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# Evaluating Playful Creative Problem Solving in Kyiv and Ukrainian Refugees in France

Oksana Strutynska, Margarida Romero

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Margarida Romero<sup>1,2\*</sup>, Oksana Strutyńska<sup>1,3\*\*</sup>

\* [margarida.romero@univ-cotedazur.fr](mailto:margarida.romero@univ-cotedazur.fr) / <https://margaridaromero.blog/>,  
\*\* [o.v.strutyńska@npu.edu.ua](mailto:o.v.strutyńska@npu.edu.ua)

1. LINE lab, ANR Creamaker PI, Université Côte d'Azur, Nice, France
2. Université Laval, Québec, Canada
3. Dragomanov Ukrainian State University, Kyiv, Ukraine

IDEA UCA jedi  
Advanced Research Program for Ukrainian researchers

## Step 1 Why is creative problem solving so important?

### Top 10 skills of 2025

- Analytical thinking and innovation
- Active learning and learning strategies
- Complex problem-solving
- Critical thinking and analysis
- Creativity, originality and initiative
- Leadership and social influence
- Technology use, monitoring and control
- Technology design and programming
- Resilience, stress tolerance and flexibility
- Reasoning, problem-solving and ideation

Source: Future of Jobs Report 2020, World Economic Forum

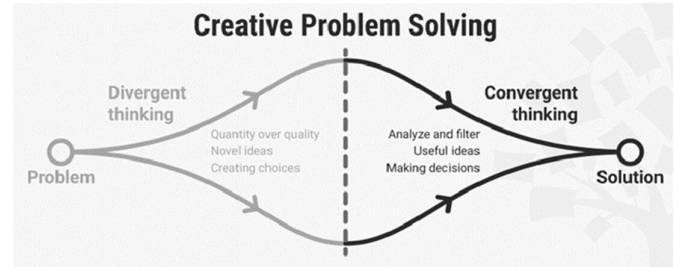
## Step 2



**Creativity** is a complex human process that can be observed in a high diversity of learning, professional, and personal tasks

**Creative problem solving (CPS)** is a way of using **creativity** to develop new ideas and solutions to problems

## Step 3 CPS, Divergent & Convergent Thinking



**Divergent Thinking (ideation)**

**Convergent Thinking (idea selection)**

Source: Runco, M.A. (2011) 'Divergent Thinking', in Mark A. Runco and S.R. Pritzker (eds) Encyclopedia of Creativity (Second Edition). San Diego: Academic Press, pp. 400-403.

## Step 4 Divergent Thinking Components

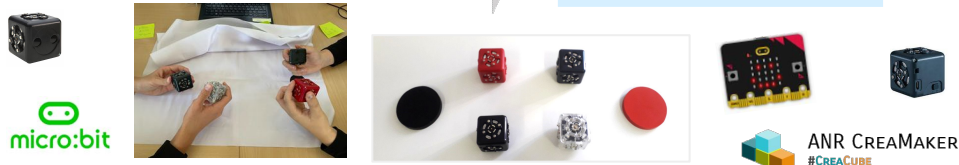
- fluency**: Number of ideas
- flexibility**: Number of different ideas
- originality**: Number of original ideas (<5% - **creativity** component)

Source: Guilford, J. (1967) 'Creativity: Yesterday, today and tomorrow', The Journal of Creative Behavior, 1, pp. 3-14.

## Step 5 Creative problem solving with educational robotics

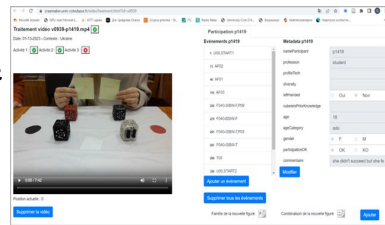
**CPS** can be supported with visuospatial constructive play objects (VCPO) or artefacts such as **modular robotics**

The ANR CreaMaker project aims to advance the study of individual and collective **creative problem solving** through educational robotics

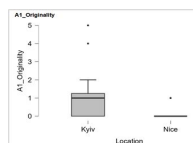


## Step 6 Research Goal: How the stress impacts on creativity & students' creative problem solving skills during wartime?

To evaluate **divergent thinking**, learner-players are asked to solve the **CPS #CreaCube** playful task



	A	B	C	D
1				
2	<b>Average</b>	<b>Fluency</b>	<b>Flexibility</b>	<b>Originality</b>
3	Nice group	4.933	1.6	0.13
4	Kyiv group	4.938	<b>2.19</b>	<b>1.19</b>



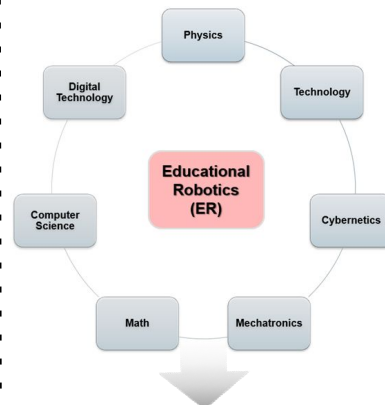
Number of participants (N=33):

**Nice group** (Ukrainian students in France)  
- 17 students (normal conditions)

**Kyiv group** (Ukrainian students in Ukraine)  
- 16 students (difficult conditions: **air raid sirens, sounds of explosions, cut of electricity, cold weather and no heating etc.**)

## Educational robotics

**Educational robotics** is a cross-disciplinary area of students' learning and present educational trend



**Future/present robotics jobs:**

- robotics teacher
- operator of multifunctional robotic systems
- robot designer
- designer of neuro-interfaces for robot management
- designer of "smart" houses
- unmanned aerial interface designer
- service engineer in robotics
- robotics programmer
- medical robot operator
- drone operator
- drone engineer

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**STREAM**  
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**Module 3.** The EU experience in CPS with educational robotics.