Systems thinking game

Described by Dr Shawn Cunningham

Purpose: Illustrate how a complex adaptive system work and how small changes can have a big effect.

Summary: This game works extremely well with groups of people in an open space. It is advised to play the game outside in the parking lot where there is a lot of space. Participants pick two other participants, and then try to position themselves midway between these people.

Context: In any development context like a value chain or a local economy where the actors are part of a bigger system that affects their behaviour. It highlights the difficulty of fully understanding what is going on, and it raises awareness that of the non-linear character of systems. A small change can have a unpredictable and huge effect.

How to play:

1. Get the group to stand in a bundle. Instruct everyone to close their eyes.
2. Instruct everybody to identify two people from the workshop. Tell them not to look at these people, and to concentrate on not forgetting the two faces.
3. With nobody talking, get the participants to position themselves exactly midway between their two targets. No talking permitted (although laughing is allowed). Chaos erupts as the group starts milling around. After some time it usually settles down. Usually there is a small cluster in the middle of the group.
4. Ask the group to describe what happened. Check to see if anyone could figure out who is following them? Ask some people directly to point to whom is following them.
5. Send the group back to a circle formation. Now give them two instructions: a) get the participants to position themselves exactly midway between their two targets (first instruction) and b) at the same time try to figure out who is following them.
6. Typically the group now moves much slower with some participants prioritising one instruction over the other by for instance moving out of the group to try and bait their followers.
7. Ask the group who figured out who is following them. Some laughter follows.
8. Ask the group who is sure that nobody is following them.
9. Then take one or two people (I usually take the ones sure nobody is following them) and send them into opposite directions. Now instruct the group to adjust again. If nothing happens then take 2 more people.
10. Now again ask the group whether they could determine who is following who.
11. Instruct the group to be ready for a dynamic adjustment (real time). Take somebody in the middle of the group by the hand and run on the outside of the group, constantly instructing people to adjust their positions. As you run with the person let go of their hand, and grab somebody else. This really mixes things up.
12. Calm the group down. Ask for insights:

Insights to discuss with the group

Facilitate a discussion with the group. I have selected some of the points that comes up or that I introduce to stir up the discussion below.

- Starting conditions matter. Who you selected and how many others selected these targets influences the dynamics.
- Everybody had the same rules, but everybody interpreted it differently. Some bent the rules, some misunderstood the rules, some changed their targets, while others were confused.
- The history of the system shapes the present and the future potential. The past matters..

- Nobody in the system can comprehend the complete picture, and there are many different opinions about the system, the history and the future. It is not a homogenised system.
- The properties of the system arise out of the relationships between the parts. All behaviours are part of the system and create incentives for the agents in the systems.
- The distance between actors is determined by incentives, relations, starting conditions and future perspective.
- Routines, artefacts, patterns and behaviour emerge spontaneously in a decentralised way. The pattern is created by the choices individuals made. But the choices made by individuals are shaped by what others are doing, can change (on the fly), and is all based on different objectives. Some selected two people they knew, some selected one male and one female, others changed who they had originally selected based on how hard it was to follow them.
- Because systems are spontaneous, it resists external interventions or responds in an unpredictable way. Smaller behavioural changes that are adapted by multiple agents can also be amplified in a viral way.
- Agents in a system make decentralised decisions based on local information and perspective. Therefore systems change dynamically over time. The result is that systems often reject or avoid external attempts to change the system.
- Agents learn from each other, and this leads to trends and patterns emerging or shifting.
- There are strong feedback loops and multiplier effects, but they are not always easy to identify or predict.
- Cause and effect is separated in time, and there are typically multiple cause and effects relations that are weakly connected but that influence each other.
- In complex systems, things are not mechanic (like a car brake system) or entirely causal like an engineered systems. Things are dynamic, you are never sure who is following who, and where they get their signals from. Therefore, careful analysis (self-analysis) by the system is important to understand leverage points. Even with frequent reflection it may still be difficult to understand the patterns or figure out what to do to achieve a particular objective (like figuring out how to move somebody by changing positions).
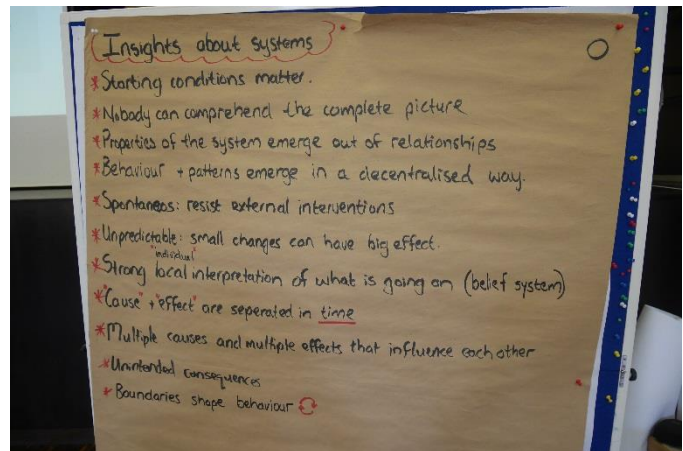
Other variations

- Before explaining the insights ask participants to explain how a mechanical or engineered system works. Then facilitate a discussion on how complex or non-mechanical systems differ from mechanical or closed systems.
- Explain that when we stop the movement we get a snapshot view of the system. We can only use the past to try and predict the future, especially if we use data. Trying to get systems to become more aware, and to stay aware, provides a more dynamic analysis.
- As a final round, discuss with the participants what they would have to get right to coordinate their efforts to move one person out of the play area by repositioning themselves. Treat the distances between people as a kind of polarity. Participants quickly realise that this small change is hard to implement, even if we understand how the system is working (what leads to what) it is still difficult to steer the system to a particular objective.

Caution

- There are many different strands of systems thinking, like Systems Theory, Systems Approach, Complex Adaptive Systems and Cybernetics, etc. I usually try to stay away from such labels, and have taken some of the ideas from the different approaches to make the point about a more systemic perspective.

From beginning to end this game typically takes 45-60 minutes.