Building high-quality interaction

@katrisaarikivi

1. Change

2. Empathy, learning

3. What’s next?

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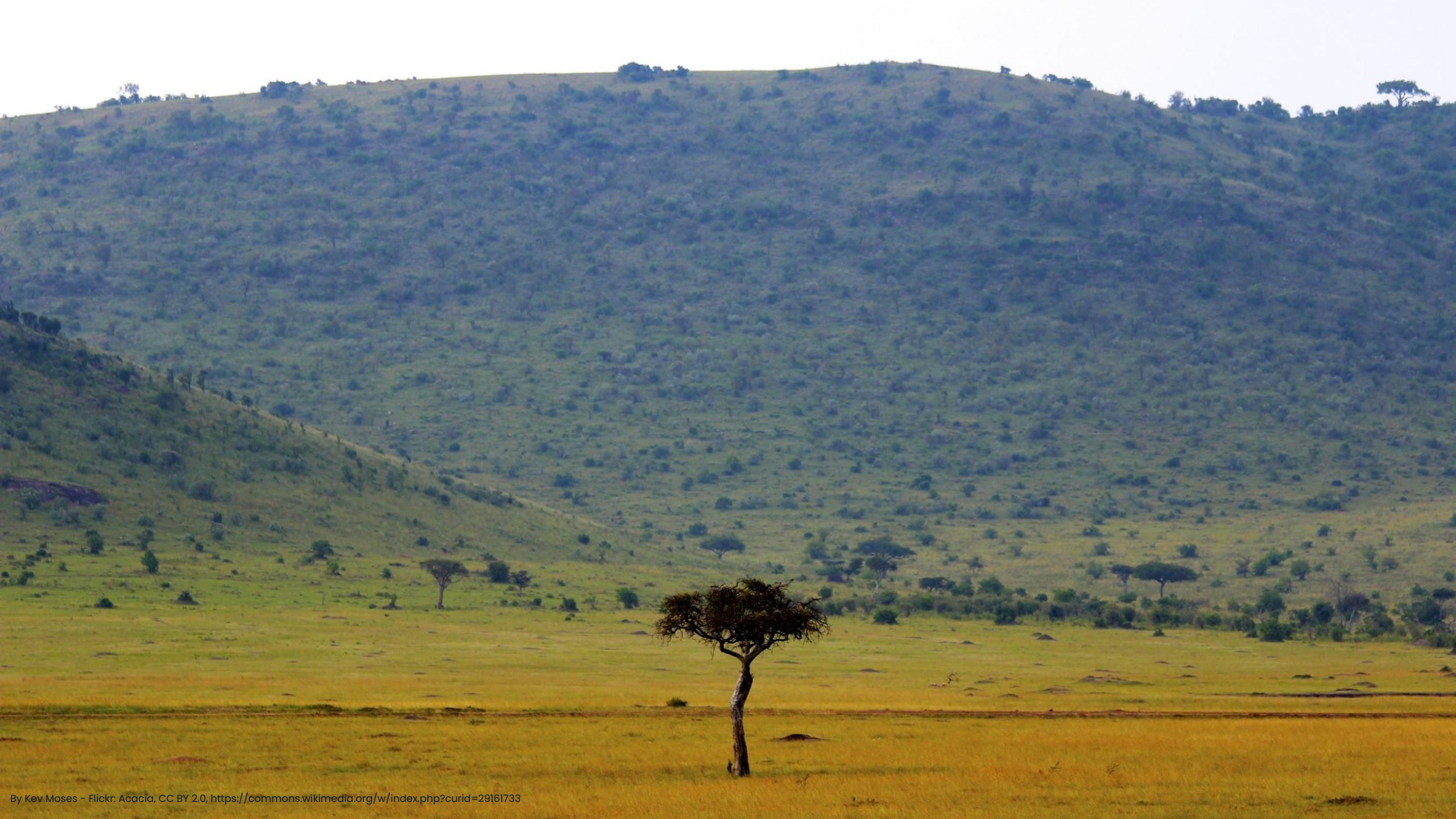

Learning in **collaboration** with others allows survival in a changing world

By chensiyuan - chensiyuan, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=25610236

Working memory

Long-term memory

Verbal reasoning

Non-verbal reasoning = IQ

Vocabulary

Arithmetic

Visuoconstruction

Processing speed

People are doing worse and worse in the traditional IQ test

Dutton et al., 2016

Working memory

Long-term memory

Verbal reasoning

Non-verbal reasoning

Vocabulary

Arithmetic

Visuoconstruction

Processing speed

Working memory

Empathy

Scientific thinking

Long-term memory

Verbal reasoning

Learning ability

Non-verbal reasoning

Creativity

Vocabulary

Arithmetic

Contextual thinking

Visuoconstruction

Processing speed

Moral, ethics

Metacognition

npj | digital medicine

Comment | Open access | Published: 22 July 2025

Pitfalls of large language models in medical ethics reasoning

Cognitive Bias

Research: Executives Who Used Gen AI Made Worse Predictions

by José Parra-Moyano, Patrick Reinmoeller and Karl Schmedders

July 1, 2025

HARVARD BUSINESS REVIEW

Science

NEWS | TECHNOLOGY

AI-generated scientific hypotheses lag human ones when put to the test

Machines still face hurdles in identifying fresh research paths, study suggests

AI-powered medical recommendations biased and unreliable

November 27, 2024

NEJM AI

COMPUTERS IN HUMAN BEHAVIOR

Artificial intelligence and human decision making: Exploring similarities in cognitive bias

