more and believe that the child is just out on a school excursion and will be back soon.*
- Denial is often amplified by intense feelings of love and death. We are denying to avoid pain.\*



## 4 A system thinker considers how mental models affect current reality and the future

### DENIAL – *Mental Model*

- When we deny an issue that is detrimental to ourselves and to others, it becomes a significant problem.

*E.g. drug abuse or other forms of addiction - denial by subjects is common and it allows for behavioral inertia –*

*i.e. the tendency to maintain existing behaviors, even when presented with information or options that suggest a change would be beneficial.*

*Stick with “doing nothing”, instead of actively choosing a new course of action. \**

- Our mental models influence the ways we interpret the world we experience.
- Every individual has their own personally developed mental models based on their life experiences, culture, education, external influences etc.
- Hence they often see the world in quite different ways.\*



## 4 A system thinker considers how mental models affect current reality and the future

### DENIAL – *Mental Model*

#### *Bias from self-interest*

Our desire to feel good about ourselves pervades everything we do

- We attribute success to our own abilities AND failures to environmental factors
- We continuously rate ourselves as better than average on any subjective measure – ethics, beauty, ability to get along with others, listening skills \*

#### *Bias from self-interest*

When something ‘bad’ happens to us –we fail in an exam, OR we make a poor decision OR a relationship ends, we try to preserve our damaged self image:

- By denying - *‘I did not cheat’* OR
- By rationalizing our choices - *‘Not telling the truth is not lying’* OR
- Through self-justification - *‘Others are even worse than me’*



## 4 A system thinker considers how mental models affect current reality and the future

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- Mental models are not facts – they are a set of beliefs, assumptions and ideas that we consciously or unconsciously form based on our experiences.
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## 4 A system thinker considers how mental models affect current reality and the future

We often pay attention to irrelevant information when making decisions.

- *When we buy something, say a pair of shoes in a local shop, we tend to negotiate with the listed price as the starting point.*
- *When we sell something, we tend to use the price we paid for it as our starting point. \**
  
- When we make an estimate, we can end up using irrelevant information as our 'anchor.'
- We then adjust from the 'anchor' point, often failing to make sufficient updates.
- Once we establish an anchor, we tend to focus on information which is consistent with it, ignoring information which is not consistent with it. \*



## 4 A system thinker considers how mental models affect current reality and the future

### HANLON'S RAZOR – *Mental Model*

We all have a tendency to assume that when anything goes wrong, the fault lies within some great conspiracy against us.

If you ever feel that the world is against you, you are not alone.

- *Someone does not respond to your text message immediately - you think they do not care, or they are upset with you.\**

### HANLON'S RAZOR – *Mental Model*

*'Never attribute to malice that which can be adequately explained by incompetence or neglect.'*

- We all lead complex lives where things are constantly going wrong.
- When this occurs, a common response is to blame the nearest person and assume they have malicious intent.
- Inability, incompetence, neglect or stupidity is far more likely to be the cause than bad intentions.\*

- Mental models shape what we think and how we understand.
- Mental models shape the connections and opportunities that we see.
- Mental models serve as a starting point for three key things:
  1. How we simplify complexity?
  2. Why we consider some things more relevant than others?
  3. How we reason through a challenge or problem and solution?\*

### Why are Mental Models Formed?

- Childhood Foundations: *Building Blocks of Mental Models*
- Cultural and Societal Influences: *Collage of Beliefs*
- Educational Impact: *Canvas of Knowledge*
- Life's Milestones: *Shaped by Experiences*
- Media and External Influences: *Prism of Perception \**

## 4 A system thinker considers how mental models affect current reality and the future

### Consider How Mental Models Affect Current Reality And The Future

- A Systems Thinker is aware of how mental models shape our views and actions.
- Where do our viewpoints come from? Why do we place more or less value on certain things compared to others?
- **By making our own mental models and those of others visible/apparent we can deepen our understanding of system structure.**

#### **Be aware of how beliefs and attitudes influence the way a system behaves.**

- How are the current mental models (i.e. attitudes, beliefs) advancing or hindering our efforts to achieve desired results?
- How am I helping others see the influence that mental models have on our decision making?
- How could my own mental models be barriers to what I am trying to achieve?\*

### OCCAM'S RAZOR – *Mental Model*

Simpler explanations are more likely to be true than complicated ones.

- Classic principle of logic and problem-solving.
  - The simplest explanation or solution, with the fewest assumptions, is often the most likely to be correct.\*
- 
- We should avoid looking for excessively complex solutions to a problem, and focus on what works given the circumstances.
  - Works best as a mental model for making initial conclusions before the full scope of information can be obtained. \*

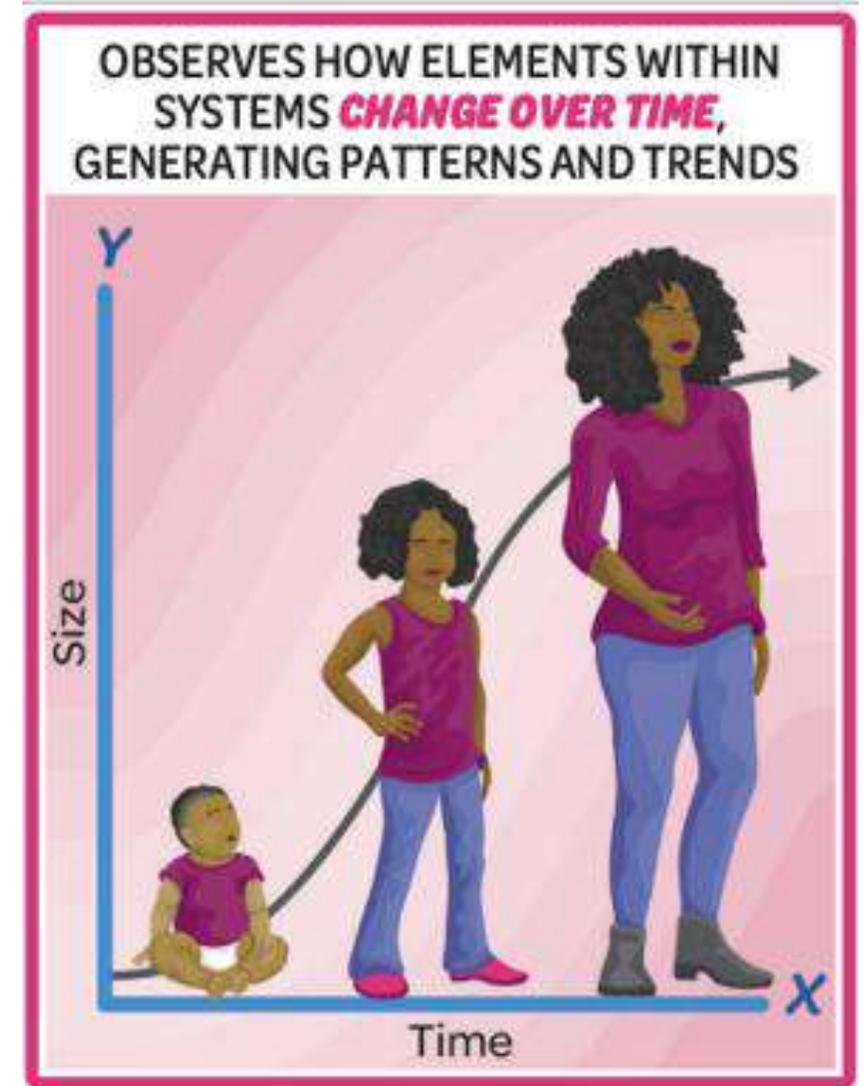
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## A system thinker observes how elements within systems change over time, generating patterns and trends

- Change over time is an inherent property of systems.
- A person can change a shirt or change their mind in a moment's notice, but unlike a one-time-event view of change, systems thinkers focus on the **nature of change over time**.
- Systems thinkers pay close attention to patterns and trends — even when they may not be immediately obvious.
- By measuring change and identifying patterns and trends, we can better understand our system of interest and get closer to our goals and desired outcomes. \*

An important practice of systems thinkers

- the ability to observe **how elements within systems change over time**, and **the means to represent that change**
- The ability to observe change and **make those observations visible** \*



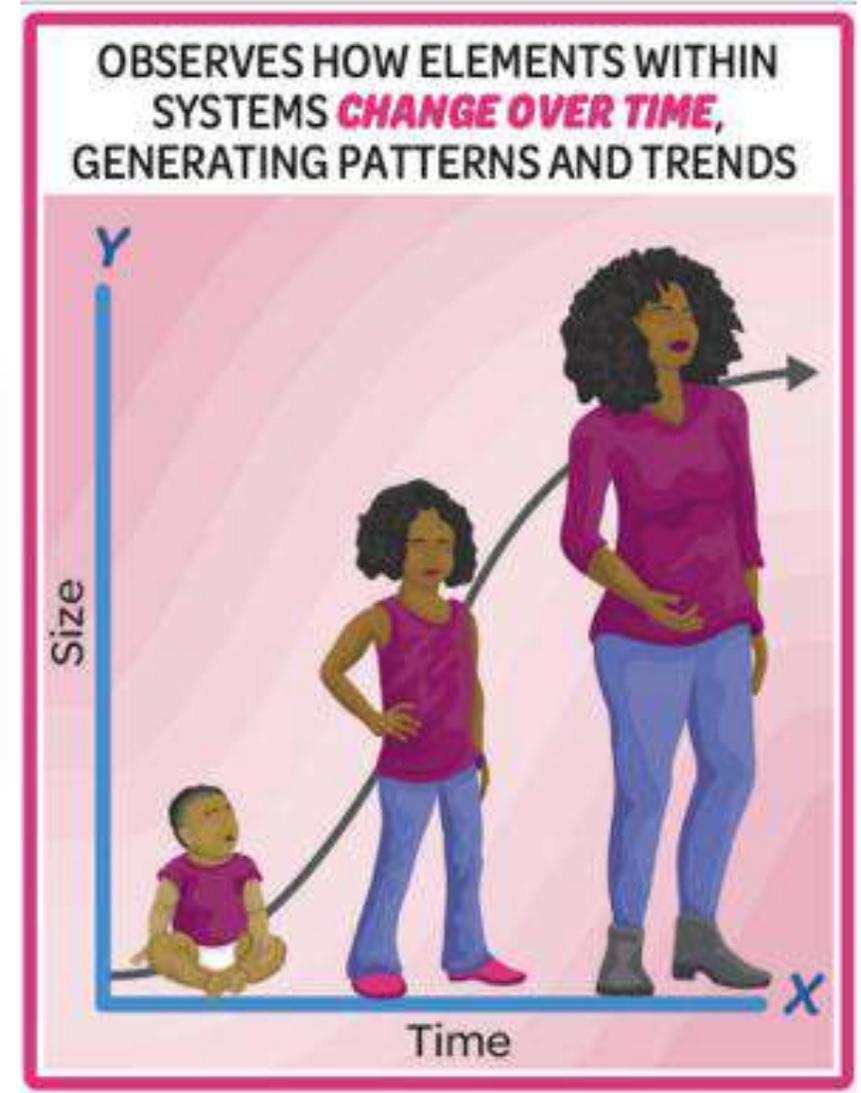
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A system thinker observes how elements within systems change over time, generating patterns and trends

