

AN INTERNATIONAL
COLLABORATION ON
DEVELOPING LEARNING
COMPETENCES BY CREATIVE
INTERVENTIONS

2021-2023

Silvia Németh,
managing director, T-Tudok



THE ART OF LEARNING



WHAT IS *ART OF LEARNING*?

An international programme to understand how learning through arts in school affects the learning competencies of the students.

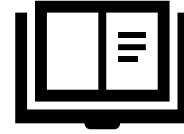
Carefully designed lesson plans that:

- Address curriculum needs
- Incorporates EF
- Set in a holistic arts based framework
- Puts teachers and artists side by side in the classroom



Working memory

Prerequisite for reading / writing / calculating



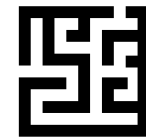
Inhibition

Control or redirecting impulses



Cognitive flexibility

Think outside the box, change method, change path



THE MAIN AIM OF
THE PROJECT IS TO
DEVELOP EXECUTIVE
FUNCTION BY
CREATIVE
INTERVENTIONS

Efs are: Multiple functions that works together.

Essential for learning, more predictive for academic outcome than IQ.

Vulnerable to stress and for lack of food, sleep or safe environment.

Can be developed! But the research on **what** develops and supports EF is scarce.




PREVIOUS EF-RESEARCH SHOWS BEST EFFECT WHEN:

- Both physically, socially, emotionally and intellectually engaged (use all of yourself)
- Challenging tasks
- Repetition and reflection throughout

A well-known hypothesis (Adele Diamond) is that ARTS AND CULTURE ACTIVITIES are best fit for developing EF.

AoL exists to test this hypothesis.



Active, creating,
inquisitive
together

Repeated exercises
with increasing
levels of challenge

Take risks,
be «larger» than
yourself

Testing, making
mistakes, reflection

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Inhibitory Control

- Self-control – thinking before acting and resisting impulses
- Discipline - resisting temptations and completing tasks
- Interference control – concentrating, paying attention and staying on task

Working Memory

- Seeing connections – mentally relating one idea or fact to another
- Considering different perspectives
- Translating instructions into action plans

Cognitive Flexibility

- “Thinking out of the box”- see things in an new way, creative problem solving
- Flexibility - switching perspective or focus of attention and adjusting to changed demands or priorities

Disciplined

- Crafting and Improving
- Developing technique
- Reflecting critically

Imaginative

- Playing with possibilities
- Making connections
- Using intuition

Persistent

- Managing uncertainty
- Sticking with difficulty
- Daring to be different (Managing risk)

Inquisitive

- Wondering and Questioning
- Exploring and Investigating
- Challenging assumptions

Collaborative

- Cooperating appropriately
- Giving and receiving feedback
- Sharing the ‘product’ (Emotionally literate)

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EFFECTS FROM PILOT (NORWAY, 2019)

Quantitative findings: AoL- students had a significantly better development of their EF than the control group.

Qualitative findings:

Students that...

- cooperates better and with more fellow students
- are part of less and smaller conflicts
- can keep focused through longer conversations
- feel and acts more safe in the group
- including more of their fellow students
- has increased vocabulary

Teachers that think being a teacher has become more giving.



Andersen PN, Klausen ME, Skogli EW. Art of Learning - An Art-Based Intervention Aimed at Improving Children's Executive Functions. *Front Psychol.* 2019 Jul 31;10:1769. doi: 10.3389/fpsyg.2019.01769. PMID: 31417476; PMCID: PMC6685039