Hanna Campbell, Samantha Goldman, Patrick M. Markey

scientific reports

Article | Open access | Published: 05 May 2025

Cognitive bias in generative AI influences religious education

Jing Zhang, Wenlong Song & Yang Liu

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When do you most need other people?

1. Change

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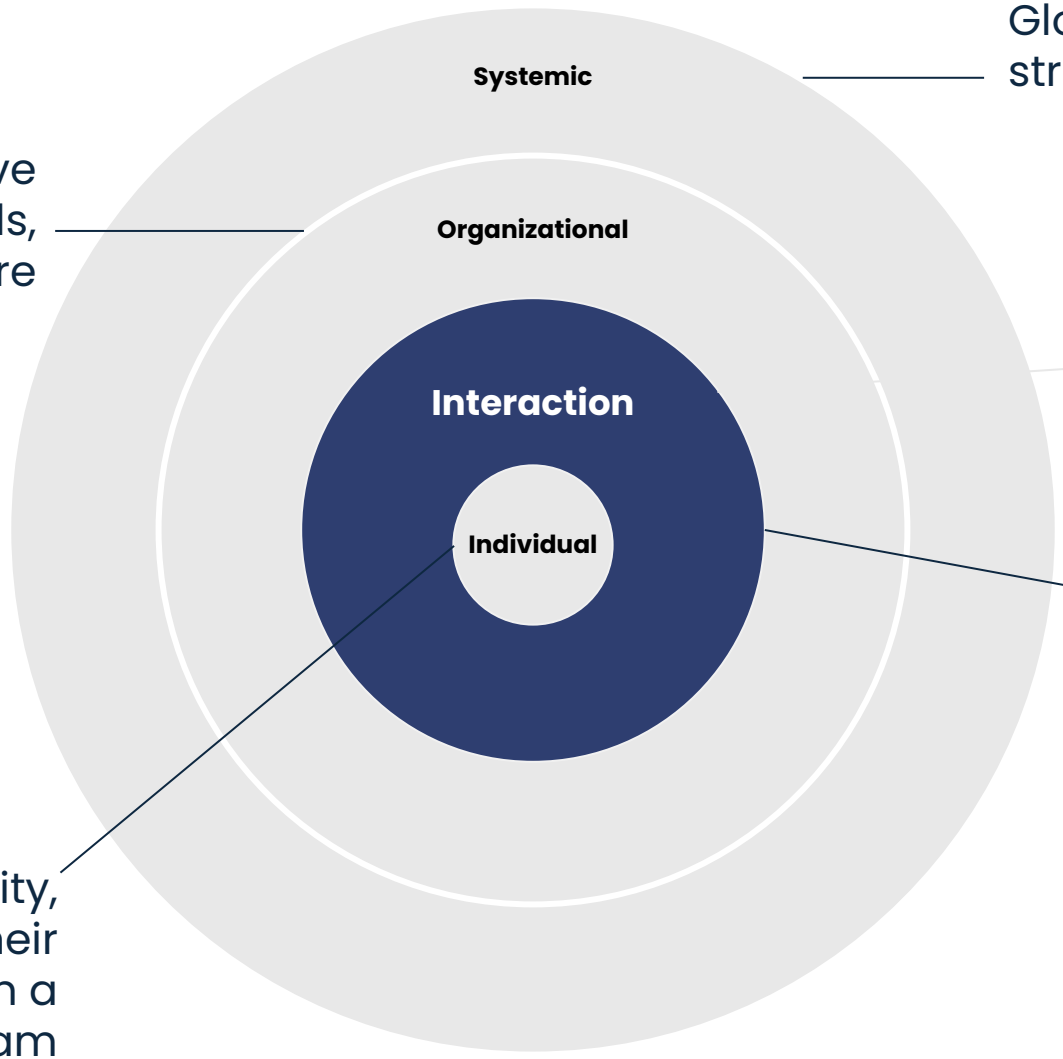
The most powerful predictors of collaborative success relate to the **quality of interaction**



Global and societal events, structures and culture

Roles, processes, incentive structures, tools, organizational culture

The quality of interaction:

- **Trust**
- **Cohesion**
- **Shared mental models**
- **Efficacy (team-level belief in success)**

Cognitive skills, personality, background, and their different combinations in a team

