

# The Uncertainty Lab – a Hands-On Workshop on Navigating Uncertainty for Researchers

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This workshop was an opportunity to experience uncertainty in a safe environment and learn to get comfortable with thinking on our feet. The exercises we learned - borrowing tools from cognitive sciences and the theatre stage - all had you facing a considerable degree of unknown. These exercises teach practical and simple techniques for coping with uncertainty, and once these skills have been acquired, not only does it become less crippling – we can even learn to have it work to our advantage, using it to fuel creativity and problem solving and to boost team work.

## Key concepts we worked on:

1. **Yes, And!:** Getting something, accepting it as it is, and adding something to it. Building on the existing, rather than inventing from scratch. This is a foundation of constructive teamwork, and allows us to be open to whatever is coming.
2. **Celebrating failure:** To enjoy, even cherish, something going wrong. Simply continue, no shame or apology! Losing all fear of failure is liberating. It disarms uncertainty of its threatening elements, allows us to explore and be playful and opens the way to discovery.
3. **Group mind:** Working together with a shared goal and shared responsibility.

## Workshop Exercises:

1. Mirroring: mirror each other's movements and gestures as precisely as possible.
  - a. Start by copying body posture, facial expression, breathing pattern, and simple spontaneous movement.
  - b. Move more actively, and use more complex movements. Feel free to challenge your partners. Lead and be lead.
  - c. This works with any group size, classic is in pairs, but can be done with large group (we did it with the entire group).
  - d. Tip: when doing it online make sure your movements are visible on camera.  
Focus: Your goal is to move in such unison that an external observer won't be able to tell who is leading/initiating any given movement. At some point, you yourselves will not be able to tell either! An excellent group mind exercise, and one of my favourite warmups.
2. Move Together, Stop Together: All participants move, and have to all stop as one, and continue moving as one.
  - a. Two versions work, either with synchronized movements, or each doing a different movement.
  - b. Avoid giving obvious auditory cues or obvious visual cues.
  - c. Avoid falling into regular temporal patterns (vary duration of move/stop periods).
  - d. Try not to have someone take the lead in starting and stopping, but doing it as a group.  
Focus: A simple and highly effective group-mind exercise.

3. Subset Moves At A Time:
  - a. At any given time, one and only one person should be moving, and all the rest still, in neutral position.
  - b. Next, exactly two people move. They don't need to start and stop at the same time (can be staggered), but exactly two must move at any time.
  - c. Next try three, then four and so on.

Focus: A very powerful group-mind exercise. It requires everyone to be fully attentive to everyone else. As predicted from combinatorics, for  $n$  participants, this exercise becomes harder as the number of people moving,  $k$ , approaches  $n/2$ ; it becomes somewhat easier again as  $k$  approaches  $n$ .
  
4. Word Association: Associate to each other's word. Can be done in pairs or in larger groups (we demonstrated it with a few people, then splint into breakout rooms of 2 people each).
  - a. If there are more than 2 participants, number yourselves first and run through the numbers to make sure you know your order.
  - b. Each person says one word, associating off the word said by the previous person.
  - c. Try to go as fast as possible.
  - d. Tip: Make sure you associate only to the last word, and forget all that came before - this is harder than it sounds, but will make your associations run faster and smoother.
  - e. Tip: Try to avoid looking up/sideways, which usually implies overthinking - notice if you or your partners are doing it. Keep eye contact (look at the camera) all the time.
  - f. Tip: Vary association patters. Rather than associating just to meaning, go for sound, or rhyme.
  - g. Tip: If you didn't catch the word the person before you said, associate to the sound you heard, rather than asking them to repeat.

Focus: One of the simplest and most effective exercises, used by improvisers of all levels.
  
5. Count to 20 in group: Count from 1 to 20, aloud. There are just 2 rules:
  - a. Each person can only say one number at a time (can't say another number till someone else has).
  - b. Two people cannot say the same number, or talk over each other. If they have, everyone starts from 1 again. No mercy there!
  - c. Tip: Avoid patterns, or giving obvious cues - it's cheating, and takes away the point. Base it on attending to each other.
  - d. Are you getting good at it? Feel free to go past 20.

Focus: The point is for the entire group to listen to each other and work together as a team – and everyone is responsible to make it work. This is a simple and fantastic exercise. It's also helpful to practice numbering yourselves, which is useful when doing exercises virtually.
  
6. Superbrain: An exercise in sensory flooding.
  - a. Give yourselves numbers (1-5), make sure you remember them
  - b. Number 1, you are the Superbrain!
  - c. Number 2, you do movements (visible on camera) for Superbrain to mirror (see exercise 1 - Mirroring).
  - d. Number 3, you pose simple math questions by showing fingers on each hand – Superbrain subtracts the smaller number from the larger, says the answer out loud.
  - e. Number 4, you ask simple questions, general knowledge (“what is the capital of Spain?”) or personal (“what is your favourite colour?”) in the chat box. Superbrain answers out loud.