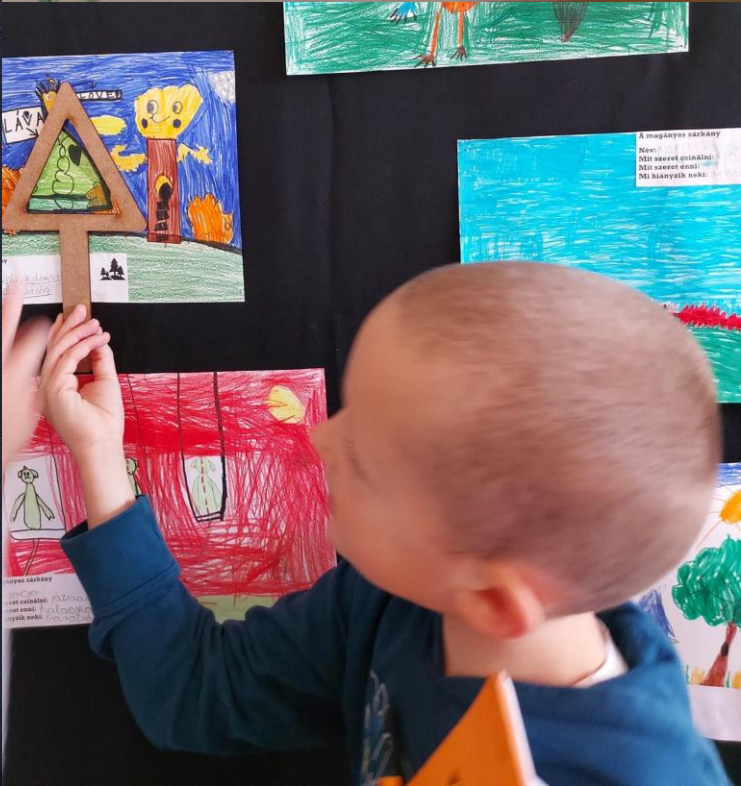
«This project is based on the children being inquisitive, and that is the type of learning we want our children to experience.»

Ulrika Håkansson

Main research partner. Associate professor, Institute of Psychology, Innland University of Norway