The three dimensions of empathy and their corresponding brain mechanisms

DMN, frontoparietal and salience networks	Prefrontal cortex, insulae, premotor cortex, mirror neuron system	Basal ganglia, anterior cingulate cortex, striatum
UNDERSTANDING	**EXPERIENCE SHARING**	**MOTIVATION**
• The ability to simulate other peoples' minds within one's own mind • Mentalizing, perspective taking • Reading and predicting others' thoughts, emotions and intentions	• Emotions and physiological states can synchronize in interaction • Mirroring, emotion contagion, the experience of presence and shared rhythm	• We enjoy helping others and experience collaboration as naturally rewarding • Altruism, compassion, sympathy

Zaki & Ochsner, 2012

Mentalizing skills predict **collective intelligence**

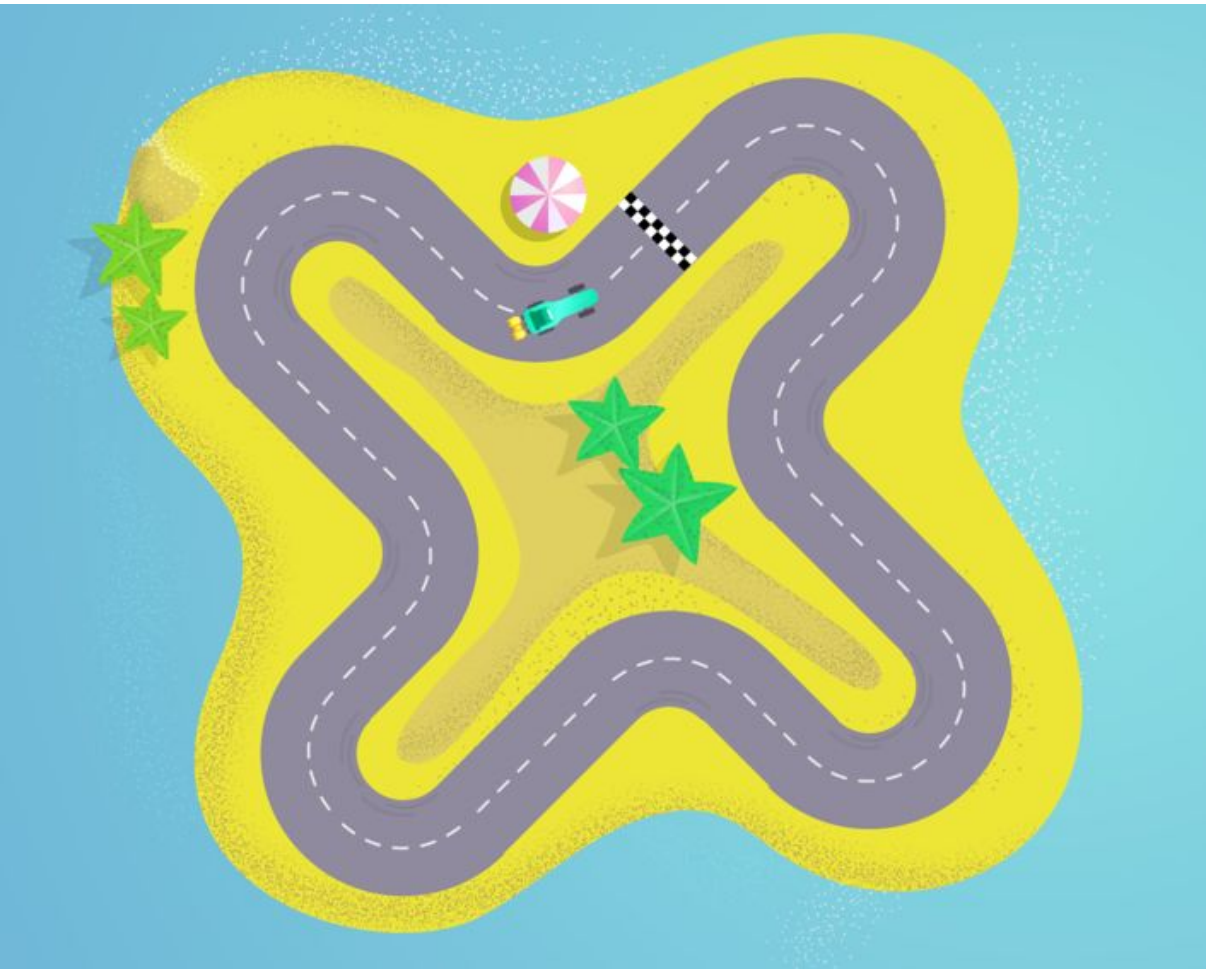
Woolley et al., 2010; Meslec et al., 2016; Chikersal et al., 2017