- f. Start your tasks! After about 10-15 seconds, Number 5 (who keeps time) gives a signal, and Superbrain starts telling everyone about their research, all while continuing all these tasks.
- g. After 1 minute, Number 5 gives a signal to wrap up the talk. Number 5 then narrates back the main message of the talk. Did it get across?
- h. Number 5 asks the Superbrain how it all felt and gets their feedback.
- i. Rotate, by each adding +1 to their number (so Number 1 becomes 2, Number 2 becomes 3, and so on. Number 5 closes the circle by becoming 1, the next Superbrain).
- j. Start all over from step b., till everyone has been the Superbrain. Each round should take about 2.5 minutes
- k. TIP: Numbers 2-4, your role is to challenge the Superbrain and keep them at the limits of their capacity. If they are doing too well, increase the pace of your stimuli or their complexity. If they are struggling, lower pace or difficulty.
- l. NOTE: if you are less than 5 people in the breakout room, you can drop the general questions, or if needed merge tasks (e.g., one person does movements and asks math/questions verbally). Be sure someone is keeping time, though.

Focus: The Superbrain's tasks, each fairly simple on its own, become rather difficult when done all at once. This exercise trains thinking on your feet, accepting failure, and coping with sensory overload. Everyone needs to listen carefully while doing their task. This is one of my favourites (and you seemed to enjoy it too)

7. Word at a time story: pair up, tell a story one-word-at-a-time.

- a. Stay in past tense.
- b. 'Full-stop' is a legitimate word when appropriate.
- c. Use "Suddenly", "unexpectedly", "surprisingly" to advance the plot.
- d. Use verbs.
- d. Try avoid adjective sequences, and sequences of "and": these slow the progression and roll responsibility over to your partner.
- e. Look at each other at all times.
- f. Tip: Physicality (miming your words) will help your flow.
- g. If your story makes no more sense, just call "again!" and start a new one.

Focus: This is a great "Yes, And" exercise and trains thinking quickly on your feet without hesitation. Notice how people break eye contact (often looking up) when they start inventing instead of responding!

We did this first in the common space, then in breakout rooms

8. Improvised TED Talk

- a. You have 90 seconds to deliver a TED-style talk about a research topic given to you by your audience. You have no preparation time. Moreover, you know nothing about the topic. How does that sound?
- b. The topics are all made-up, so real knowledge is irrelevant.
- c. Audience: ask the speaker what their real field of research is ahead of time, and pick a topic far removed from it. You may use the list below to pick a topic, or make one up, but please stick to made-up topics. Please don't suggest your real research title for someone else to talk about! This would put them under pressure do demonstrate knowledge, and this is not the type of pressure we are training here.
- d. Tip: aim to deliver your talk in three 30-second parts – introduction (platform), the question/problem (tilt), and the answer (resolution).
- e. Tip: speak with confidence! Remember the mannerisms of a TED talk – dramatic pauses, rhetoric questions, and stressing the importance of the question.

- f. LIST OF SAMPLE TOPICS TO CHOOSE FROM (these topics are made up – that does not mean they are not valid research topics, or that no one is actually working on some of these right now):
1. What can we learn about the genome of the extinct Siberian Unicorn?
  2. The ecology of mermaids in the Red Sea: Conservation
  3. Martian families in England: some aspects of migration
  4. Migration patterns of terrestrial worms on Venus as reflected by the fossil record
  5. Collective consciousness of granite rocks
  6. Frogs and their influence on 15<sup>th</sup> century music in Europe
  7. The relationship between colour and taste of the garden snail
  8. A discovery of the genes underlying luck
  9. The neuronal basis of boredom revealed
  10. What the prose works of Yak Dervalgulak teach us about everyday life in Atlantis
  11. The lost cities of Antarctica
  12. Deep-sea fish help us develop new algorithms
  13. Novel intelligent materials for coating household appliances
  14. Harnessing the power of mosquitos for a better future
  15. How a spelling mistake in a medieval text ended in one of medicine's greatest discoveries
  16. Comparing the crystal structure of several types of swiss cheese
  17. Electrons travelling through various gases in the presence of music
  18. How raccoons inspired the most sophisticated crime in history
  19. How bacteria dream – first insights from an emerging field
  20. A mathematical textbook found in a 20,000-year-old glacier
  21. Teaching trees human language
  22. Evidence that our ancestors built and used organic computers
  23. Live bacterial colonies – the building material of the future

We did this first in the common space, with three volunteers, then in breakout rooms of five each.