



Rationale and Vision on Science Teaching in Romanian Early/ Elementary Education

Dan Sporea and Adelina Sporea

National Institute for Laser, Plasma and Radiation Physics

Center for Science Education and Training

Str. Atomistilor 409, Magurele 077125, Romania

adelina.sporea@inflpr.ro

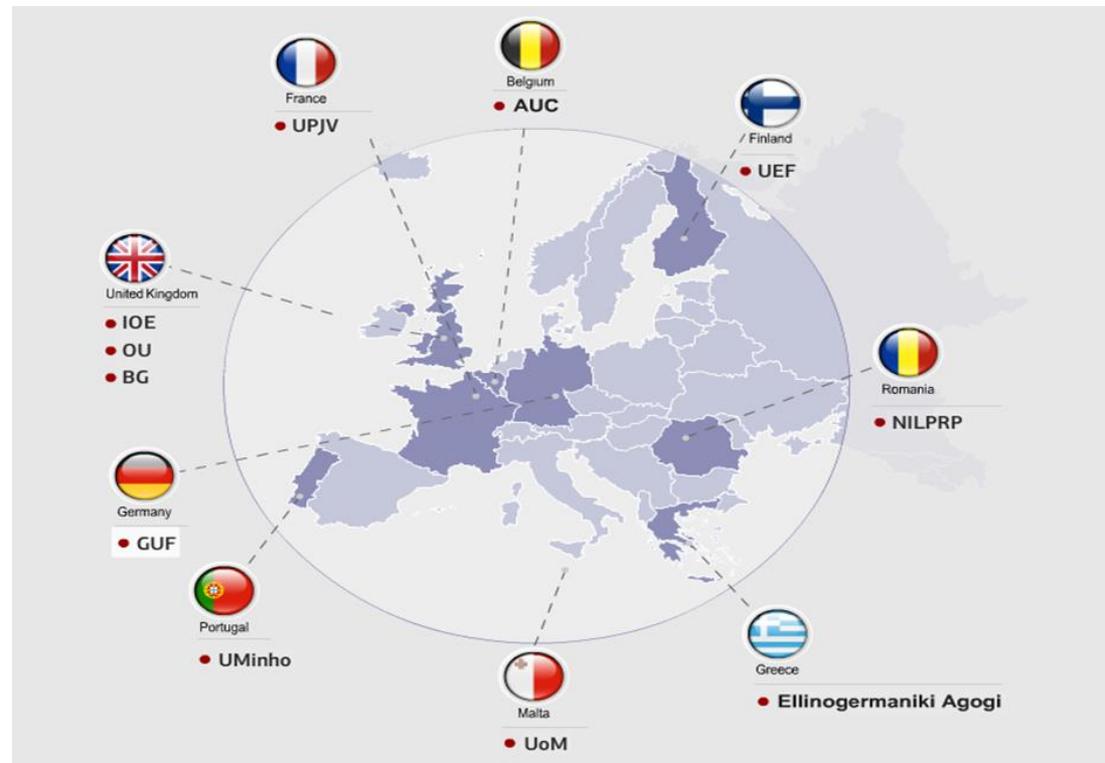


The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Creative Little Scientists - Enabling Creativity through Science and Mathematics in Preschool and First Years of Primary Education

The project partners



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Target group: children from 5 to 8 years old

Project partners: Belgium, Finland, France, Germany, Greece, Malta, Portugal, Romania, and the UK

Partners' core competences:

- science and mathematics education in early childhood;
- creativity in education;
- cognitive psychology;
- comparative educational studies;
- teacher training.

Coordinator: Dr. Fani Stylianidou, Ellinogermaniki Agogi, Greece



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



The project goals

- to evaluate the way creativity and science and mathematics teaching are inter-linked and conditioned as reflected by the European education policies;
- to analyze teachers' perception and practice in relation to these subjects;
- to provide a comparative assessment of these issues among the nine participating countries;
- to propose guidelines, curricula and exemplary materials for relevant teacher training in various European contexts.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.

Problem to be investigated

Romanian teachers perception and declared practice in relation to the implementation of Inquiry-Base Science Education (IBSE) at preschool and primary school levels, as it concerns rationale or vision on science education:

“Why are children learning?” .



