Intentionality vs Chaos
Brain Connectivity through Emotions and Cooperation Levels beyond Sensory Modalities.

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IGOR VAL DANILOV,
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Igor Val Danilov is a cognitive scientist who studies the essence and modalities of social interaction from the viewpoint of physics, developing academic research of the education environment. In specific, he applies expertise and experience to develop e-learning curriculum and study contactless brain-computer interfaces. Igor Val Danilov is an academician at the Academy Angelica Constantine of Rome, member of Cognitive Science Society, research physicist. Igor Val Danilov and Ass Prof. Dr. Sandra Mihailova currently conduct research on the effect of coherent intelligence at the Riga Stradins University (Latvia). He is the researcher at the academic consortium "Academic Center for Coherent Intelligence." His previous job was the director of the research department and director of operation Eastern Europe and India of Marconi International University.

CURRENT PROJECTS

We applies expertise and experience to develop e-learning curriculum and study contactless brain-computer interfaces. In specific, Igor Val Danilov and Ass Prof. Dr. Sandra Mihailova currently conduct research on the effect of coherent intelligence at the Riga Stradins University (Latvia) to develop understanding of shared intentionality. This approach promotes developing:

(i) advanced e-learning curriculum for 2- to 3-year children with ASD and GDD;

(ii) contactless brain-computer interfaces in a wide range of applications of the brain-computer intelligence field.

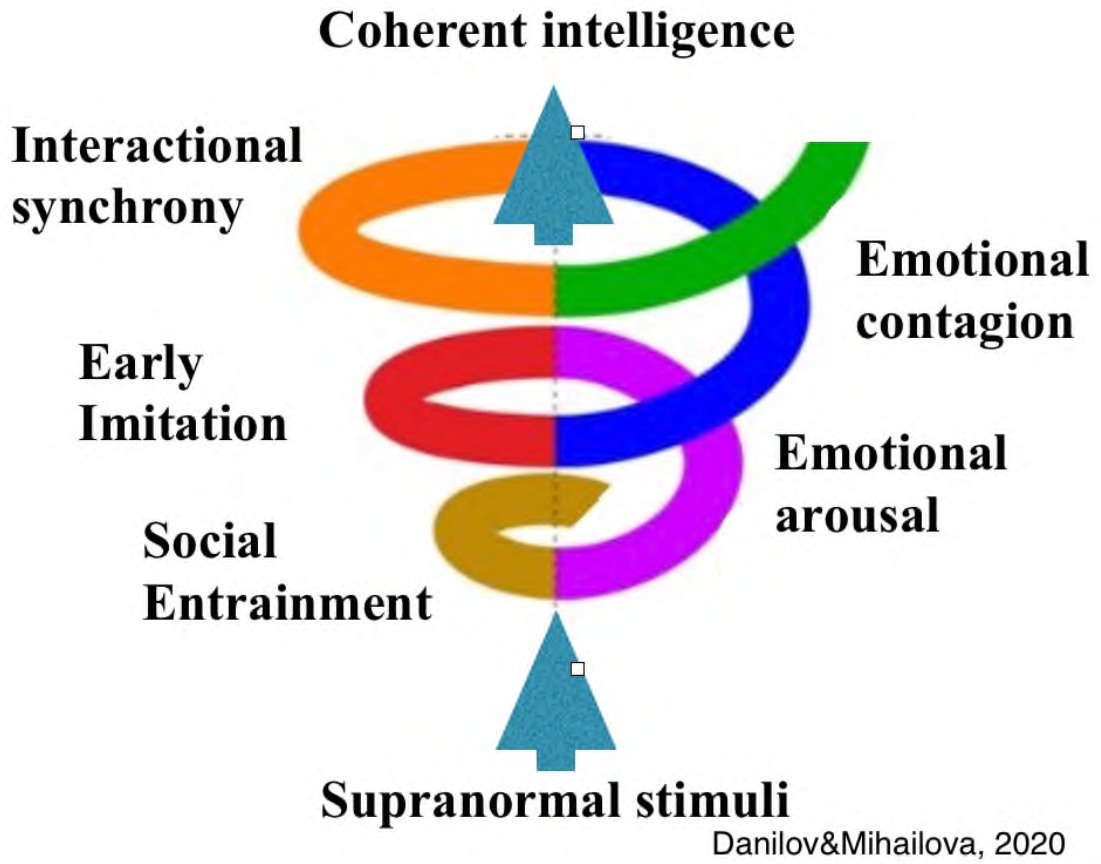
INTRODUCTION

Although there is increasing evidence of consistency between some "motion" and "emotion" concepts, research demonstrating the synergy of the integrative process of all these five concepts is limited.

Empirical evidence shows the efficiency of coordinated interaction in mother-infant dyads through unintentional movements: social entrainment [1][2], early imitation [3][4], and interactional synchrony [5][6]. The growing body of the literature evidently shows an impact of arousal on group performance [7]-[9] and spreading emotion from one individual to another organism [10]-[12], called emotional contagion. That is, emotion sharing somehow stimulates sharing intentionality in individuals of "primary group"[13] .