TOOLKIT - II

# Behaviour Over Time Graph BOTG

Tool to make patterns and trends visible



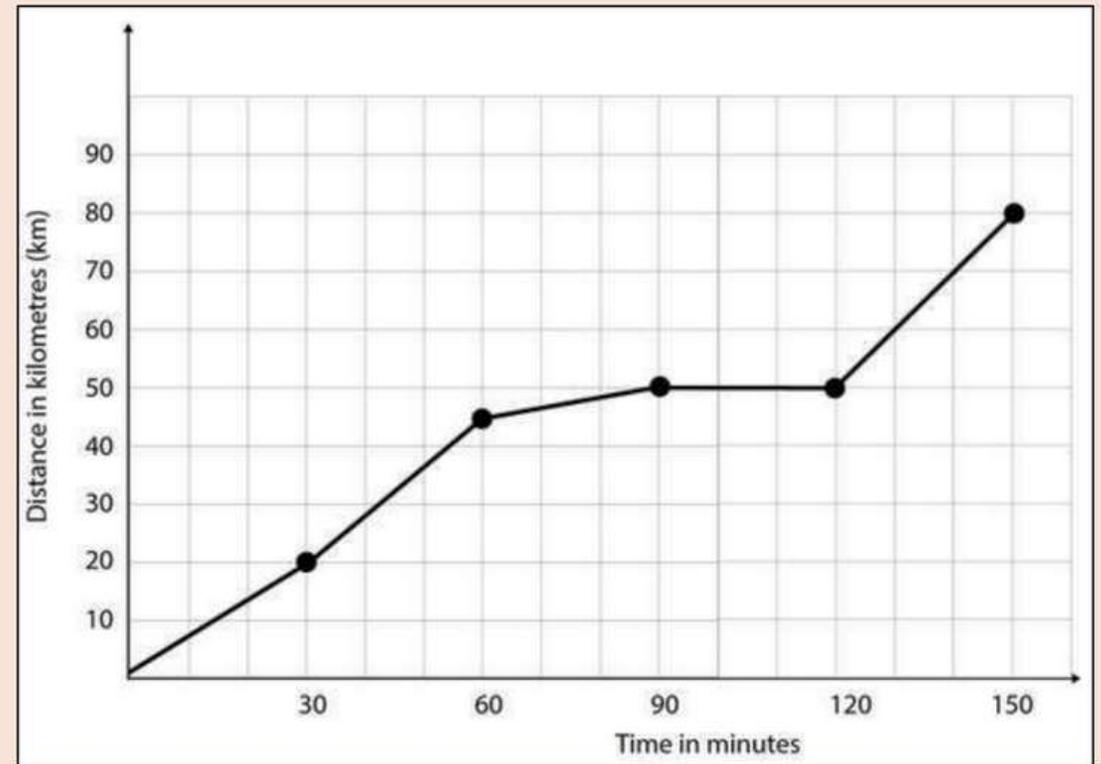
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A system thinker observes how elements within systems change over time, generating patterns and trends

Shows how something changes over time

- Line graph for which the X-axis always shows time and the Y-axis provides a scale for what is changing
- The line of the graph tells the story of the variable or element being graphed \*

BOTG showing the distance travelled by a car over a period of time



5

A system thinker observes how elements within systems change over time, generating patterns and trends

## Height of the Eiffel Tower in Paris

*From start of construction in 1887 to end of construction in 1889*



A BOTG makes the changes VISIBLE

5

## A system thinker observes how elements within systems change over time, generating patterns and trends

- BOTGs **make thinking visible**
- They **communicate differently** than words alone
- Allow users to **explain their thinking** — to pause and **think about information in new ways**
- Help people **focus on patterns of change** over time, **rather than on isolated events**
- Can lead to rich discussions and **promote deeper thinking about how and why** something is changing

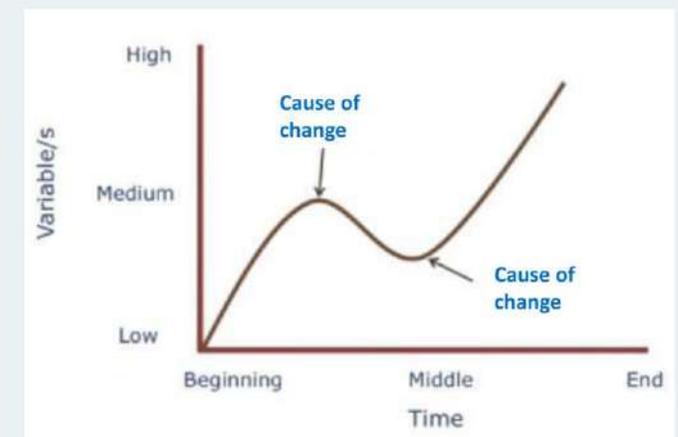
### BOTG - Example

Can also be used for data that is less concrete – rather than just that which can be presented using hard numbers

BOTG drawn by a Class 2 student of his emotions over the past 5 days



### A BOTG usually looks like this...



# Examples of trends (BOTG)



## WORK

Morale of a company's employees



## WELLBEING

Time spent on reading for enjoyment



## FAMILY

Stress that a family experiences as children grow up

## BOTG for taking a systems view

As a systems thinker:

- Identify elements of a system that are changing over time.
- Use BOTGs to represent and explain dynamic systems.
- Observe a system in motion.

Sees change over time as the dynamics of a system

- What important elements have changed in the system?
- How have the elements changed over time?
- What changing elements represent amounts and how quickly/slowly are they increasing/decreasing?
- What patterns or trends have emerged over time? \*

An important practice of systems thinkers

- the ability to observe **how elements within systems change** over time, and **the means to represent that change**
- The ability to observe change and **make those observations visible** \*

Draw a BOTG on any one of the following:

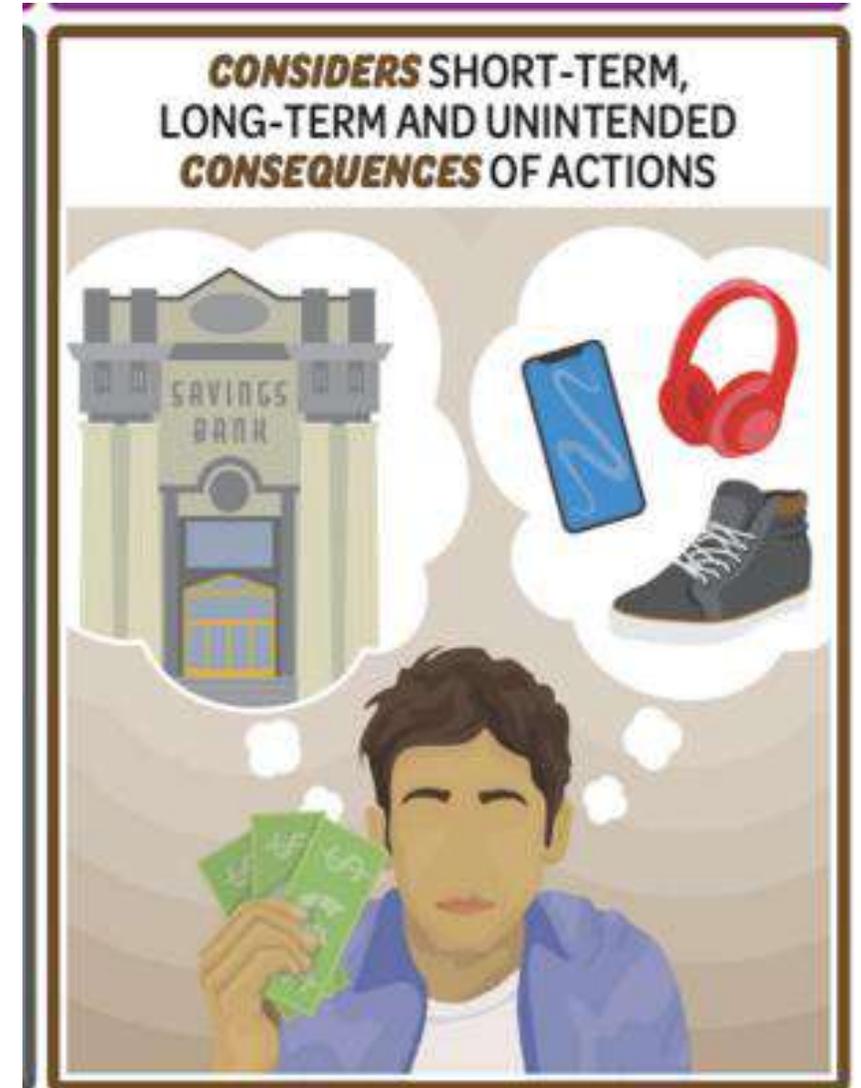
- a. Amount of exercise you have got over the last 3 months (12 weeks)
- b. Level of worry/anxiety experienced in your personal life over the past 2 weeks (14 days)

*Label your BOTG clearly – the variables on each axes, what is the pattern, points where change(s) occurs, if you can, identify the cause for change(s).\**

## 5 A system thinker considers short-term, long-term, and unintended consequences of actions

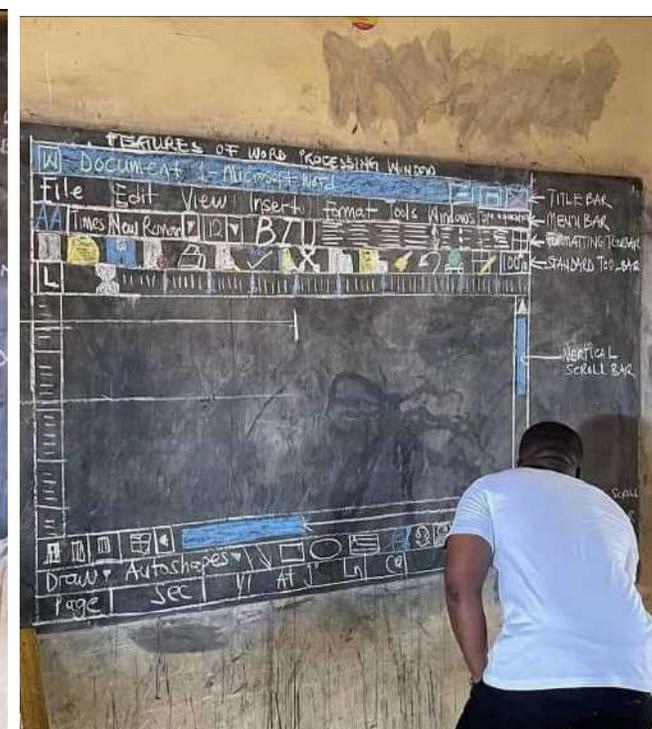
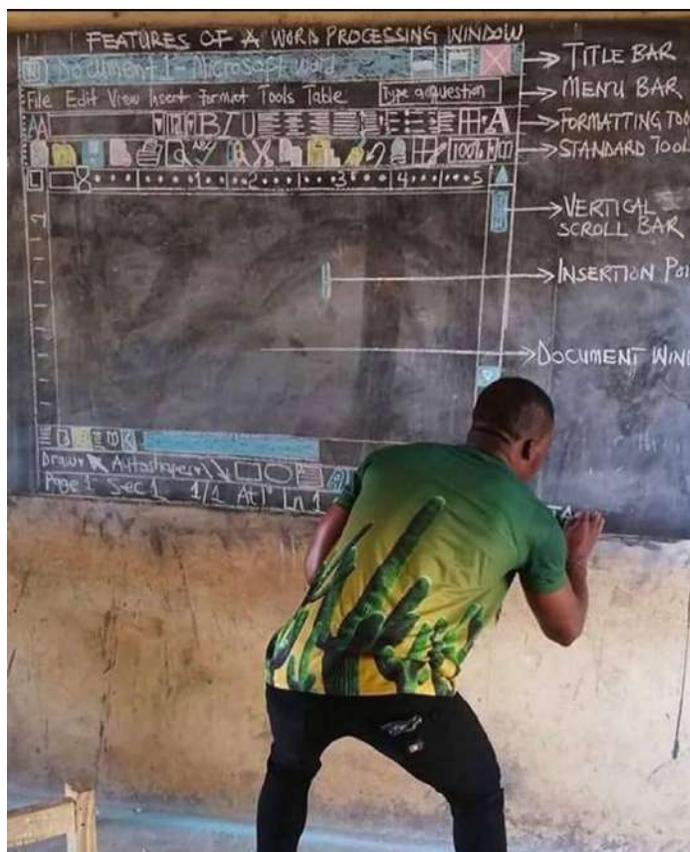
A Systems Thinker considers the consequences of actions:

- short-term consequences
- long-term consequences
- unintended consequences
- Minimise the chances of decisions backfiring and producing ill effects.
- Taking time to anticipate consequences can minimize the unintended consequences that will occur. \*



**Look ahead and anticipate not only the immediate results of actions but also the effects down the road**

- What are the unintended consequences of the proposed action and what trade-offs should we consider?
- What are possible long and short-term consequences of the proposed actions?
- Are we willing to accept short-term pain for long-term gain?\*



**thebusinesshacks** A teacher in Ghana taught Microsoft Word by drawing the entire interface on a chalkboard because his school had zero computers.