Method of investigation

Online survey based on a questionnaire designed and recommended by the project coordinator and agreed with partners.



Method of investigation

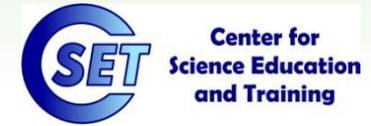
- The survey was active between 20.05.2012 and 30.06.2012.
- During the survey run one call for participation was launched on 17.05.2012.
- Over the survey lifetime, 270 teachers enrolled to the survey, while only 258 answered all questions.



Method of investigation

- Data gathering was organized by using the “Monkey Survey” site.
- Participants had to answer 44 questions organized in 7 sections.
- The estimated time required to complete the task was one hour and a half.



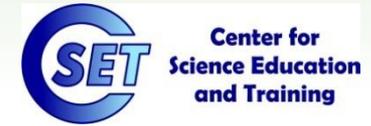


Method of investigation

Based on the survey a national Report was prepared. This Report facilitates comparison between existing approaches in real practice and their illustration in public policy documents and described in Deliverable D3.2 - **Report on Mapping and Comparing Recorded Practices**, towards the synthesis of the **Comparative Report (D3.4)**.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



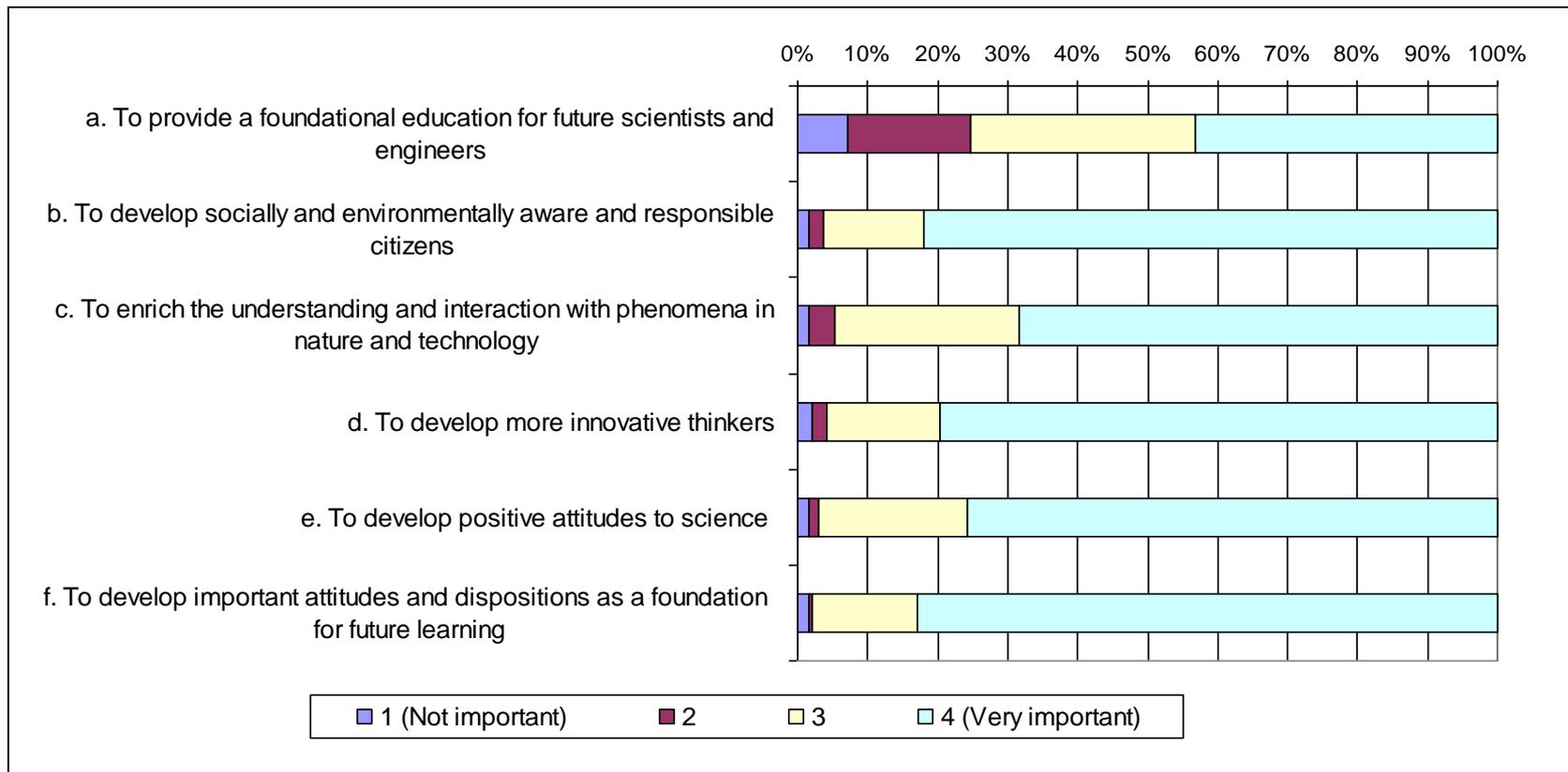
Groups of participants

- teachers participating to national and European projects coordinated by Center for Science Education and Training – CSET;
- former attendees to courses delivered by CSET on inquiry-based science education (IBSE);
- teachers involved in various science related activities (Science Days, science fairs, contests for children, conferences and symposia);
- members of the National Primary School Teachers Association;
- participants to a national action focused on combating early years school abandon.