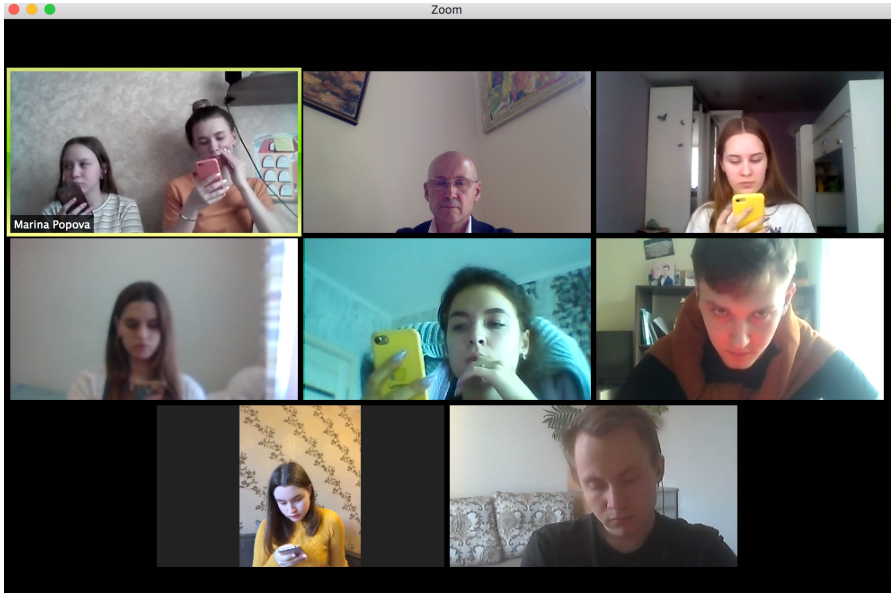
THE MODEL OF COHERENT INTELLIGENCE

Ongoing social dynamics create a coherent mental process in dyads (primary group) where movement coordination is cyclically enhanced under ever-growing arousal.



EXPERIMENTS

In 2020, we conducted 24 experiments with 407 subjects to test the MCI hypothesis of whether this effect also appears online.



The Research Problem

Would a confident knowledge of the confederates on the tasks help target participants to solve these unintelligible problems without communication, when they simultaneously pass the same testing?

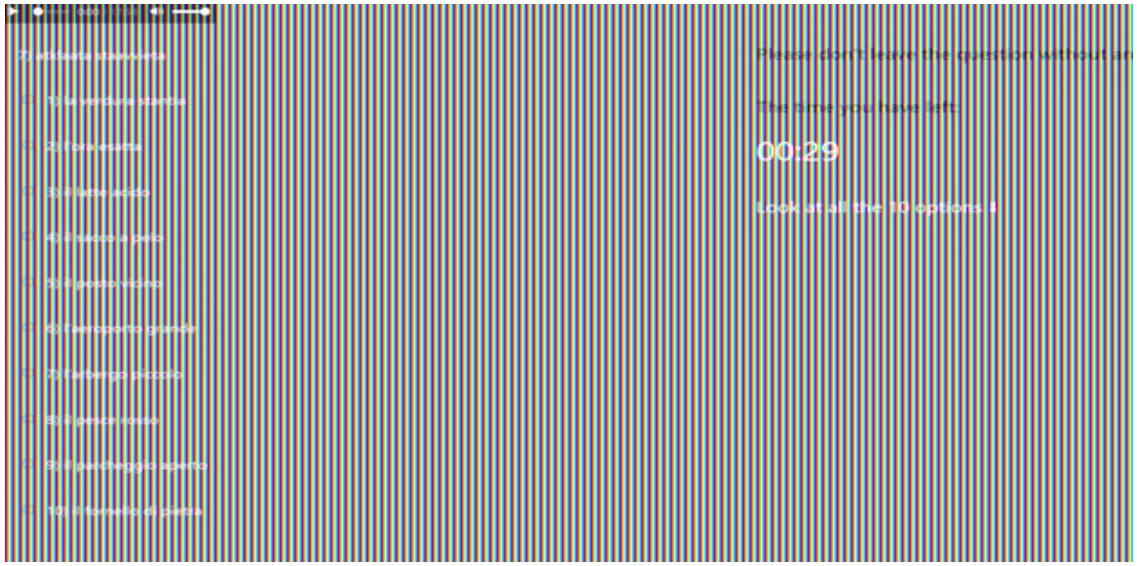
Procedure

During testing, the website simultaneously presented to all subjects 10 tasks. The all tasks design was the same for all subjects (participants and confederates)–all subjects saw the same picture with the similar mapping of the task and its answer options. The design of each task promoted the same geometrical navigation on the screen for all.

EXPERIMENTS

12 online experiments with Translation of Unfamiliar Language (UL).

This design presented 10 answer options in one line on the screen of the mobile phones.



The screen of the mobile phones with the task.