Perspective taking and synchrony in movement predict **trust**

Fett et al., 2014; Erle et al., 2018; Goldstein et al., 2020

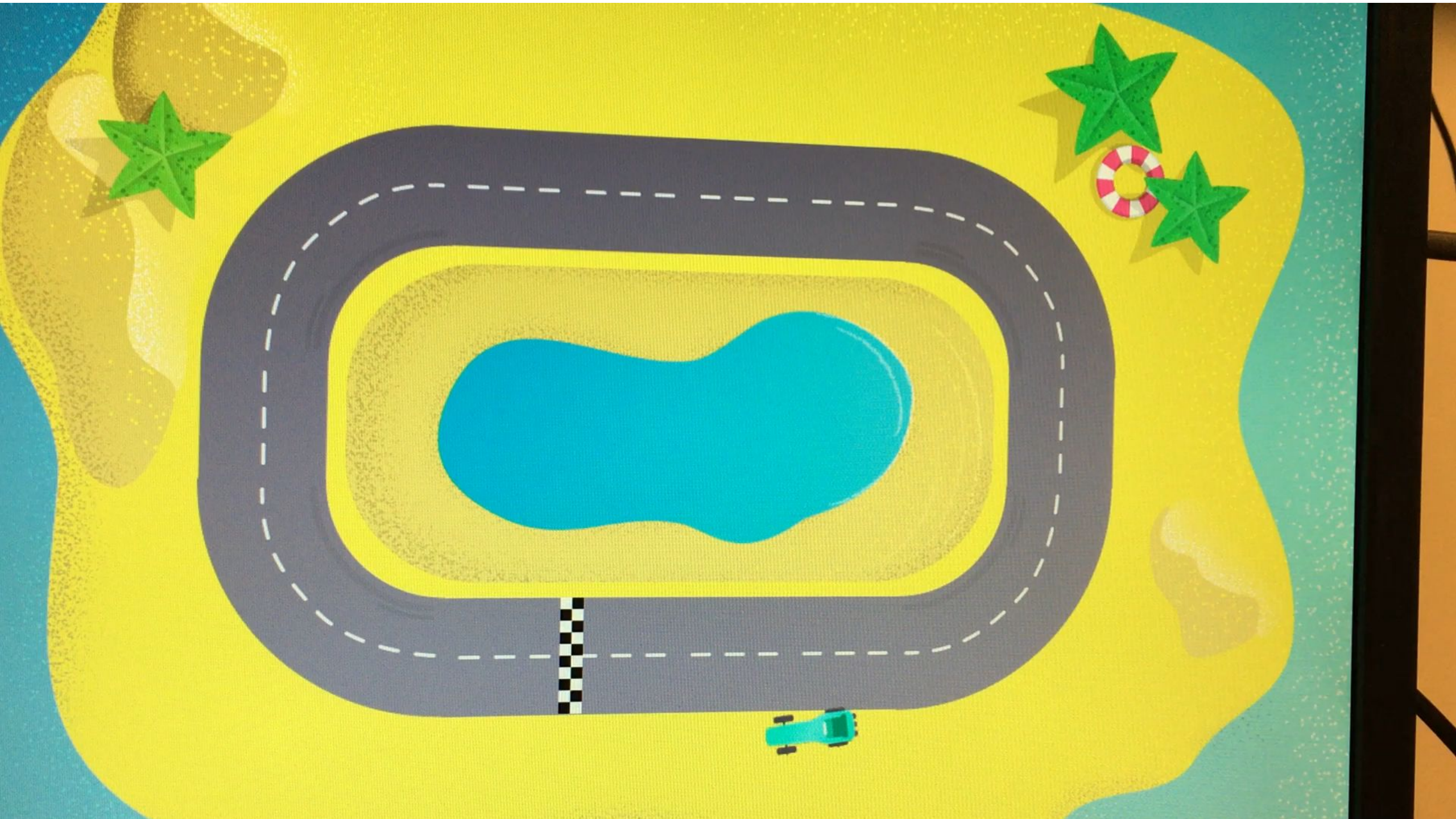
Better **quality of interaction** between parents and doctors predicts better vaccine attitudes and practices