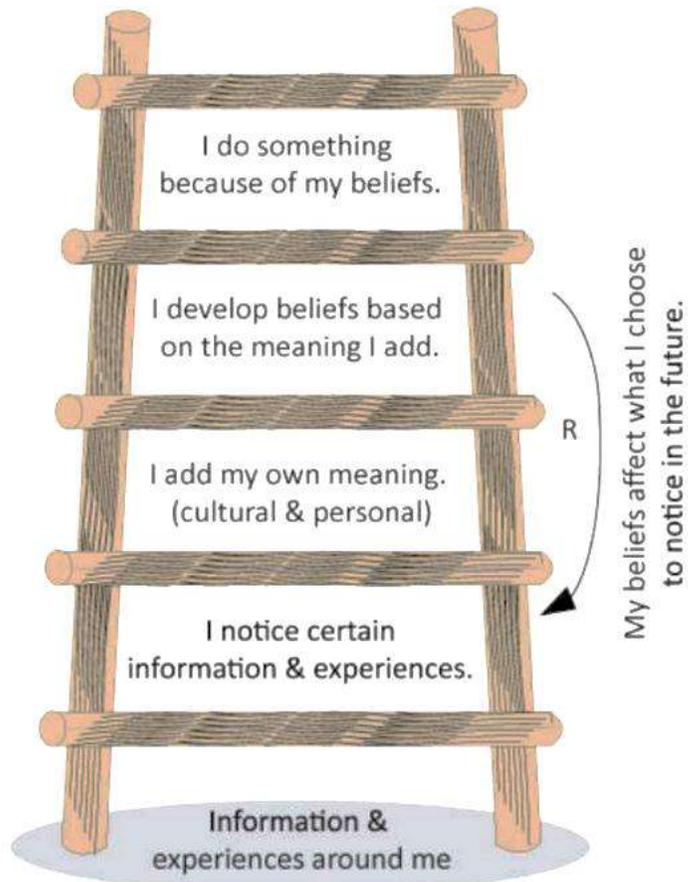
Richard Appiah Akoto's lesson went viral in 2018 and exposed the digital gap faced by millions of students across developing countries.

Microsoft invited him to its Education Exchange in Singapore and later helped equip his classroom with real computers and training.

One creative workaround turned into global attention, corporate support, and long term access to technology for his students.

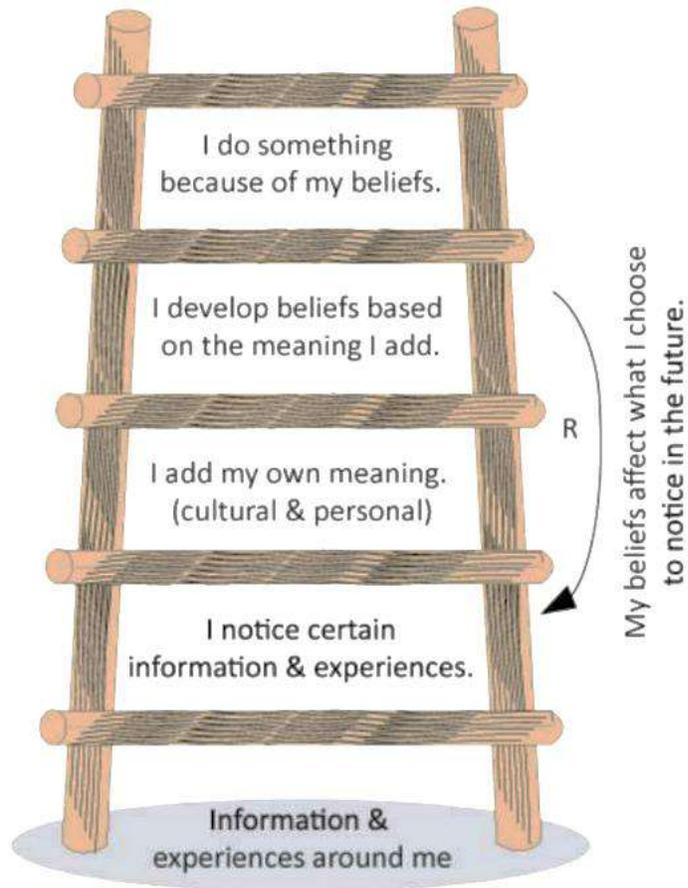


# Ladder of Inference



Explain the process by which we arrive at certain conclusions.

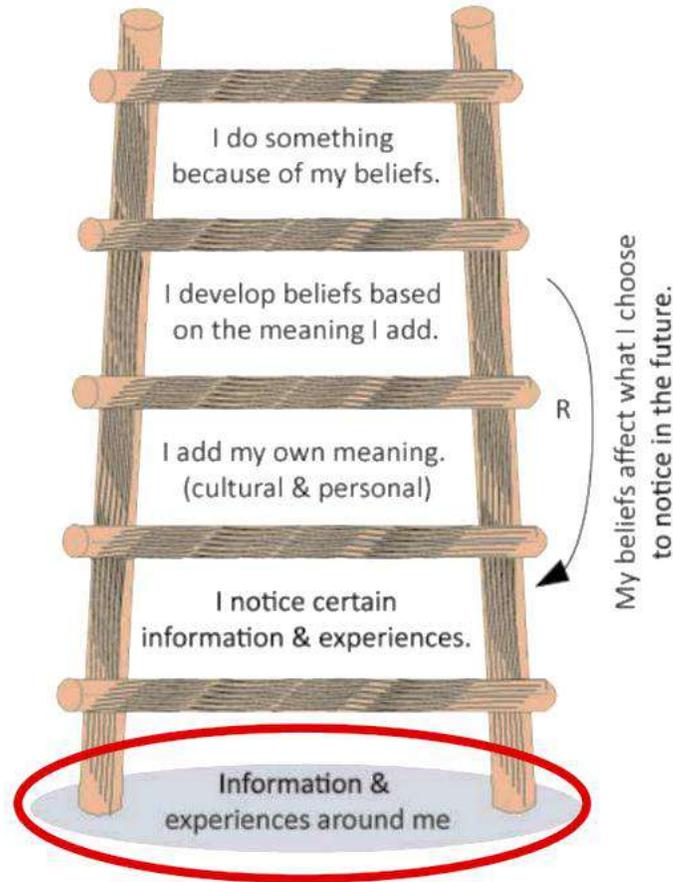
## Ladder of Inference



Rungs (or steps) of the ladder represent:

1. **Observing** what's around you
2. **Selecting certain data** or information about what you see
3. **Adding meaning** to that data or information
4. **Coming up with assumptions** or conjectures (that you believe to be true)
5. **Drawing conclusions** based on your beliefs
6. **Taking action** based on these conclusions\*

# Climbing Up the Ladder (1)



**Step 1:** We step up to the ladder with our background and experience.

*You and your classmate, Kiran are in a team for a course project.*

*You agree to meet every Monday at 5 pm after lab to discuss what you have to do.*

Information and data are the same for everyone.

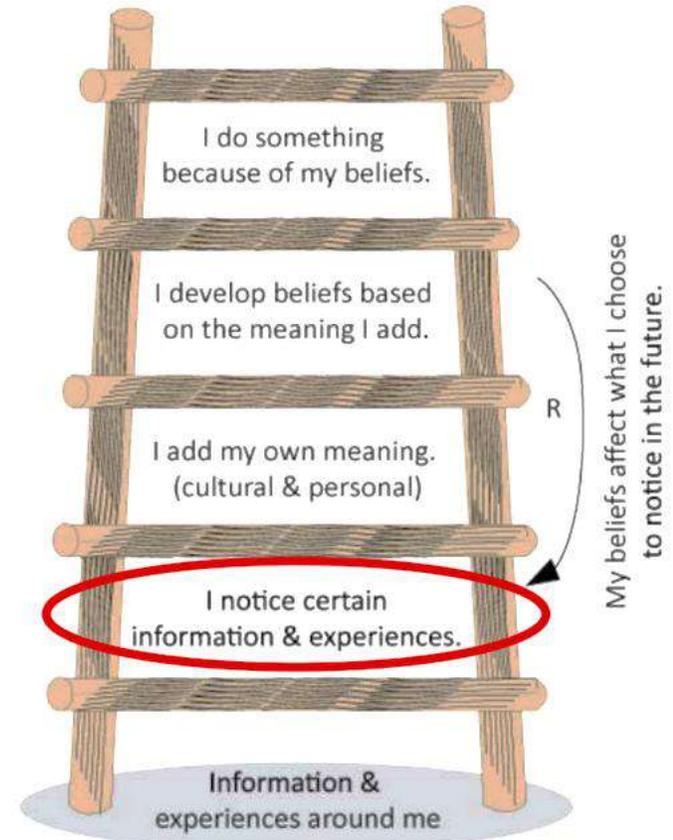
***We choose what information to pay attention to. This happens in the next step\****

# Climbing Up the Ladder (2)

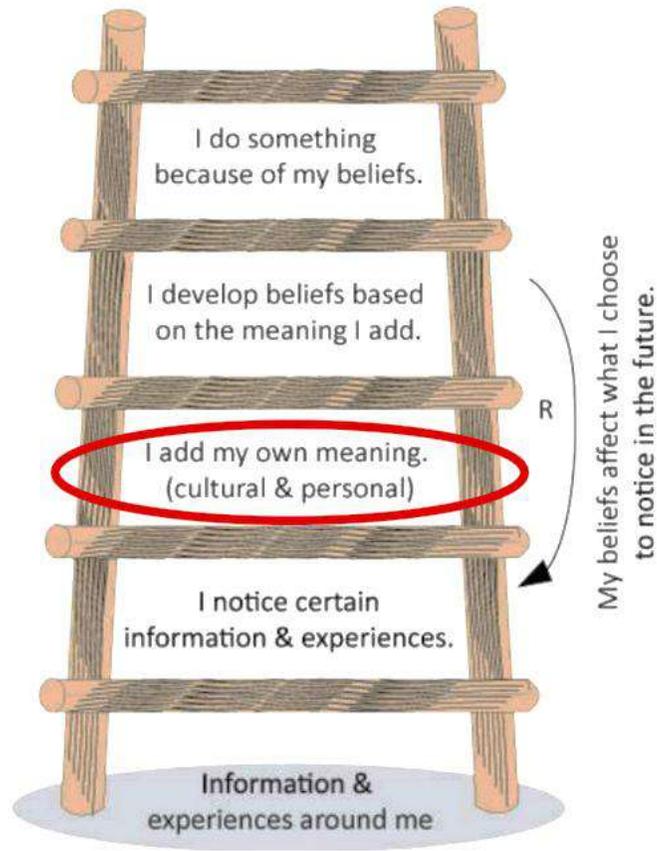
**Step 2: We notice certain information and details.**