UL1: We conducted 6 online experiments with 22 dyads (44 person) attributed the primary group.

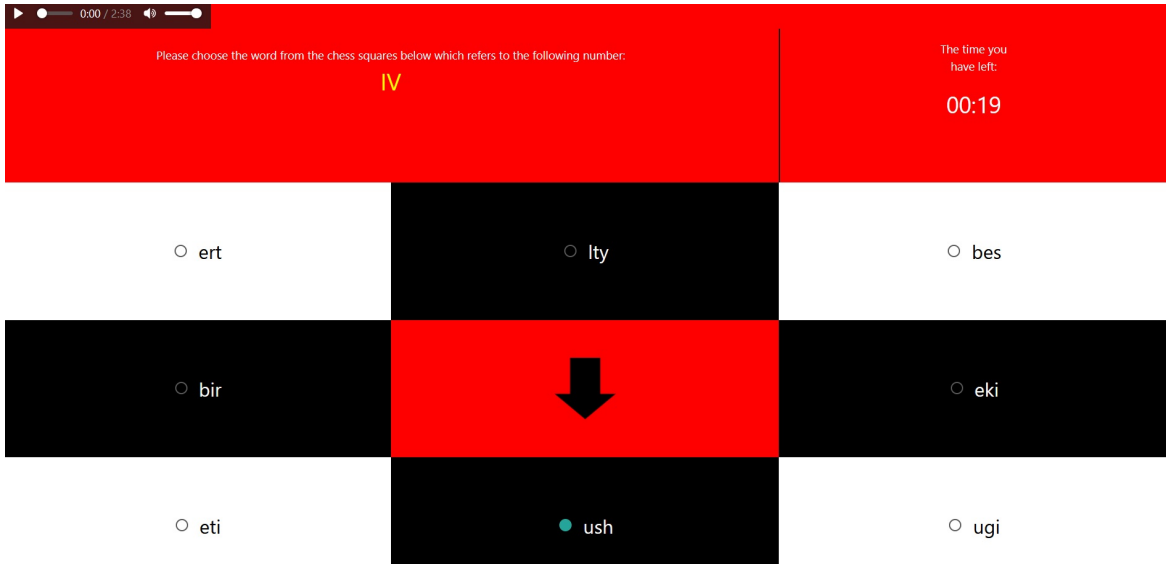
UL2: The online experiment with 24 adults, friends (primary group).

UL3: The experiment No. 12 (12/05/2020) with subjects who were 41 second-year university students.

EXPERIMENTS

6 online experiments with a Synthetic Language (SL).

8 answer options located on the square's perimeter on the screen. The arrow in the center of the screen shows the direction to the selected answer when a subject click on it.



The screen of the mobile phones with the task.

SL1: 4 online experiments with 23 children and 19 mothers (specifically 19 families, primary groups).

SL2: 7 adults (M=18), students (primary group) of the last year of a school.

SL3: 56 secondary group adults (M=21), students of the second year of university.

EXPERIMENTS

6 online experiments with Unintelligible Symbols (US) .

The mapping of Unintelligible Symbols (US) task presented on the screens 4 answer options located on the square's corners.

Two screens of the mobile phones with 2 different task.

US1: 3 online experiments with 17 children (M=9) and 13 mothers (M=40); specifically, there were 13 families (primary groups).

US2: online experiment with a group of 10 friend adults (primary group): 4 confederates and 6 participants (M=30).

US3: 151 students (secondary group) from the first year of the university (M=19).

RESULTS OF 24 EXPERIMENTS

The 20 experiments in subjects from the primary group includes 13 experiments in dyads (with 58 mothers and 68 children), and 7 experiments with 41 adults. The 4 experiments in subjects from the secondary group with 250 adults showed the effect only in UL3 task (a translation of an unfamiliar language). Other experiments in secondary group with the tasks SL3 and US3 did not show the effect.

Group	The Ratio of Correct Responses					
	Ratio	*Task UL, %*	*Task SL, %*	*Task US, %*	χ^2	*P-value*
1. Dyads, 116 subjects	Rb	48	394	123	16.142	< 0.001
	Rch	90	42	32		
2. Primary group, 41 subjects	Rb	143	300	127	13.493	< 0.002
	Rch	216	28	20		
3 Secondary group, 250 subjects	Rb	–	–8	3	O.083	< 0.975
	Rch	–	31	–9		
	Rb	133	–	–	250.624	< 0.001
	Rch	380	–	–		

CONCLUSIONS:

We believe that, the results of these online experiments support a hypothesis of inter-brain connectivity, which appears in individuals of primary groups (including dyads) at the beginning of cognition and lasts the entire social life. The unprimed subjects (participants) attributed to the primary group showed a more significant level of accuracy when they completed a thought task in the presence of confederates (primed subjects from the same group) who were simultaneously primed with the correct answer to the same task.

We believe that future research should aim to understand the possible application of this effect to an advanced online curriculum for young children.

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THANK YOU FOR ATTENTION

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