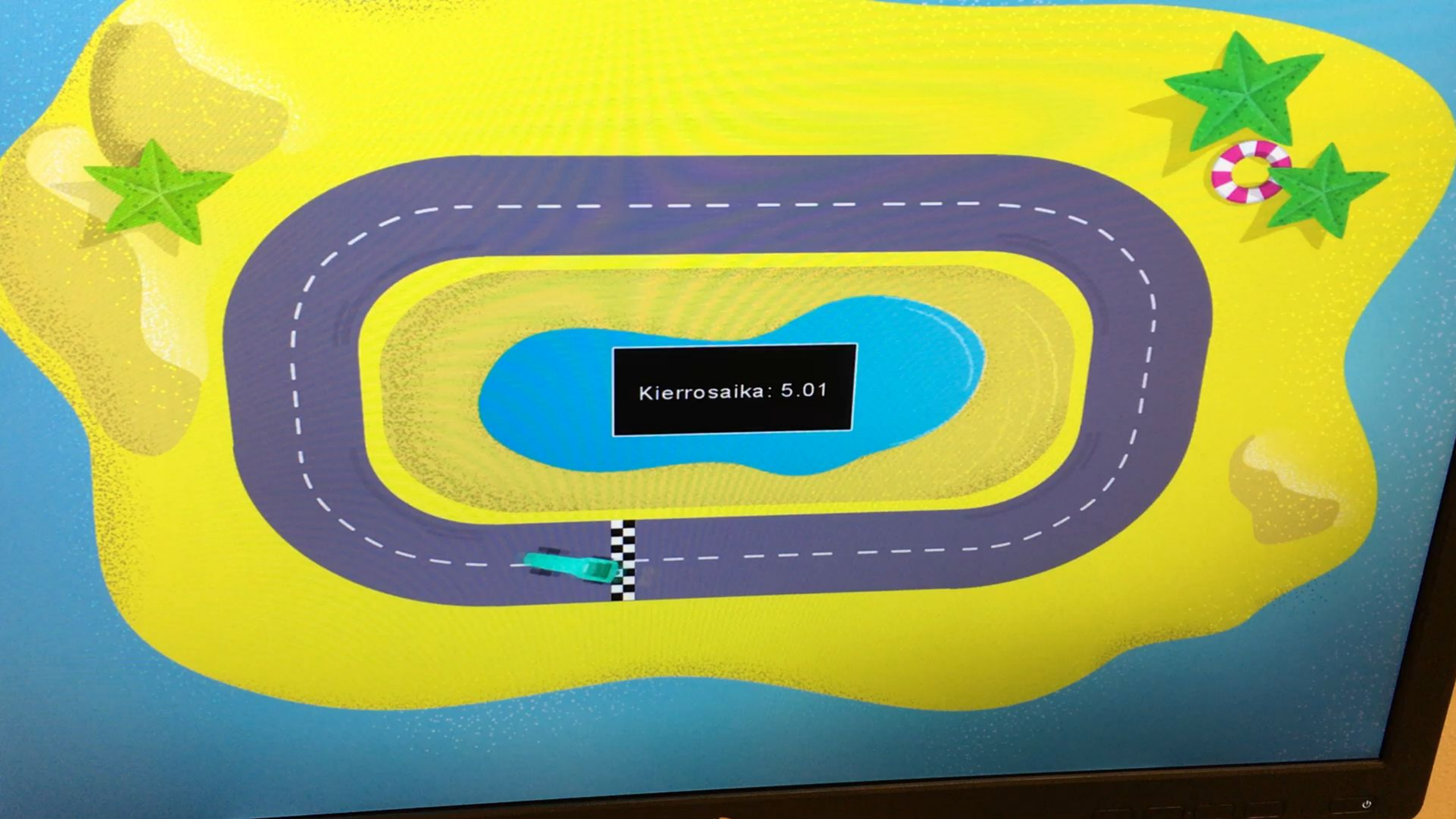
Matta et al., 2020



Inter-brain synchronization during a cooperative video game predicted collaborative success

Wikström et al., 2022

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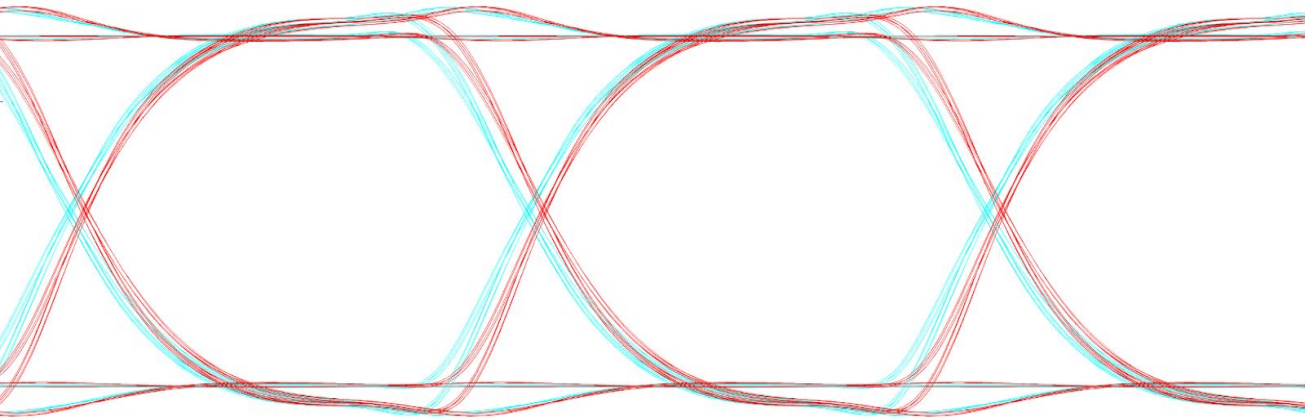

Our brains don’t synchronize, and the mirror neurons don’t work as well online as face to face