A magányos sárkány
 név: *berni*
 álni: *jacani*
 i: *hus*
 eki: *család*

KEY NUMBERS

500 students 6-8 years old

17 primary schools in
Norway and Hungary

11 artists

40 teachers

11 researchers

48 weeks

3 x 90 min sessions a week

4 rounds of testing
Executive Functions



PARTNERS

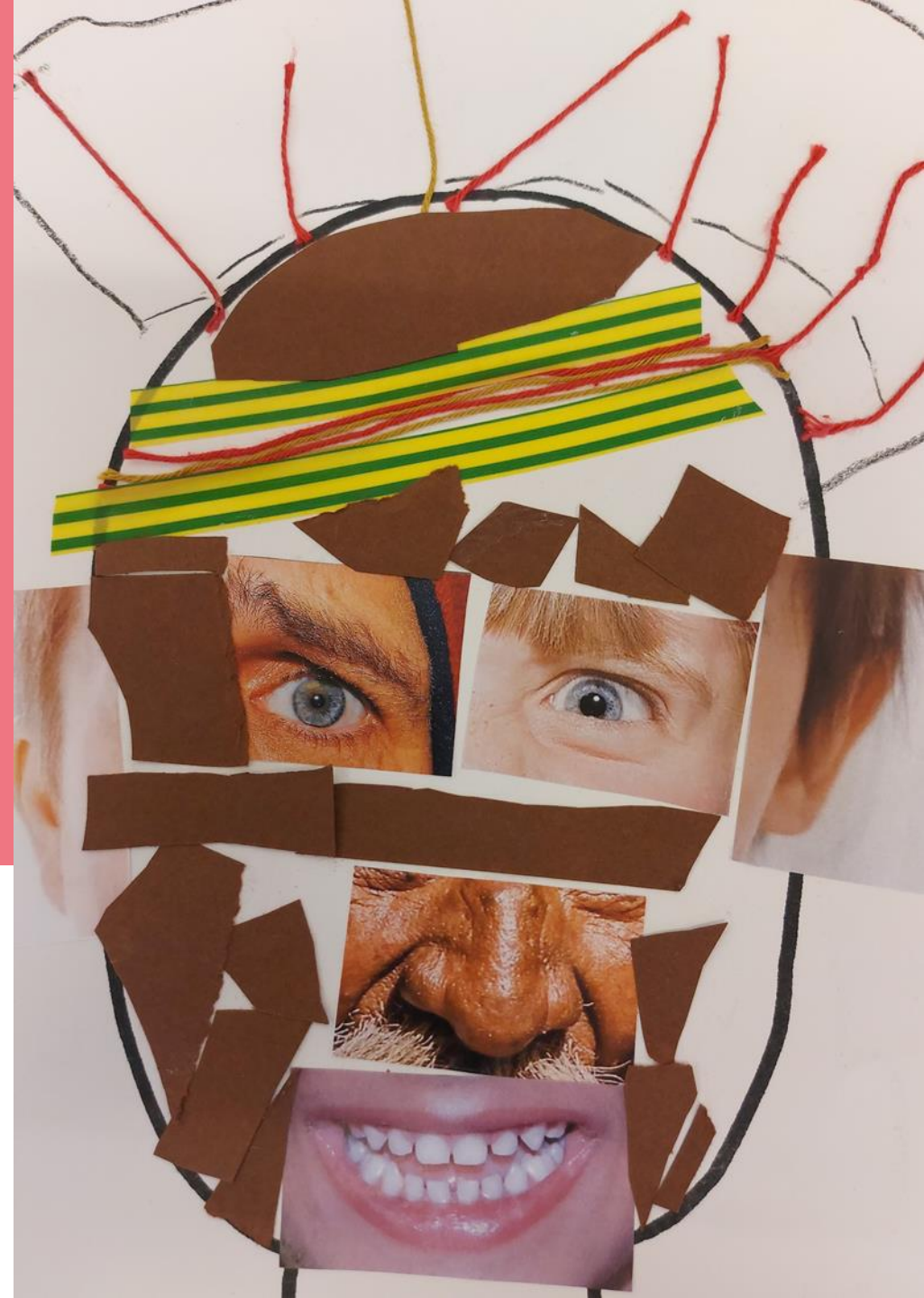
- **School leaders and schools in Norway and Hungary**
- **Culture dept. Innland County Council** (Project management)
- **Creativity, Culture and Education** (England)
- **T-Tudok Centre for Knowledge Management and Educational Research** (Hungary)
- **Institute of Psychology, Innland University of Norway**
- **Arts for Young Audiences**, Norway
- **Nasjonalt senter for kunst og kultur i opplæringen** (Nord universitet)
- **Centro de Desarrollo de Tecnologías de Inclusion** (CEDETI), at Pontifical Catholic University i Chile
- Adele Diamond,
- **ADHD Norway**

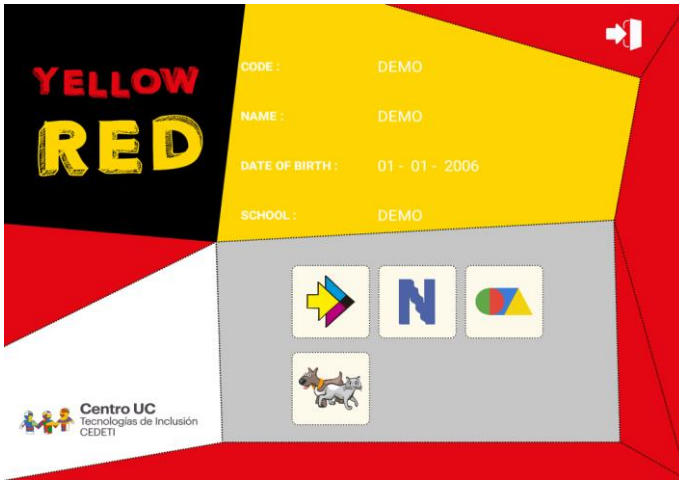


The results may lead to:

- Show what impact arts and culture has on learning, well-being, mastering and developing EF
- Change teaching and learning methodologies in school
- Change what school looks like for the younger students
- Give arguments to why arts and culture are important
- Increase the status of arts / cultural subjects in school
- Understand how to develop and support EF

WHY IS THIS AN IMPORTANT RESEACH FIELD?





RESEARCH INSTRUMENTS:

Yellow/Red: Digital game-based test conducted on tablets by learners.

Approximately 10-15 minutes.

