

# “New Perspectives in Science Education”



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# Introducing science teaching in early years education: practical insights of SciLit project

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# Introduction to the SciLit project

*“Scientific literacy at the school: improving strategies and building new practices of science teaching in early years education - SciLit” (2016 -1- ES01- KA201- 025282)*

- 2-year project (2016-2018) co-funded by the **Erasmus+ Programme, Key Action 2 Strategic Partnerships** for school education.
- **Science teaching** is a basis for the overall development of the child as well as a fundamental element in the **scientific literacy**.
- **Training and innovative materials** to support teachers to deliver high quality science education are needed.

# Project partnership

*5 countries, 8 partners > scientists, educators and experts in the non-formal education field*

Type of partner	Name	Country
<b>Coordinator - Research Council</b>	The Spanish National Research Council	Spain
<b>Teachers' centers</b>	“CPR Gijon”	Spain
	KPCEN	Poland
<b>Kindergartens/ primary schools</b>	P34	Poland
	„Zilvitis“	Lithuania
	“Asunduse”	Estonia
	“San Francisco”	Spain
<b>NGO</b>	CESIE	Italy





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## About us

CESIE is a European centre of studies and initiatives established in 2001, inspired by the work and theories of sociologist Danilo Dolci (1924-1997).



### Our Mission

To promote educational innovation, participation and growth.



### Our Vision

The world is only one creature.



# Our fields of expertise



## Higher Education and Research

Fostering progress, sustainable and responsible research and innovation in Higher Education and Research Systems.



## Rights and Justice

Promoting equality, protecting the rights of people, preventing and developing responses to violence and discrimination.



## Adult

Upgrading lifelong learning in adult education, boosting innovative practices and developing key competences for adults.



## Migration

Developing effective and inclusive approaches for asylum seekers, refugees, and migrants.



## School

Improving quality and efficiency in school education.



## Youth

Enhancing active citizenship, training, education, and mobility of young people.



## Our Approach



### Studies

Research connected with the testing of **new educational methodologies** aimed at answering social needs and challenges.

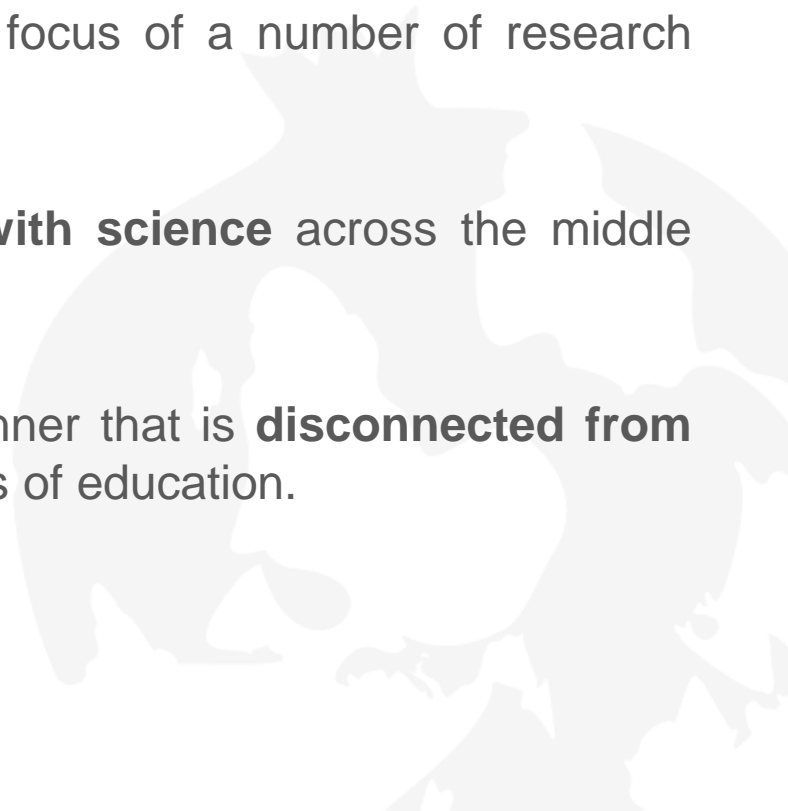


### Initiatives

Implementation of **projects** in different educational fields aimed at involving people, civil society, private and public institutions.