Sanchez et al., 2024; Schwartz et al., 2024; Sato & Sato, 2025

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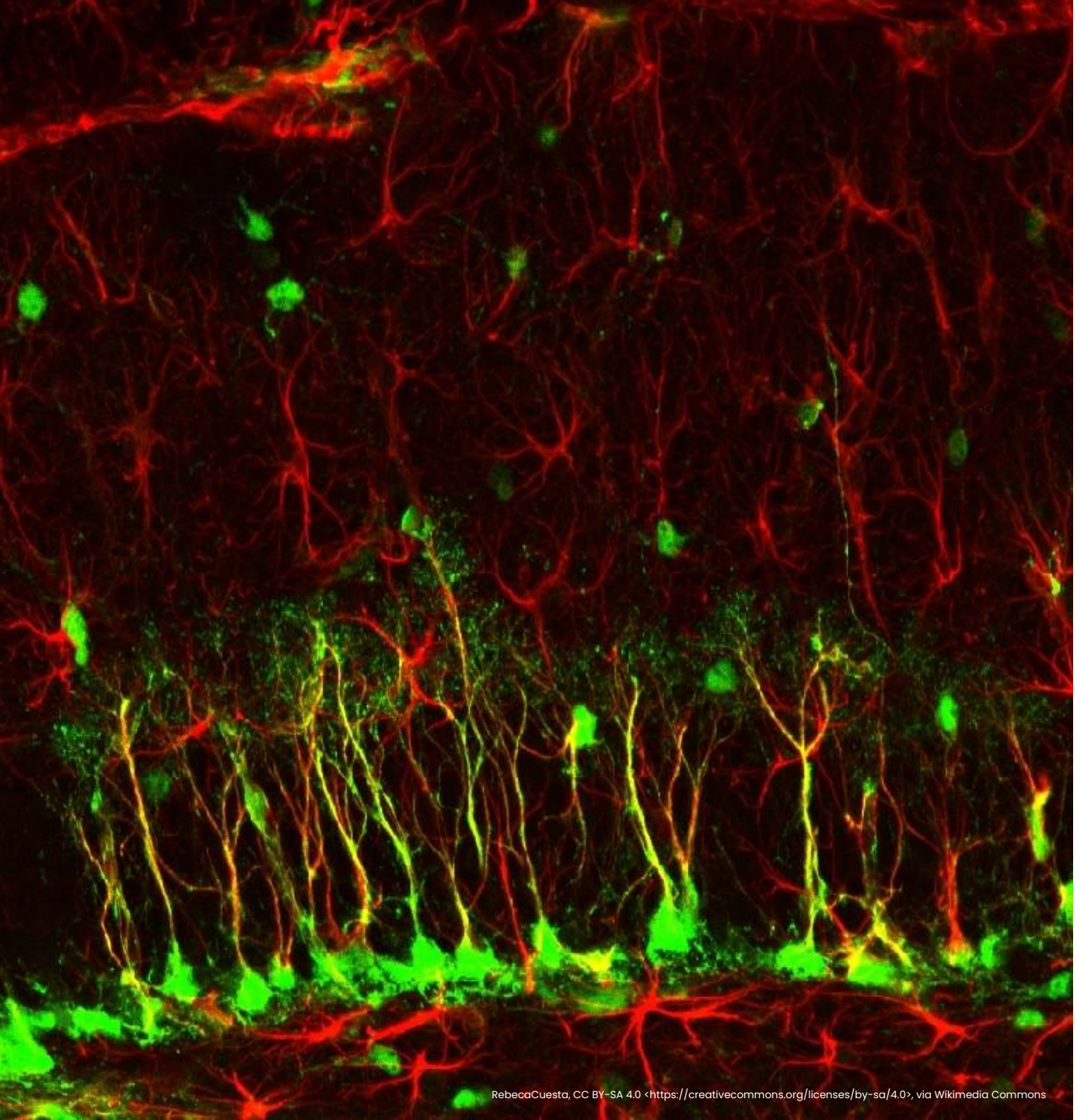
When have you been truly in "sync" with others?

Learning is the creating or updating mental models of the world based on change in it



Learning results in structural and functional changes in the brain: cortical areas can thicken or thin, connections form and brain responses change