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize.*

*This is the second time Kiran is late for your meeting.\**



# Climbing Up the Ladder (3)



**Step 3: We add our own meaning and interpretation.**

*Kiran is giving more importance to other things than to this course project.*

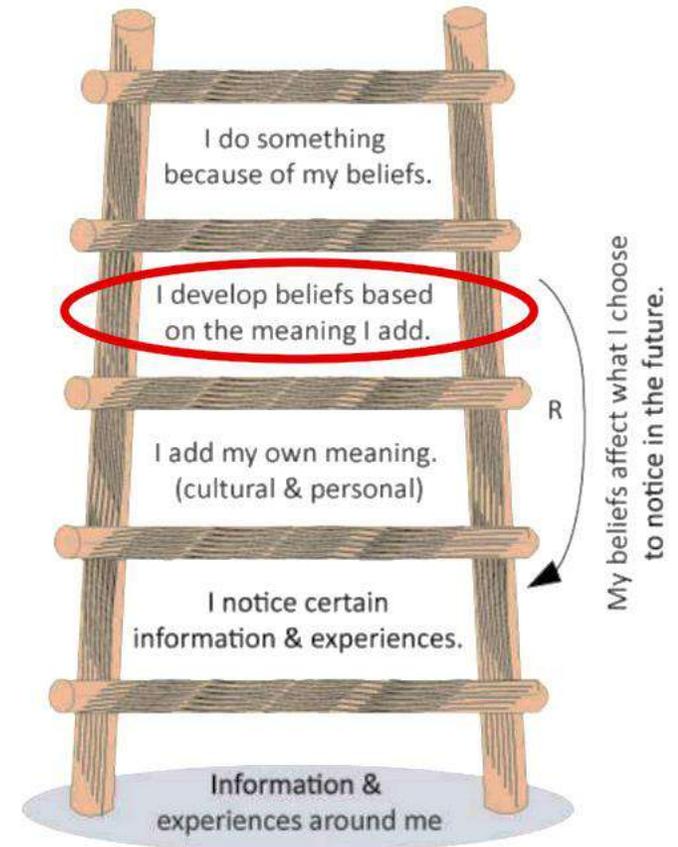
*Kiran is ALWAYS LATE.*

# Climbing Up the Ladder (4)

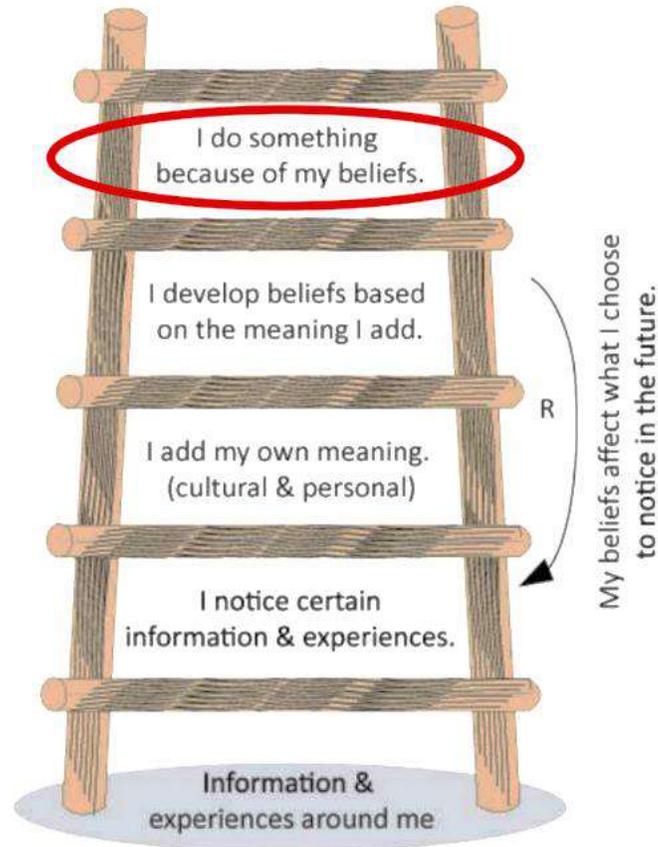
**Step 4: We make assumptions and develop beliefs.**

*Kiran does not care about completing the course project.*

*Kiran is trying to make me do the entire work for the project.\**



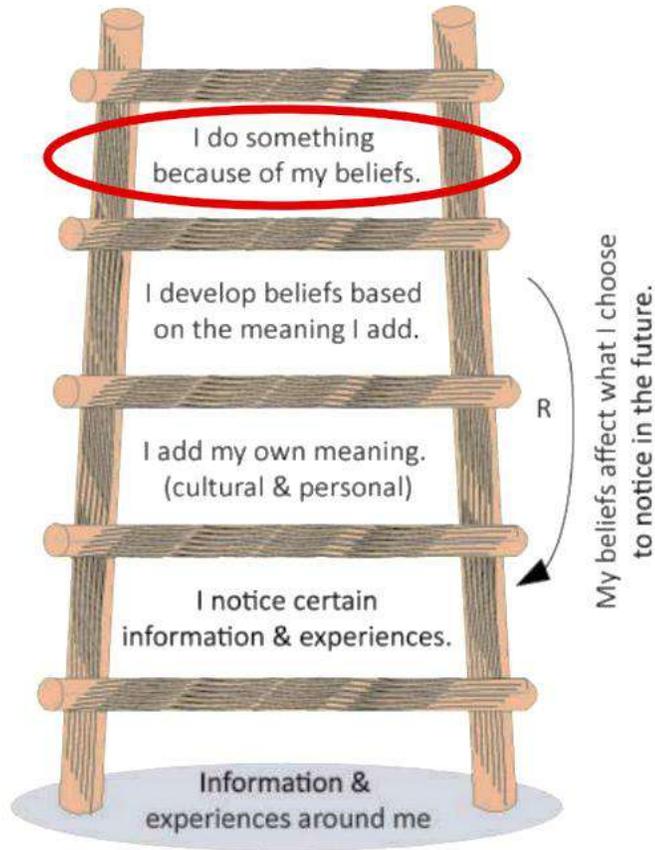
# Climbing Up the Ladder (5)



**Step 5: We draw conclusions based on our beliefs.**

*It is useless for me to work with Kiran on the course project.\**

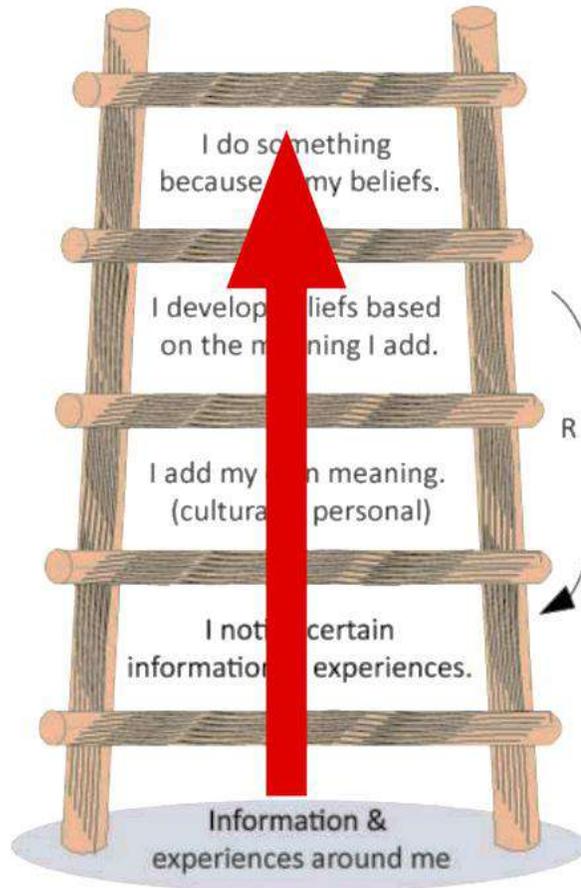
# Climbing Up the Ladder (6)



**Step 6: We do something – take action.**

*I will take up the issue with the course faculty and change my team mate.\**

# Climbing Up the Ladder



My beliefs affect what I choose to notice in the future.

We take **less than a minute** to go

FROM STEP 1 to STEP 6

**FROM:**

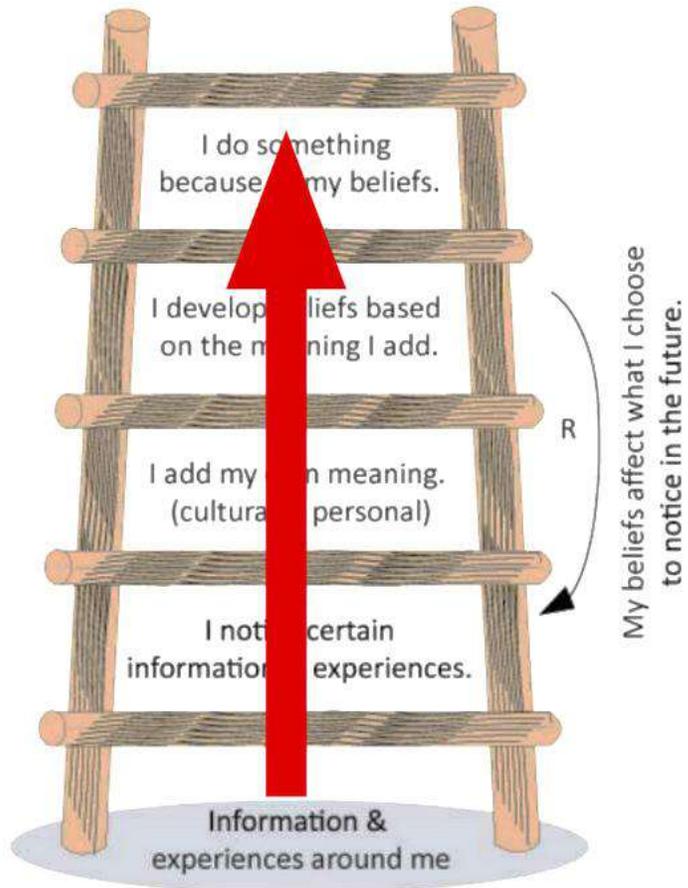
*Kiran is 20 mins late – second time this is happening!*

**TO:**

*I will change my team mate for this course project*

We are **Jumping Up the Ladder** – *not even Climbing Up the Ladder!* \*

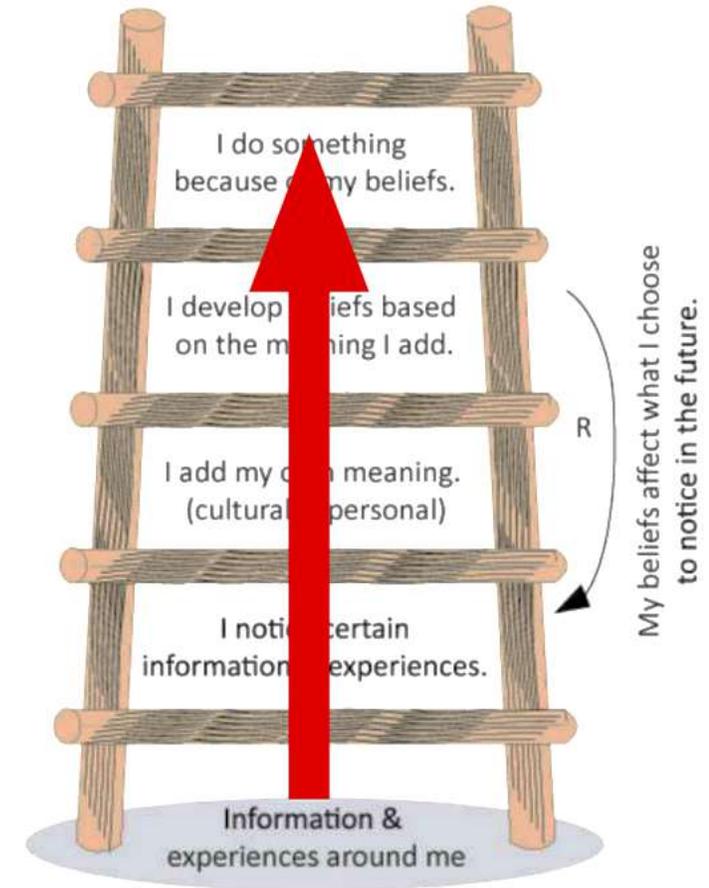
# Jumping Up the Ladder



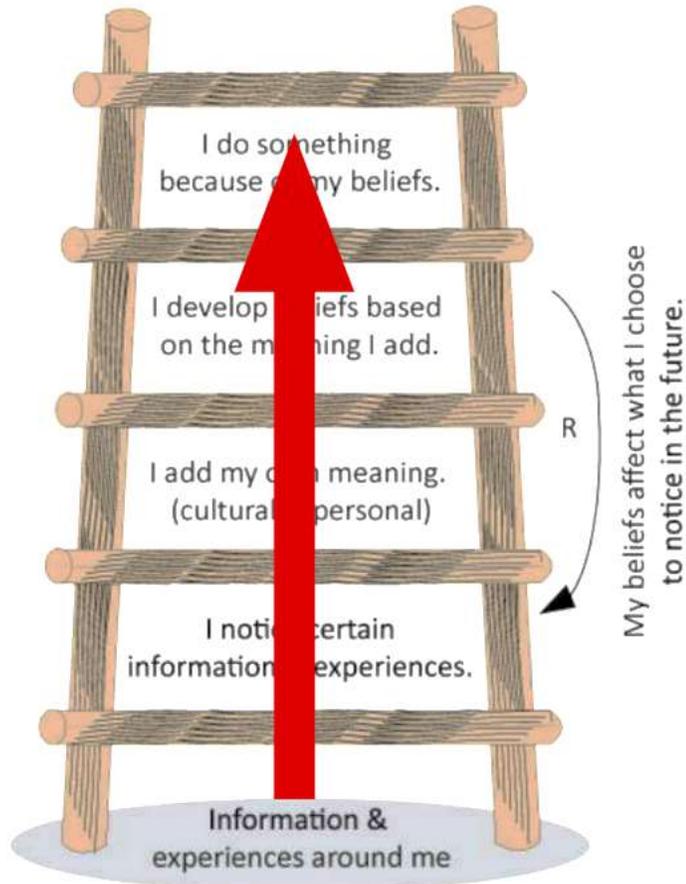
- We come to a conclusion based on the interpretation of **only the data we noticed**.
- We make assumptions and are now acting on them, **without checking if they are valid assumptions.** \*