## SciLit context and rationale I

- The **quality of science education** - focus of a number of research projects.
  - A **decline in student engagement with science** across the middle years of schooling.
  - Science is often approached in a manner that is **disconnected from the lives of students** in the early years of education.
  - Youth **limited interest in STEM**.
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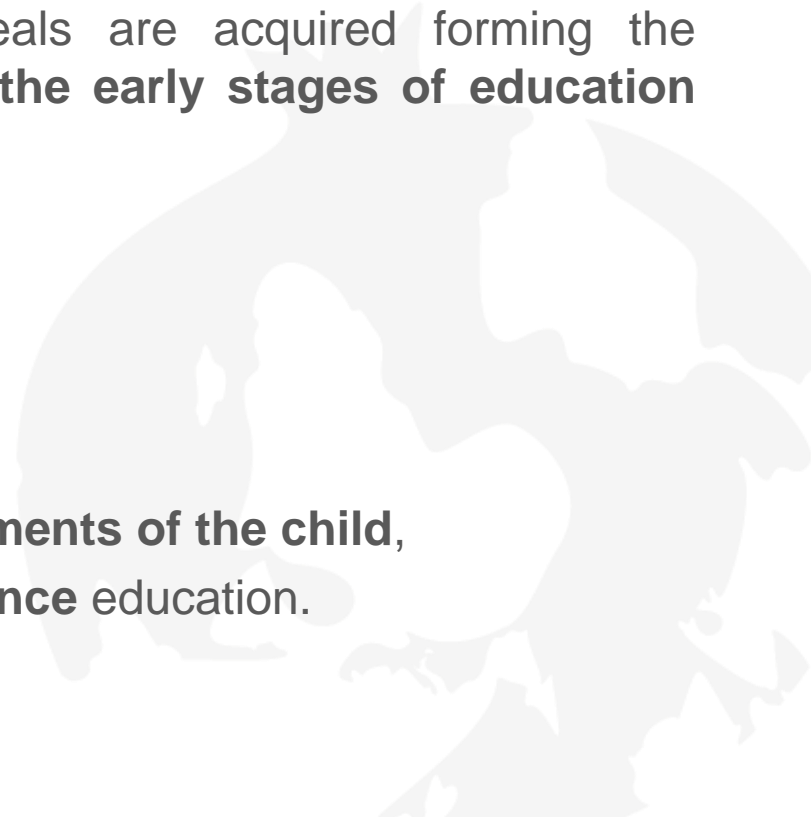


## SciLit context and rationale II

- Thinking is formed, values and ideals are acquired forming the personality of the individual starts in **the early stages of education** according to:
  - Richard Feynman
  - Georges Charpak
  - Norman Lederman

Teachers should have:

- **detailed knowledge of cognitive moments of the child,**
- **special training on how to teach science education.**



# Objectives of the SciLit project

- To improve achievement in **basic and transversal competences** by teaching to teach Science.
- To **promote training of educators in science** from a multidisciplinary point of view.
- To **introduce science contents in the classroom**, both in kindergartens and primary schools.
- To create and to **consolidate a network of cooperation** for the implementation of innovative practices on science education.
- To produce innovative materials that **support educators** to deliver high quality science teaching adopting new methods and tools in the classroom.

# The State of Art of Science Education in Europe

- **Improving science education** has been a key objective of European countries since the end of the 1990s,
- aiming to **encourage** students to **study science**, **promote a positive image** of science and **improve public knowledge** on it.
- **National and European measures for science education are:**
  - implementing curriculum reforms,
  - creating partnerships between schools and companies, scientists and research centres,
  - initializing projects focusing on continuing professional development of teachers.

## The State of Art of Science Education in Europe

### *Teachers' training in science education*

- **Changing roles** of teachers and expectations about them.
- **Strengthening teachers' competences** is a central concern.
- European strategic framework for **promotion of science education** include the improvement of science teacher education.
- Science promotion activities provide strong **support for teacher professional development.**
- **Specific national initiatives** for initial science teacher education **are not very frequent.**



## The SciLit materials

- the **Guide for policy makers, scientists, education professionals** and national, regional, local authorities involved in science education
  - an educational itinerary to facilitate understanding of scientific concepts.
- the Guide for teachers and **classroom materials** “**What is the world made of**”
  - related to natural sciences, supports teachers to bring students from the macroscopic world to the microscope.
- the materials “**Archaeology in the classroom**” for teaching social and human sciences
  - bringing archaeology closer to the students.

# The SciLit impact

- **The staff of the educational organisations** > a high level of competences necessary to foster science education.
- **Students** > will broaden their horizons gaining knowledge of science:
  - promote their desire to explore the world,
  - will be able to understand better the mechanisms of cause and effect relationships that occur in their environment,
  - will gain the confidence to challenge the reality.
- **Schools** > increase teaching level by integrating innovative materials in the educational curricula.

# Conclusions

- EU countries have promoted the study of science, however different challenges exist.
- Need to continue working through an active co-operation on common policies addressed to the improvement of strategies and to the building of new practices for science teaching.
- The SciLit project establishes critical success factors necessary to put the most appropriate means to ensure the teaching performance of teachers in the application of the new processes of **science teaching in early years education.**

# Thank you!

**CESIE**

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