7-9 learners at a time take the test.

Test-assist assists testing.

Important with similar instructions

BRIEF:

Validated test

The teacher and parent fill out the questionnaire for the same learners doing the

Yellow/Red

63 claims

Approximately 10 minutes to answer

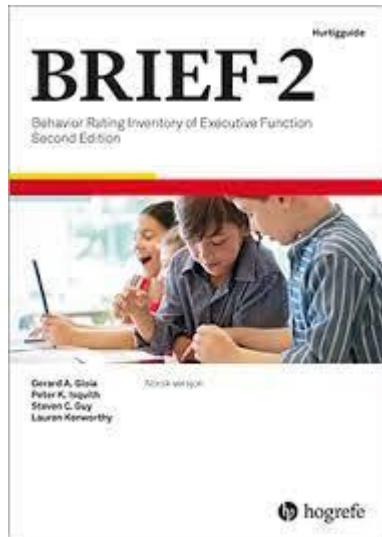
Intuitive response

Digital; via text message or e-mail

Qualitative research

Individual interviews and focus groups

Teachers, Parents, Artists, Children, and School principals



4 tests:

Test1: Sept 2021

Test2: May 2022

Test3: May 2023

Test4: March 2024

BRIEF2 (Behavior Rating Inventory of Executive Function Psychological test): Screens for impairment of executive function in children and adolescents ages 5–18 years (parent and teacher forms) and ages 11–18 years (self-report form)

63 statements, e.g.:

„The student needs adult help to stay focused on task” (Never/Sometimes/Often)

Source: Gerard A. Gioia, PhD, Peter K. Isquith, PhD, Steven C. Guy, PhD, and Lauren Kenworthy, PhD

Yellow Red (YR) is a technology-based measurement tool, built to precisely measure behavioral inhibition, cognitive inhibition, working memory, and cognitive flexibility through 6 tasks. The battery design expects it to be administered playfully to children aged 6 to 11 years through a digital tablet.

Task: FLIES / Measuring behavioral inhibition: the ability that involves doing or continuing to do something, even if there is a strong impulse to do another more attractive or pleasurable task



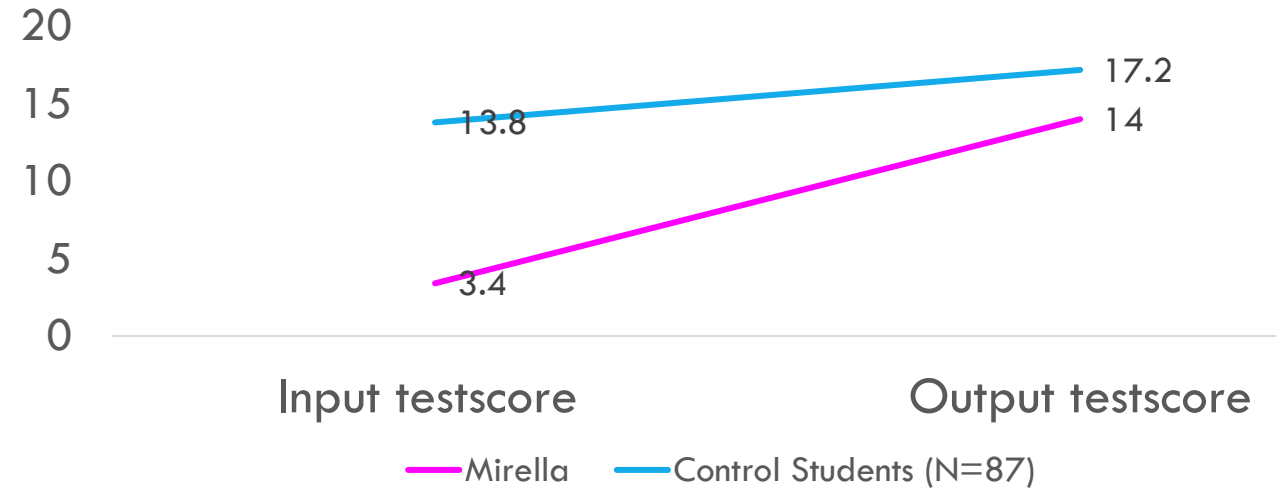
Source: Yellow Red Application and Interpretation Manual

MIRELLA, 9, HUNGARY



„I found out that I can do anything, because this lesson showed me that. I didn't know how to create things like that before, or so...”.