# What happens when we 'JUMP UP THE LADDER'? (1)

1. Our assumptions, values, and beliefs influence **how we select data, how we interpret** what is happening, and **decide what to do**.
2. Our interpretations and decisions then **feed back to reinforce** our assumptions, values, and beliefs.\*



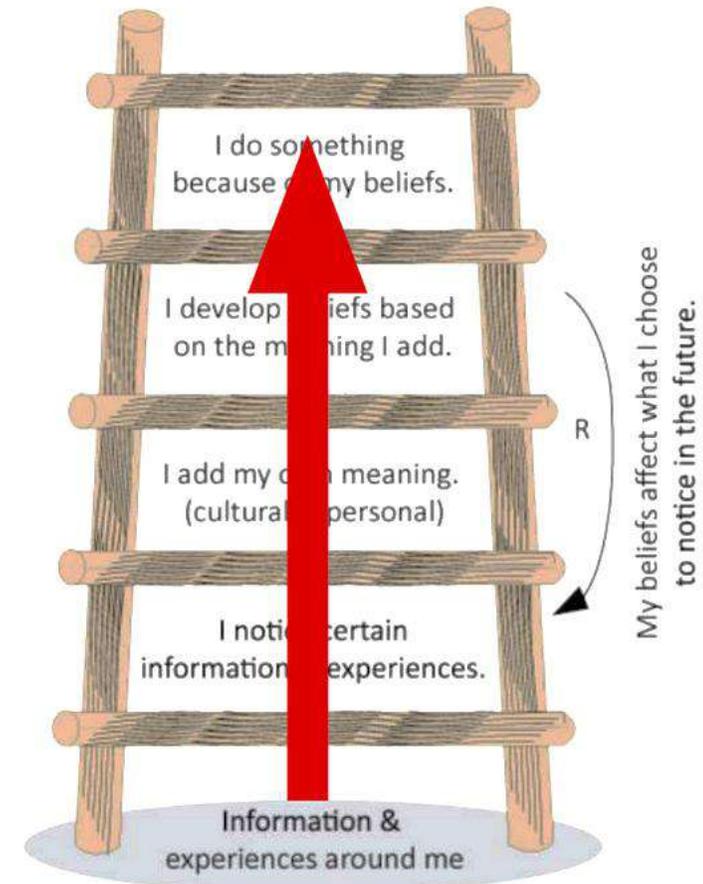
# What happens when we 'JUMP UP THE LADDER'? (2)



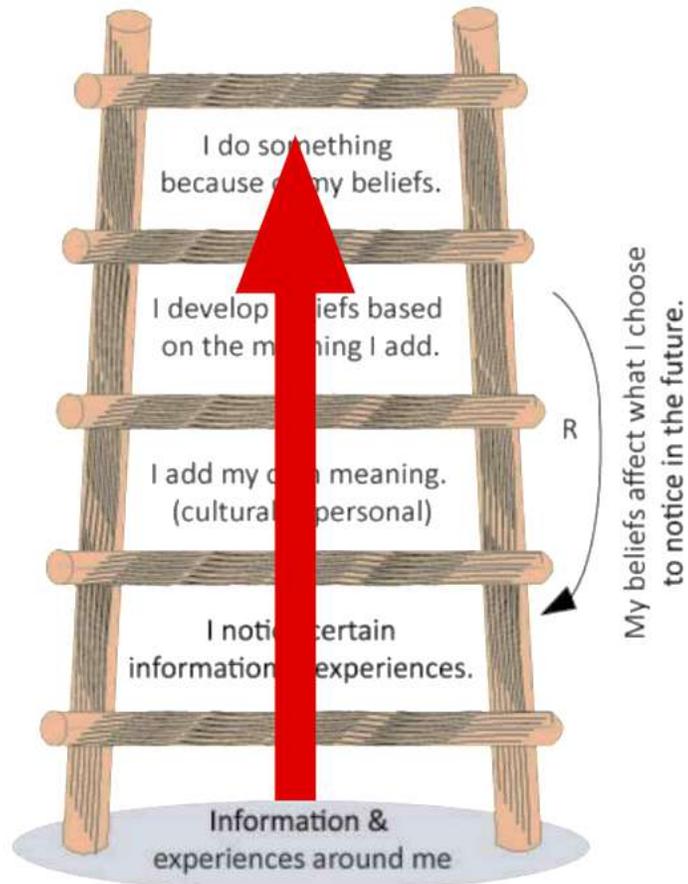
3. We act on the basis of our interpretations, and our actions affect what data is available to us.
4. As a result, our ways of understanding and acting in the world create a **self-reinforcing system**, preventing us from looking at alternative ways of understanding.\*

# What happens when we 'JUMP UP THE LADDER'? (3)

5. Our own conclusions **seem perfectly correct** to us.
6. We **fail to recognize** that we may have missed some facts due to which our **reasoning may be flawed.** \*



# What happens when we 'JUMP UP THE LADDER'? (4)

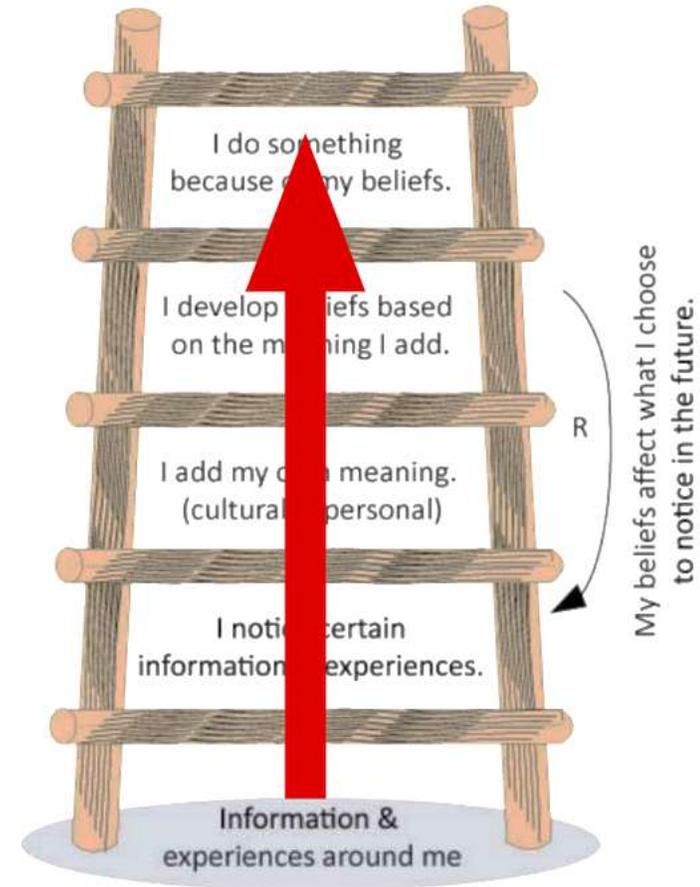


7. We see conclusions that are different from ours as **obviously wrong** and **invent reasons** to explain why they are so obviously wrong.\*

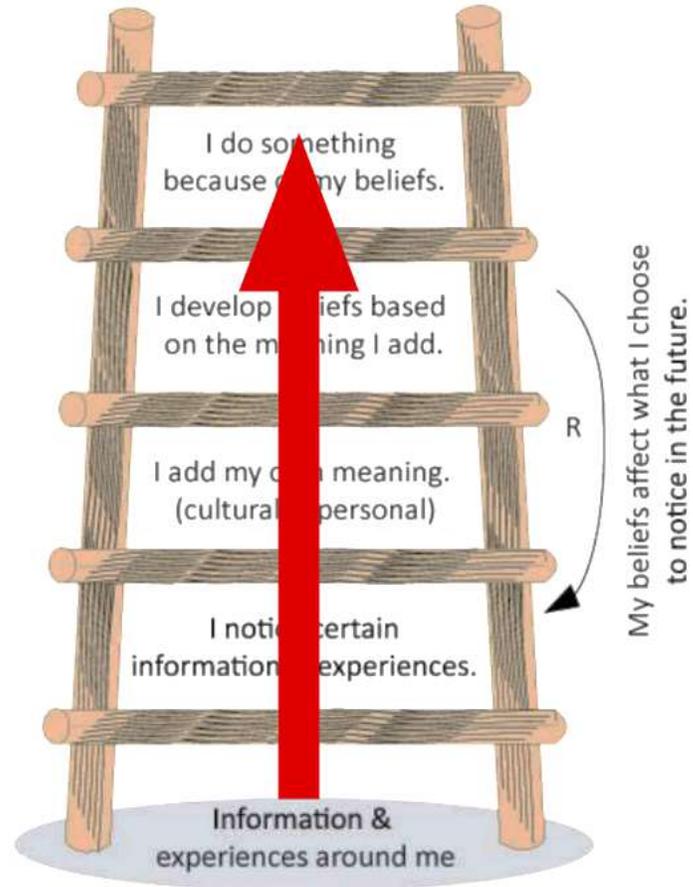
# “Jumping Up the Ladder”

Different people can and do reach different conclusions.

When each person views their own conclusion as obvious, they **do not see a need to say how they reached them.**



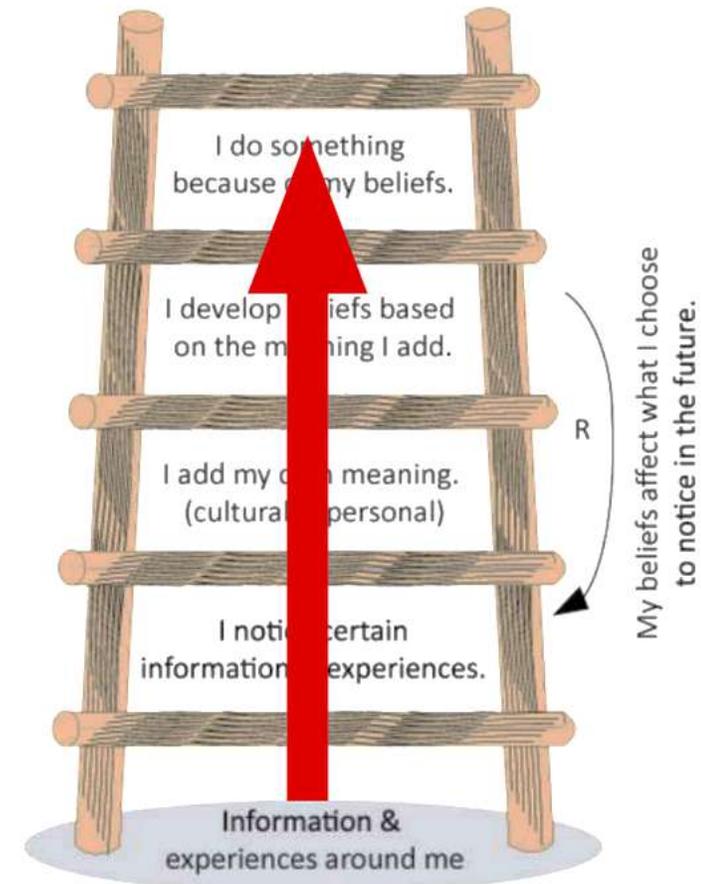
# What happens when we 'jump up the ladder'?