Zatorre et al., 2012

Our brains are, however, optimized to conserve energy

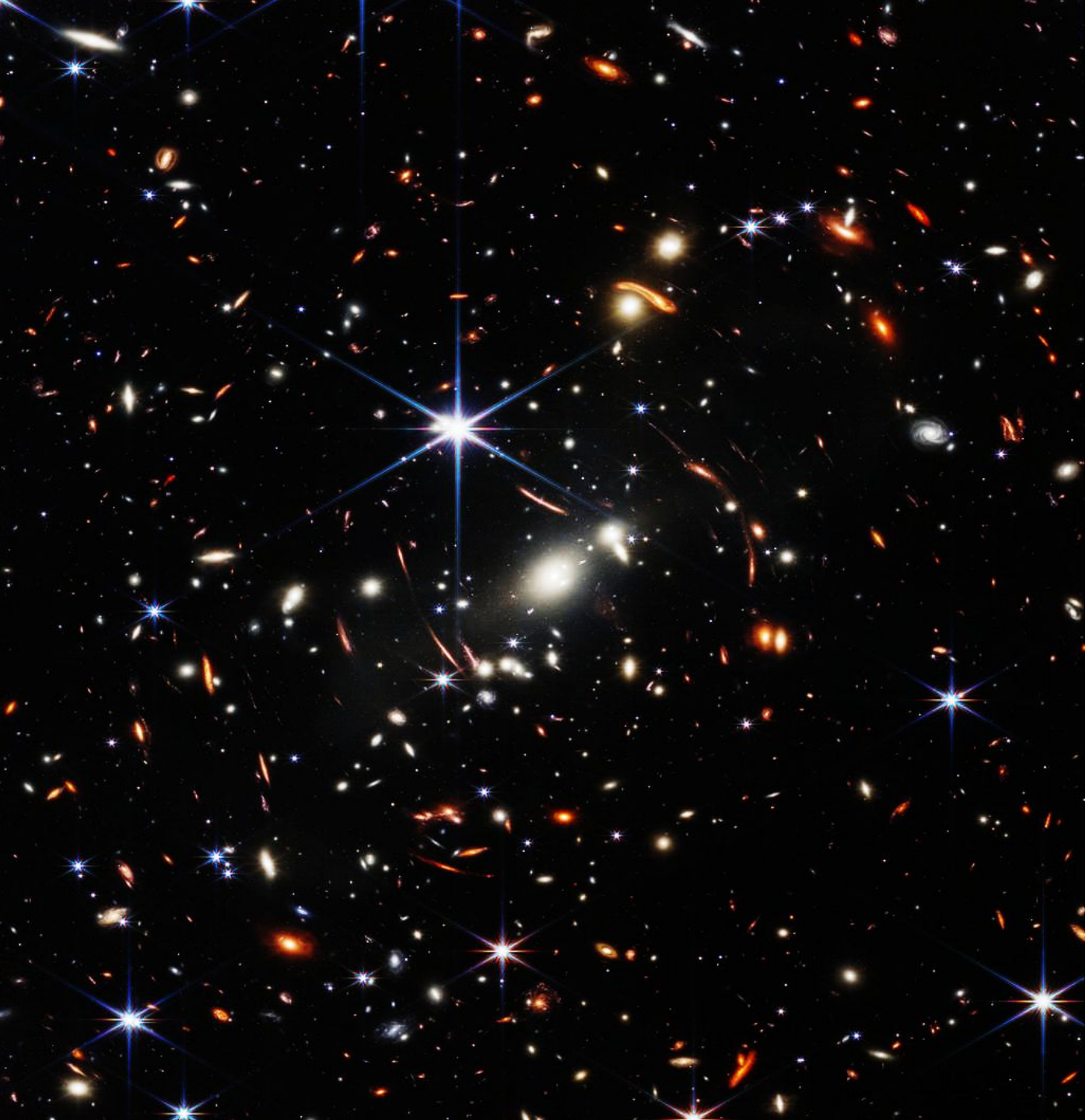
Learning is undertaken if it is deemed meaningful enough

Emotions are continuous signals of meaning and value

Photo credit: Flickr, @woodleywonderworks

The learning structures of the brain are more active when we are **curious**

Jepma et al., 2012; Gruber et al., 2014; Gruber et al., 2014; Kang et al., 2009



The experience of **awe** liberates mental models, increases tolerance for norm violations and prosociality

Takano & Nomura, 2020;
Sawada & Nomura, 2020;
Shiota et al., 2007

HARVARD medicine
THE MAGAZINE OF HARVARD MEDICAL SCHOOL

Altering Perceptions on Psychedelic Therapy

nature medicine

The promise of psychedelic medicine in psychiatry

After years of stigma, psychedelic compounds are edging closer to regulatory approval, with pivotal trials in tough-to-treat depression and anxiety underway.

Information is not neutral in the human brain – it is perceived through the lens of values and emotions

When we decide whether something is true:

Understanding the truth

Comfort

Belonging to a group

Health

Learning

Identity

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Comfort

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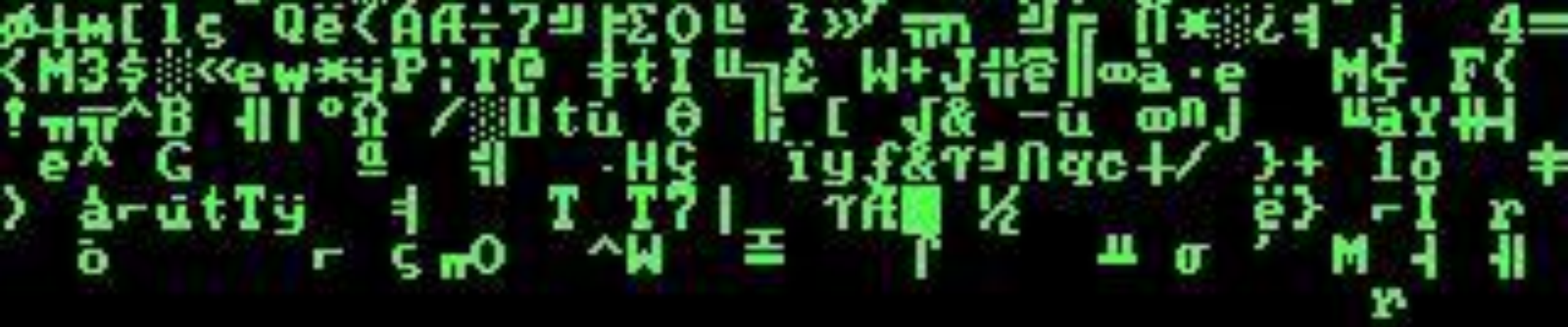

When faced with information contrary to one’s own political ideology, the mathematical reasoning ability of individuals declines

Kahan et al., 2013

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What are you curious about?

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1. Be present for, and interested in, others

The CARE questionnaire

1. Did the doctor make you feel at **ease**?
2. Did the doctor **let you tell** your story?
3. Did the doctor really **listen** to you?
4. Was the doctor **interested** in you as a whole person?
5. Did the doctor fully **understand** your concerns?
6. Did the doctor show care and **compassion**?
7. Was the doctor **positive** and encouraging?
8. Did the doctor **explain** things clearly?
9. Did the doctor help you to find a way to **cope** with your situation?
10. Did the doctor make a **plan** of action with you?

“Like me” and “With me”

2. Empower learning

If you are asking people to learn, you are asking them to change

The instigators of awe:

Vastness

Need for accomodation

Keltner & Haidt, 2010

Curiosity can be increased by asking more questions and inviting critique

Clark et al., 2019

3. Enjoy the struggle!

Inconsistent performance signals learning

Wu et al., 2014

Confusion is beneficial for learning

D’Mello et al., 2014

Failure during learning improved outcomes

Kapur & Bielaczyc, 2011

Using an LLM in essay writing or ideation is connected to poorer understanding, argumentation and creativity, even weaker brain activation

Stadler et al., 2024; Kumar et al., 2025; Kosmyna et al., (preprint)

83,3% of people who used an LLM for essay writing could not cite their own text

Kosmyna et al., (preprint)

4. Create interaction that fosters learning

1. Are there shared beliefs that define the group and that would threaten its existence is critiqued?
2. How do people respond to you if you are critical, or point out novelty?
3. Have some people been "cast out" due to differing points of view?

- Make learning an explicitly stated **joint goal**
- Discuss what values will be most important in interaction – not keeping everyone comfortable, but finding the truth
- Discuss what this means – sometimes it means struggle and **discomfort**!

When is not learning less dangerous than understanding the truth?

5. Use tested methods for conveying “bad news”

The SPIKES method

The most widely used by doctors for giving bad health news

1. Setting up the interview
2. Assessing the patient's perception of the situation
3. Obtaining the patient's invitation to deliver the news
4. Giving knowledge and information to the patient
5. Addressing the patient's emotions empathically
6. Providing a summary and discussing prognosis and treatment options

1. SETTING UP THE INTERVIEW

Prepare for the discussion (who, what, where, when, how)

2. ASSESSING PERCEPTION OF THE SITUATION

Find out how much the patient knows. In particular, how serious he or she thinks the situation is.

"What have you made of the illness so far? What did doctor X tell you when he sent you here?"

- This helps you gauge how close to the medical reality the patient's understanding is and will tell you about pacing. Also whether the patient is in denial.

3. OBTAIN THE PATIENT'S INVITATION

Find out how much the patient wants to know.

- In any conversation about bad news the real issue is not "do you want to know?" but "at what level do you want to know?"
- *"Would you like me to tell you the details of the diagnosis?"*
- *"If this turns out to be something serious, are you the kind of person who likes to know exactly what's going on?"*

4. GIVING KNOWLEDGE

Fire the Warning Shot e.g. "*Well, the situation does appear to be more serious than that*" . Give information in small chunks, check reception often and clarify e.g. *"Am I making sense?", "This might be a bit bewildering, do you follow roughly what I'm saying?".* Reinforce information often and clarify.

5. ADDRESSING THE PATIENT'S EMOTIONS WITH EMPATHY

Respond to the patient's feelings. Observe the patient and give them time. Acknowledge any shock and ask them what they are thinking or feeling.

Do not argue. Allow expression of emotion without criticism.

6. STRATEGY AND SUMMARY

Tell the patient about the plan and follow-through. Demonstrate an understanding of the patient's problem list. Indicate you can distinguish the fixable from the unfixable. Make a plan or strategy and explain it.


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