Triads - Cognitive flexibility

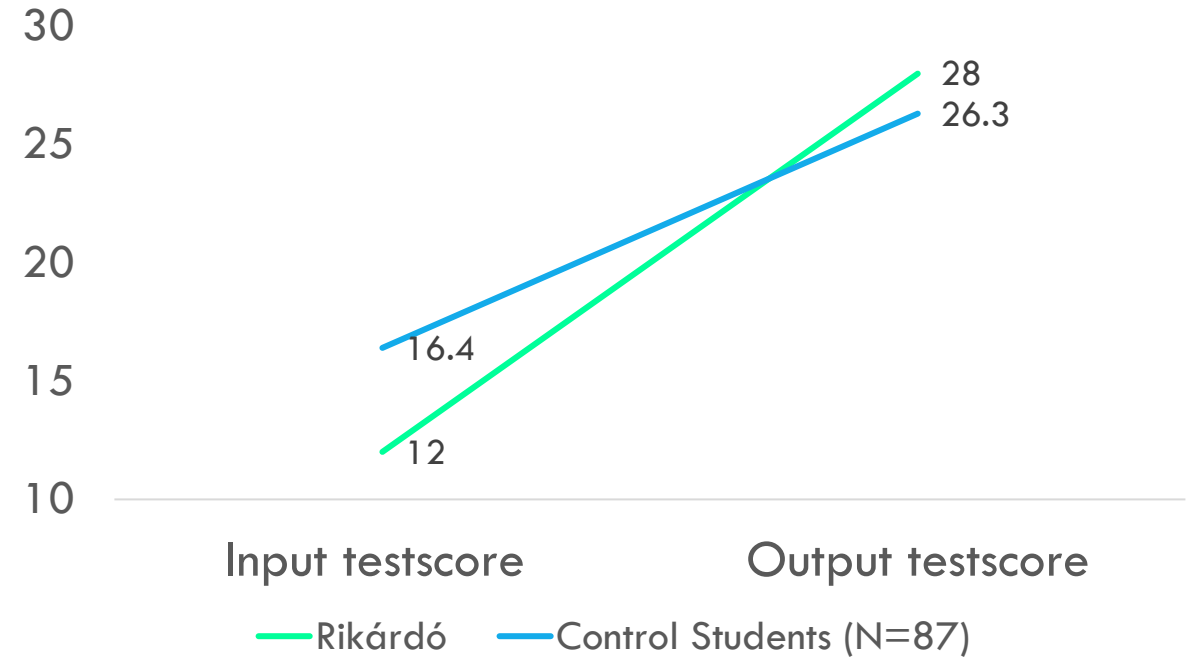


RICARDO, 9, HUNGARY



„I myself have changed a lot. I thought I'd try something, and then... well, I've never heard of such a thing and I dared to try.., Well, I tried it, and I didn't know, because I'd never heard of such a thing. But I did it really well”.

Cats and dogs - Cognitive flexibility



CONCLUSIONS



Early focus/practice can minimize differences and reduce social inequality. Children with EF problems profit the most.

Best effect when focusing on multiple EF functions simultaneously = Global EF

More demanding EF assignments – more effective

Demands increased successively. Challenges strengthen EF

Repetition/practice is important for strengthening EF.

Children prefer complicated and demanding activities

They are ready for challenges

Teachers are much braver to try new things

Teachers have seen improvements as a result of a regular practice

Language competencies and vocabulary of pilot children far exceed that of control students.



Thank you for your attention!

nemeth.szilvia@t-tudok.hu



<https://artoflearning.no>
ICC, Norway

<https://t-tudok.hu/tunalas-muveszete>
T-Tudok, Hungary

<https://www.creativitycultureeducation.org/>
CCE, England