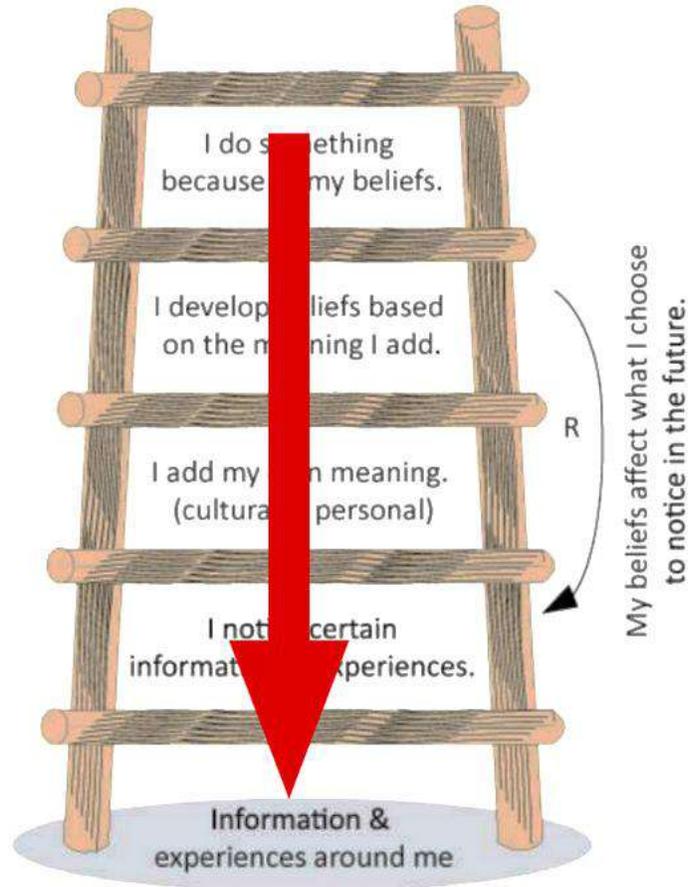
In arguments and disagreements, people are at **the top of their respective ladders** and are only **reiterating their conclusions** - without recognizing that they may be incorrect.

# What happens when we 'jump up the ladder'?

- Therefore, it becomes difficult to learn from each other - what data did they consider, what is the interpretation, etc.
- AND it becomes even tougher to resolve differences. \*



# So, what can we do?



- **Slow down** our thinking
- **Challenge our assumptions** and review the action we are taking
- “Climb Down The Ladder”\*

# Up the Ladder

- **Step 2: We notice certain information and details.**

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize. This is the second time Kiran is late for your meeting.*

- **Step 3: We add our own meaning and interpretation.**

*Kiran is giving more importance to other things than to this course project.  
Kiran is always late.*

- **Step 4: We make assumptions and develop beliefs.**

*Kiran does not care about completing the course project. Kiran is trying to make me do the entire work for the project.*

- **Step 5: We draw conclusions based on our beliefs.**

*It is useless for me to work with Kiran on the course project.*

- **Step 6: We do something – take action.**

*I will take up the issue with the course faculty and change my team mate.*

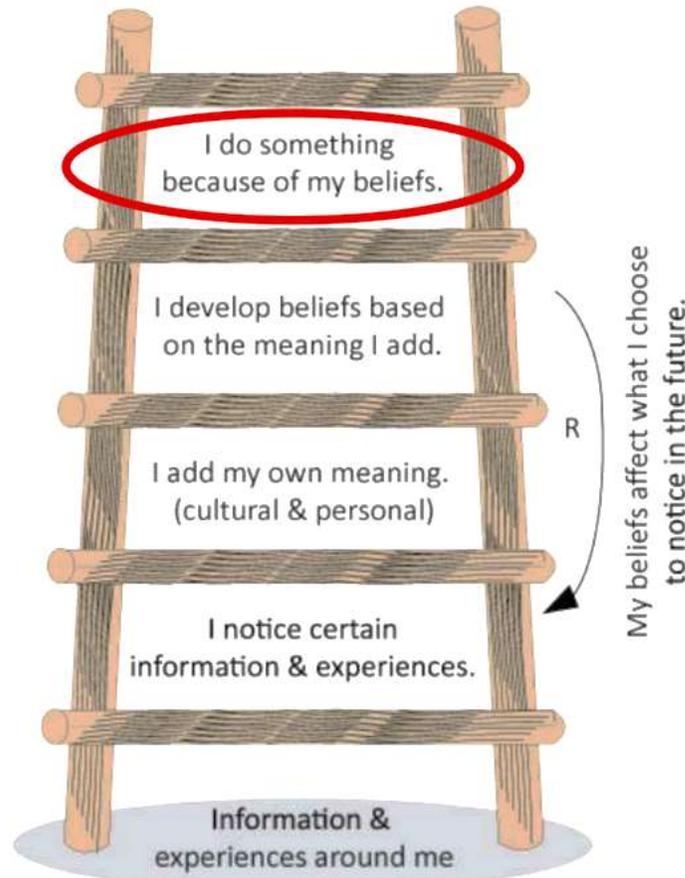
# Climbing Down the Ladder (1)

*Start at the top of the ladder*

**'UP THE LADDER'**

**Step 6:**

*I will take up the issue with the course faculty and change my team mate.*



**'DOWN THE LADDER'**

**Step 6:**

**Why am I doing this?  
Why am I talking to the faculty?**

*I need to be able to do a good job on my course project, get a good grade.\**

# Up the Ladder

- **Step 2: We notice certain information and details.**

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize. This is the second time Kiran is late for your meeting.*

- **Step 3: We add our own meaning and interpretation.**

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Kiran is always late.*

- **Step 4: We make assumptions and develop beliefs.**

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- **Step 6: We do something – take action.**

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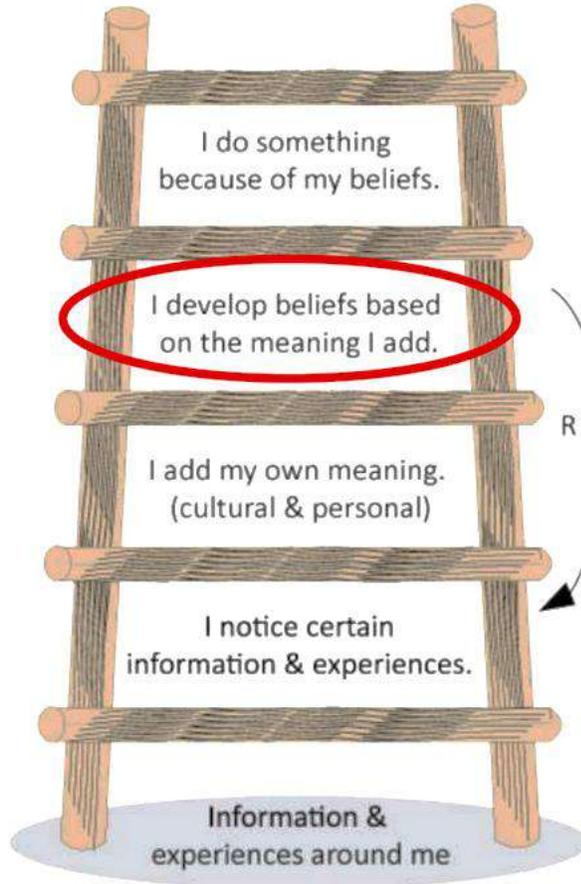
# Climbing Down the Ladder (2)



**'UP THE LADDER'**

**Step 5:**

*It is useless for me to work with Kiran on the course project.*



**'DOWN THE LADDER'**

**Step 5:**

**What makes me believe that it is useless to work with Kiran on the course project?**

*Kiran is coming late for our meetings; hence, does not care about the project. Kiran wants me to do the entire work.\**

# Up the Ladder

- **Step 2: We notice certain information and details.**

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize. This is the second time Kiran is late for your meeting.*

- **Step 3: We add our own meaning and interpretation.**

*Kiran is giving more importance to other things than to this course project.  
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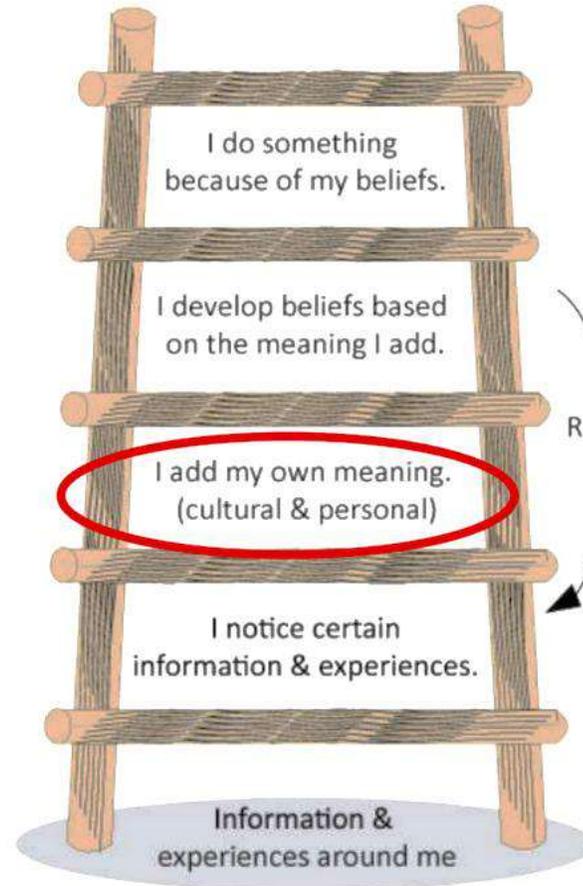
# Climbing Down the Ladder (3)

## 'UP THE LADDER'

Step 3 & 4:

*Kiran is ALWAYS late.*

*Kiran does not care. Is trying to make me do the entire work for the project.*



## 'DOWN THE LADDER'

Step 3 & 4 : Is my interpretation the only way to view the information? Is the assumption attached to the event valid? Maybe there is something else.

