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

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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

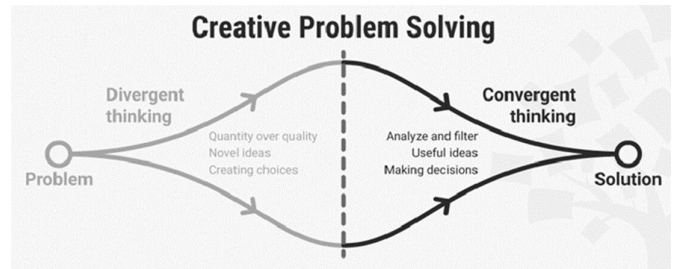
## Step 2



**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

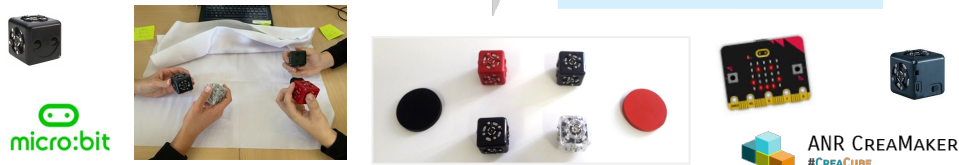
- fluency**: Number of ideas
- flexibility**: Number of different ideas
- originality**: Number of original ideas (<5%) - **creativity** component

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

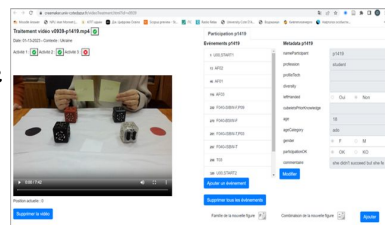
**CPS** can be supported with visuospatial constructive play objects (VCPO) or artefacts such as **modular robotics**

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

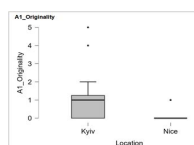


## Step 6 Research Goal: How the stress impacts on creativity & students' creative problem solving skills during wartime?

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>



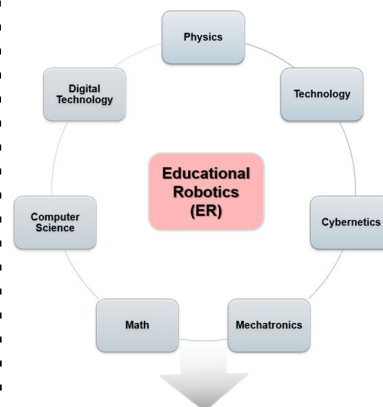
Number of participants (N=33):

**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 2.** The EU experience in STREAM education.  
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