*We are meeting right after lab on Mondays. Maybe Kiran's lab class is taking longer to finish. Maybe Kiran thinks I know about the lab class schedule, and so does not explain why they are late.\**

# Up the Ladder

- **Step 2: We notice certain information and details.**

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize. This is the second time Kiran is late for your meeting.*

- **Step 3: We add our own meaning and interpretation.**

*Kiran is giving more importance to other things than to this course project.  
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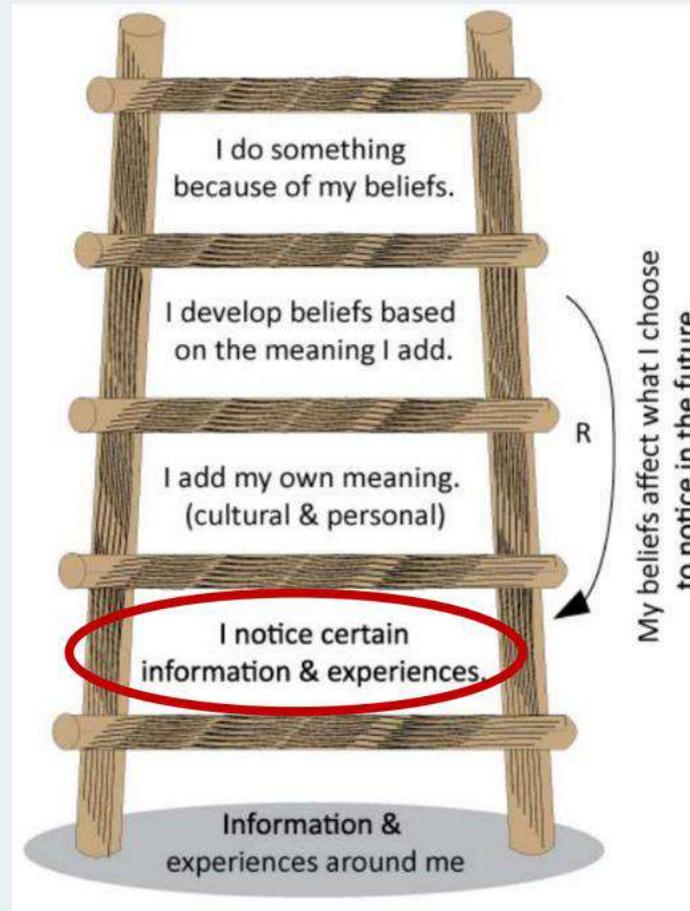
*I will take up the issue with the course faculty and change my team mate.*

# Climbing Down the Ladder (4)

## 'UP THE LADDER'

### Step 2:

*On Monday, Kiran comes 20 minutes late for your meeting and does not apologize. This is the second time Kiran is late for your meeting.*



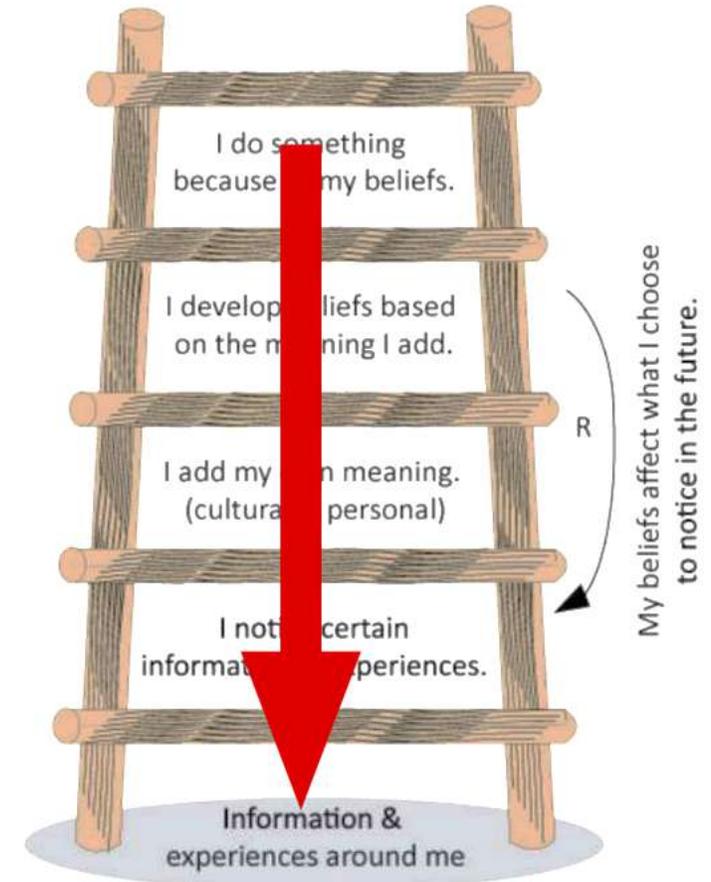
## 'DOWN THE LADDER'

**Step 2 : What data am I paying attention to? Why?**

*Kiran came late for the meeting twice in a row. Did not apologize. I hate to wait when people do not show up on time. In my earlier project, group mates never showed up for meetings.\**

# Climbing Down the Ladder

5. What past experiences or beliefs and I associating with this situation, and why?
6. Are those past experiences really relevant to what is going on now?
7. What data have I chosen to consider, and why?
8. What are the real facts that I should be using? Is there anything missing that I have not considered?



# The Ladder of Inference – for a Systems Thinker

- **Make your thinking visible** – how did you arrive at the conclusions, what was your interpretation, what assumptions did you make, what data did you use etc.
- Acknowledge that **your conclusions are based on your interpretations** – they are not facts

# The Ladder of Inference – for a Systems Thinker

- Check with others if they have other ways of interpreting the data – **if there are gaps in your reasoning**
- In an argument or disagreement, **ask the other person to explain** the steps in their thinking.\*



7

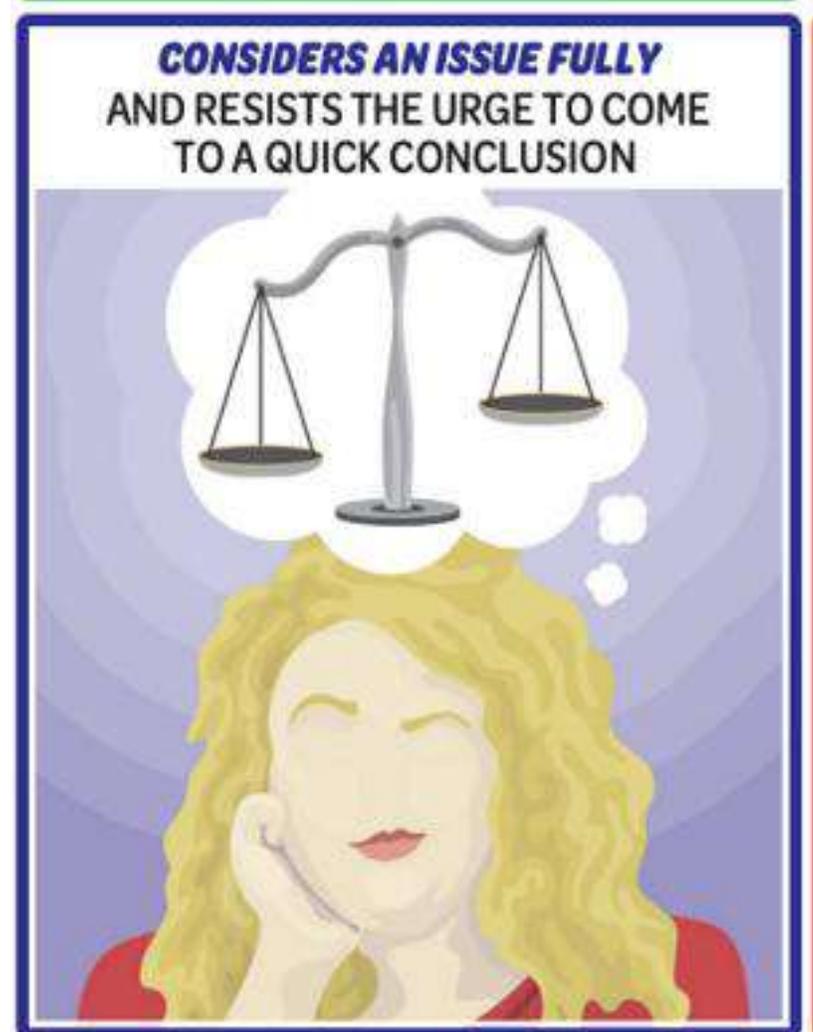
## A system thinker considers an issue fully and resists the urge to come to a quick conclusion

**Take the necessary time to understand the dynamics of a system before taking action**

- How much time do we need to allow for consideration of this issue?
- How can we manage the tension that exists when issues are not resolved immediately?
- How can I help others to be patient while living with unresolved issues?\*

A Systems Thinker assimilates and integrates for fully considering an issue.

By taking the time to think things through, it is more likely that a high-quality outcome will be achieved.



- Practice identifying short and long-term consequences of actions when making a decision
- Be aware of potential pressures that could lead to reaching conclusions
- Apply considering an issue fully and the benefits and tradeoffs of decisions to systems of interest \*

- Discuss the following:
  - Each person relates an incident from their life where they made a snap decision that they regretted later.
  - Then discuss the following - What practices would help you in the future when schedules are busy and there is little time to think about decisions?

A Systems Thinker  
Recognizes Assumptions,  
Makes Them Visible and Tests Them

A System Thinker Checks Results and  
Changes Actions If Needed:  
“Successive Approximation”

A Systems Thinker  
Uses Understanding of System Structure  
to Identify Possible Leverage Actions

SYSTEMS THINKING AND  
STORYTELLING

A Systems Thinker Recognizes the Impact  
of Time Delays When Exploring Cause and  
Effect Relationships

A Systems Thinker  
Pays Attention to Accumulations  
and Their Rates of Change

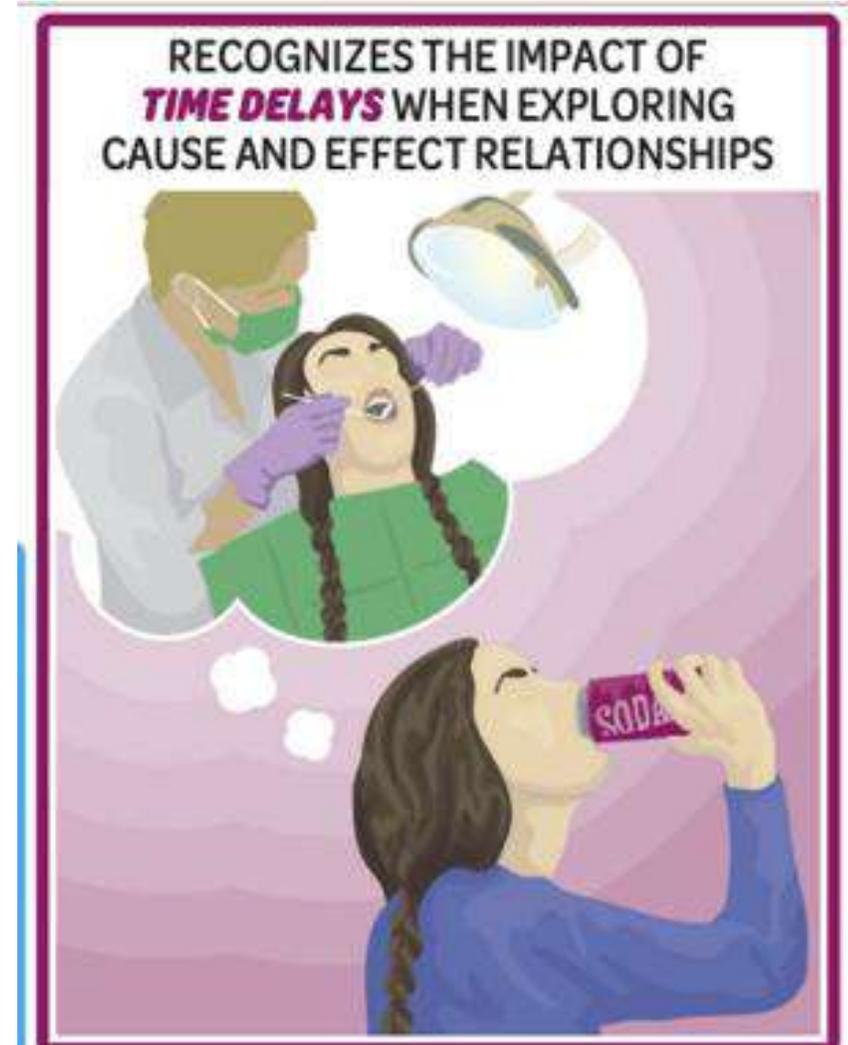
8

## A system thinker recognizes the impact of time delays when exploring cause & effect relationships

A Systems Thinker recognizes that the relationship between cause and effect is often separated by time and space.

- Effects are seldom immediate.
- Recognizing the potential impact of time delays and anticipating the effects of certain actions is important.

E.g. Onset of tooth decay due to over-consumption of sweet/sugary foods and improper brushing \*



# TOOLKIT - IV

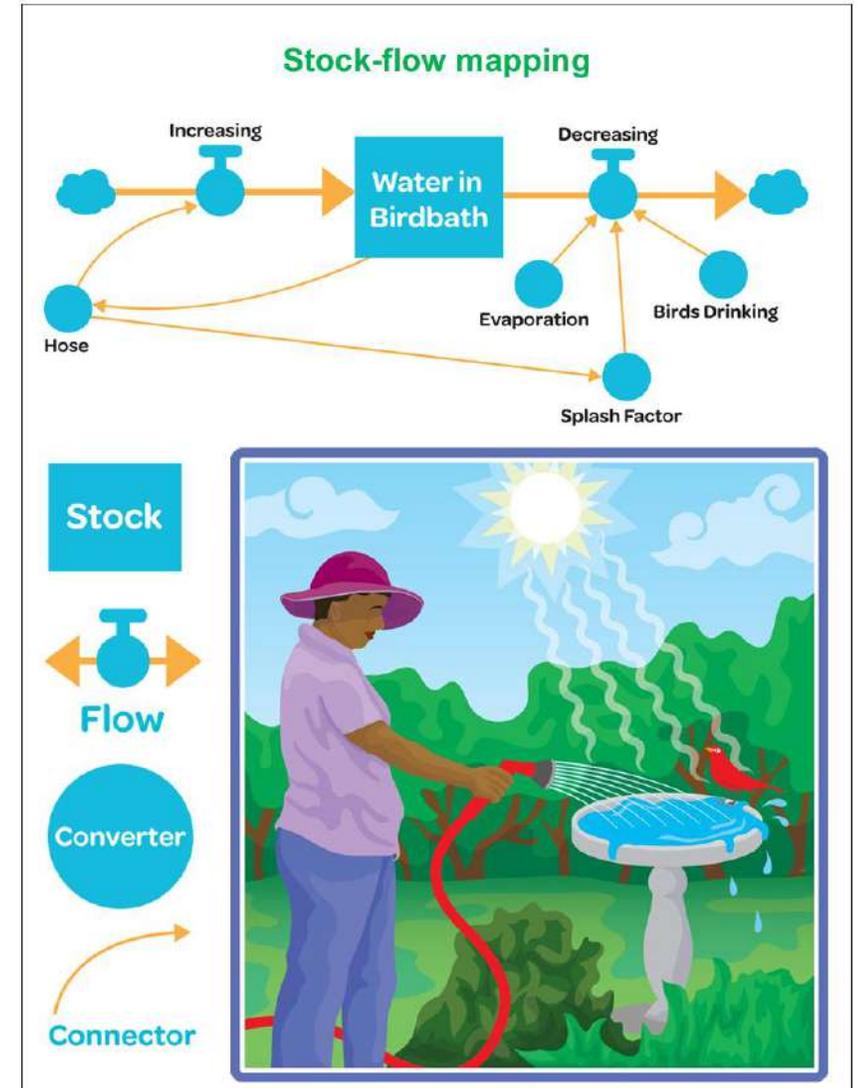
## Pay Attention to Accumulations and Their Rates of Change

What are some accumulations that you want to see increase?

- Money in your bank account
- Assignments completed
- Level of happiness
- Wins of your favourite sports team

What are some accumulations that you want to see decrease?

- Level of stress in a day
- Conflict with family and friends
- No. of days you are ill



SEEKS TO UNDERSTAND  
**THE BIG PICTURE**

**CHANGES PERSPECTIVES** TO INCREASE UNDERSTANDING

RECOGNIZES THAT A SYSTEM'S  
**STRUCTURE GENERATES ITS BEHAVIOR**

RECOGNIZES THE IMPACT OF  
**TIME DELAYS** WHEN EXPLORING CAUSE AND EFFECT RELATIONSHIPS

CHECKS RESULTS AND CHANGES ACTIONS IF NEEDED:  
**"SUCCESSIVE APPROXIMATION"**

CONSIDERS HOW **MENTAL MODELS** AFFECT CURRENT REALITY AND THE FUTURE

**CONSIDERS AN ISSUE FULLY** AND RESISTS THE URGE TO COME TO A QUICK CONCLUSION

OBSERVES HOW ELEMENTS WITHIN SYSTEMS **CHANGE OVER TIME**, GENERATING PATTERNS AND TRENDS

IDENTIFIES THE **CIRCULAR NATURE** OF COMPLEX CAUSE AND EFFECT RELATIONSHIPS

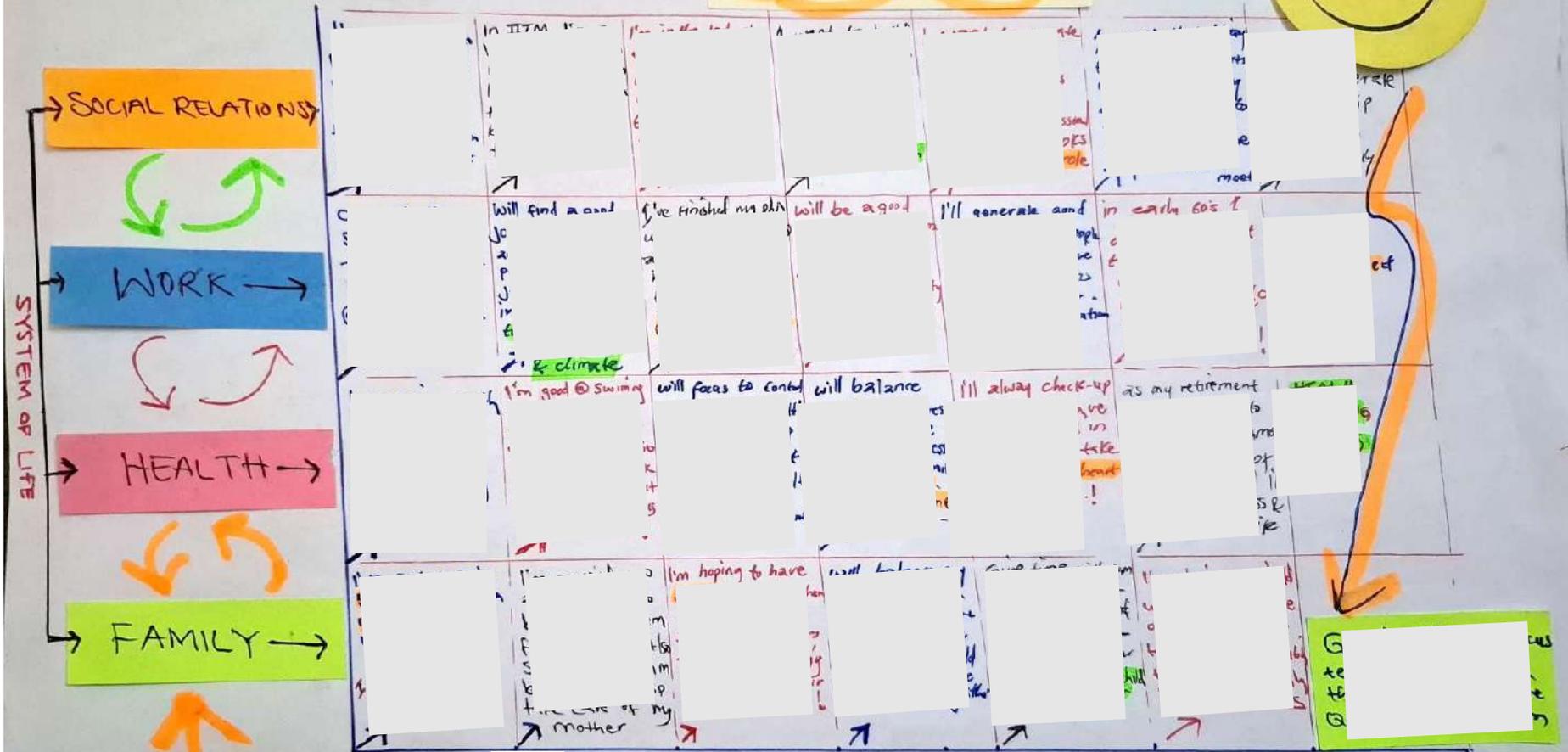
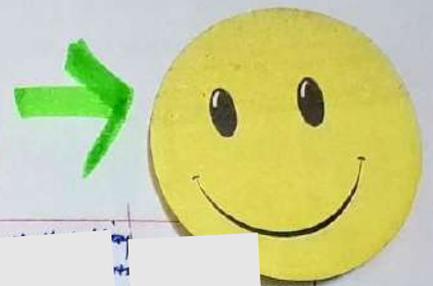
**CONSIDERS** SHORT-TERM, LONG-TERM AND UNINTENDED **CONSEQUENCES** OF ACTIONS

PAYS ATTENTION TO **ACCUMULATIONS** AND THEIR RATES OF CHANGE

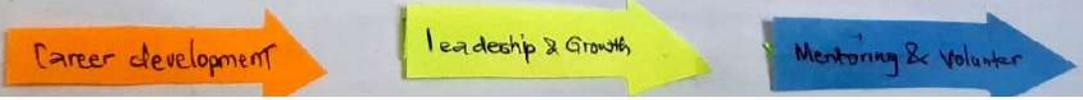
USES UNDERSTANDING OF SYSTEM STRUCTURE TO IDENTIFY POSSIBLE **LEVERAGE ACTIONS**

CERAM801 

The big picture I see, is that I'll formulate solving complex issues related to the water scarcity in Somalia. Build my own business of greenhouse and rise up a good quality citizen children and become an exa county in my



30 35 45 55 75



Q to G  
JAN 8



• Victory!  
1,00,384 signatures

# Change starts here.

Join **56,99,14,945** people creating real change in their communities.

Start a petition

Get started with AI



• Victory!  
47,014 signatures



• Victory!  
97,295 signatures



• Victory!  
6,10,881 signatures



• Trending!  
7,62,493 signatures



Somalia IELTS



Search

## Results for 'Somalia IELTS' (2)

Sort by: Recent activity

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## Status

- All petitions
- Victories only
- Trending

## Topics

Education Education Reform  
Educational Infrastructure  
Exam Reform  
Health and Well-Being Technology

## Open an IELTS Centre in Somalia

Dear British Council, Dear British Embassy Mogadishu, The Somali students are facing insurmountable challenges in applying education opportunities that require them a...

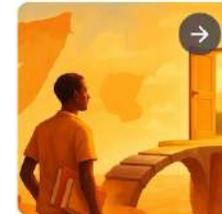
12,624 signatures Germany · Started 3 January 2021



## Establish an IELTS Test Centre in Somalia-Somaliland Region

I am starting this petition because I have seen first-hand how the lack of an IELTS test centre in Somalia and Somaliland is blocking the future of our young people. As an...

609 signatures United Kingdom · Started 9 September 2025



# THANK YOU



**THANKS to UDUB Institute  
for organizing this event**

A promotional graphic for a session. It features a man in a white shirt and glasses standing on the right. The background is a dark green rounded rectangle with white text. The text includes the session topic, a list of topics to be covered, and the speaker's name and credentials. At the bottom, there are logos for UDUB Institute, Google Meeting, and social media handles.

**Topic of This Session**

**Youth as Change Makers**  
"Applying Systems Thinking skills to Build a Better Future for Somali youth"

**In the session we'll be covering:**  
14 Habits of a system thinkers  
System Thinker's toolkit

- ◆ BOTG
- ◆ Mind-mapping
- ◆ Ladder of Interference
- ◆ Stock-flow Mapping

**Mr. Abdurrahman Aweis**  
M.Tech Student in Hydraulics & Water Resource Engineering at IIT Madras in chennai India

**Program Host**

 **UDUB INSTITUTE**  
Learn. Innovate. Lead.

 **Place Google Meeting**

 **19 JAN 2026**  
Monday 8:00pm

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Get in Touch

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**19 JAN 2026**  
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