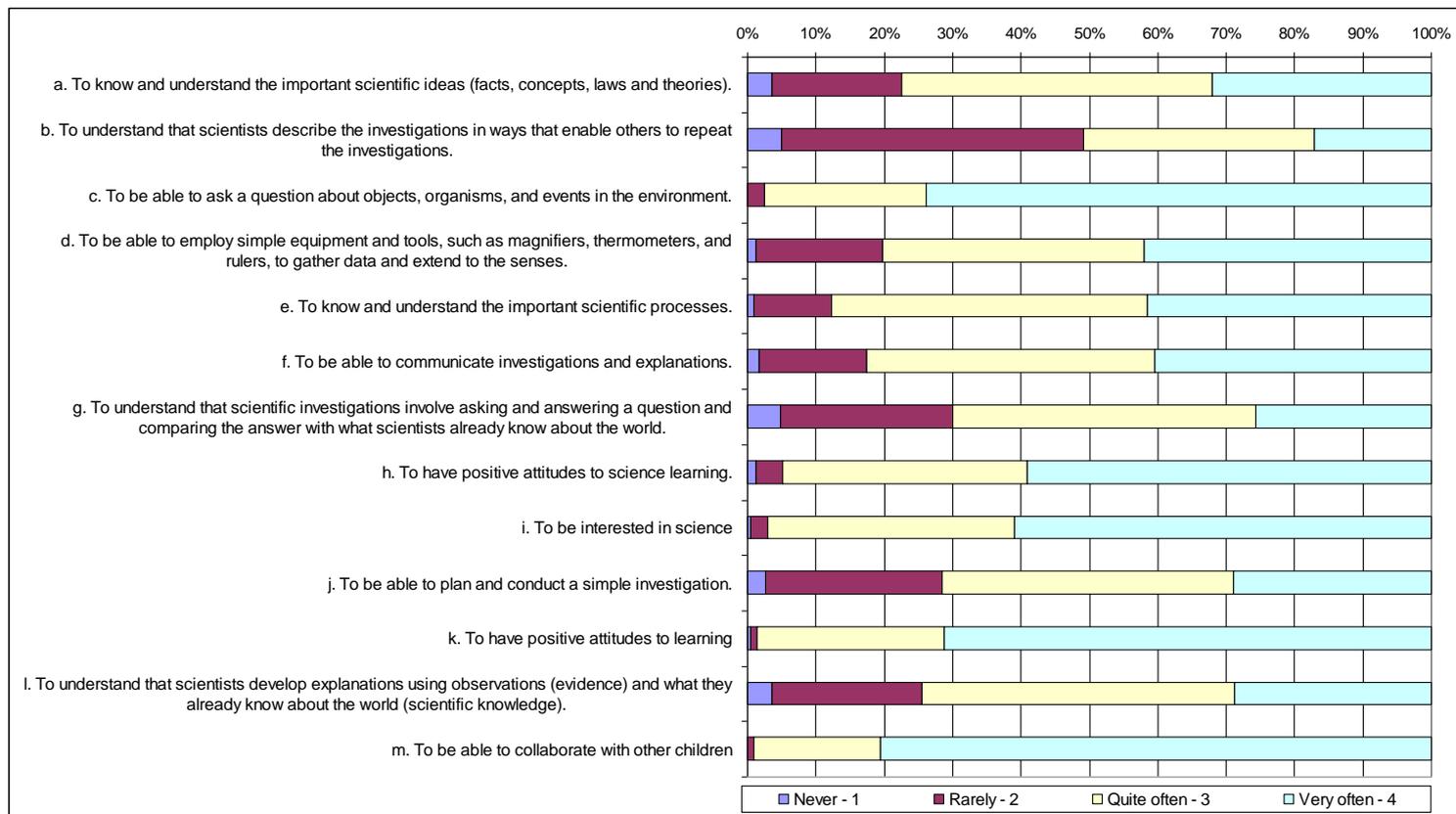


The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.

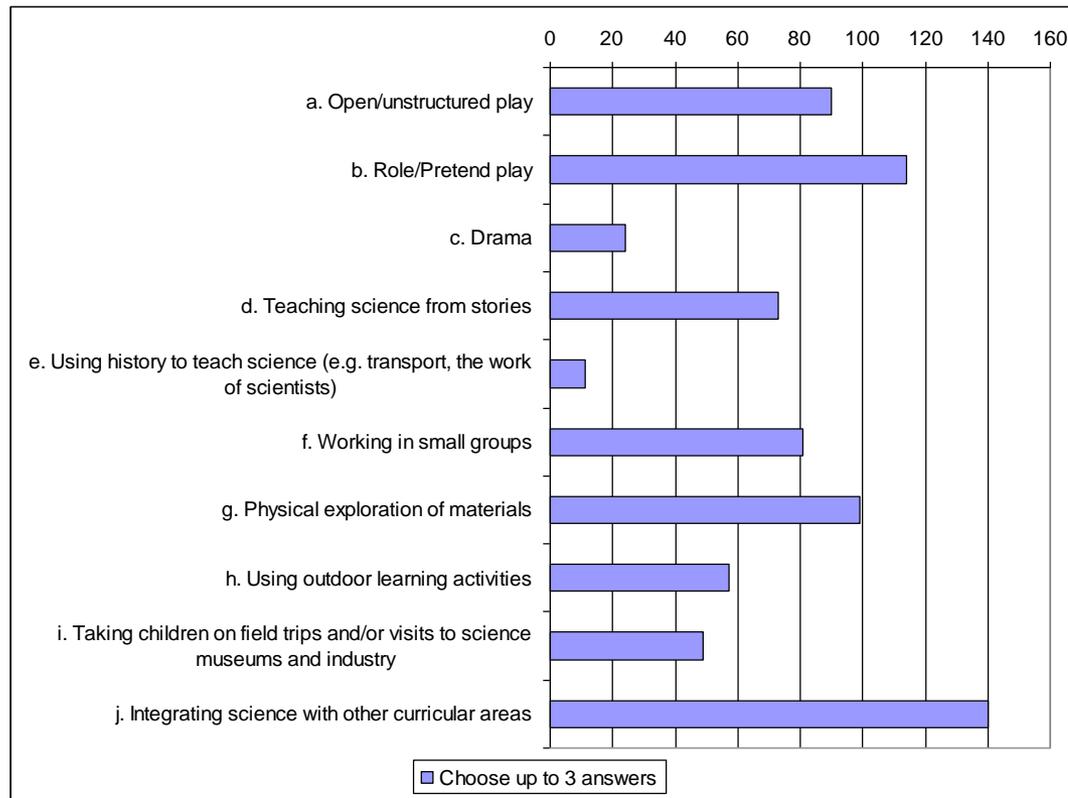
Please indicate your views on the importance of the following purposes of school SCIENCE in Compulsory Education



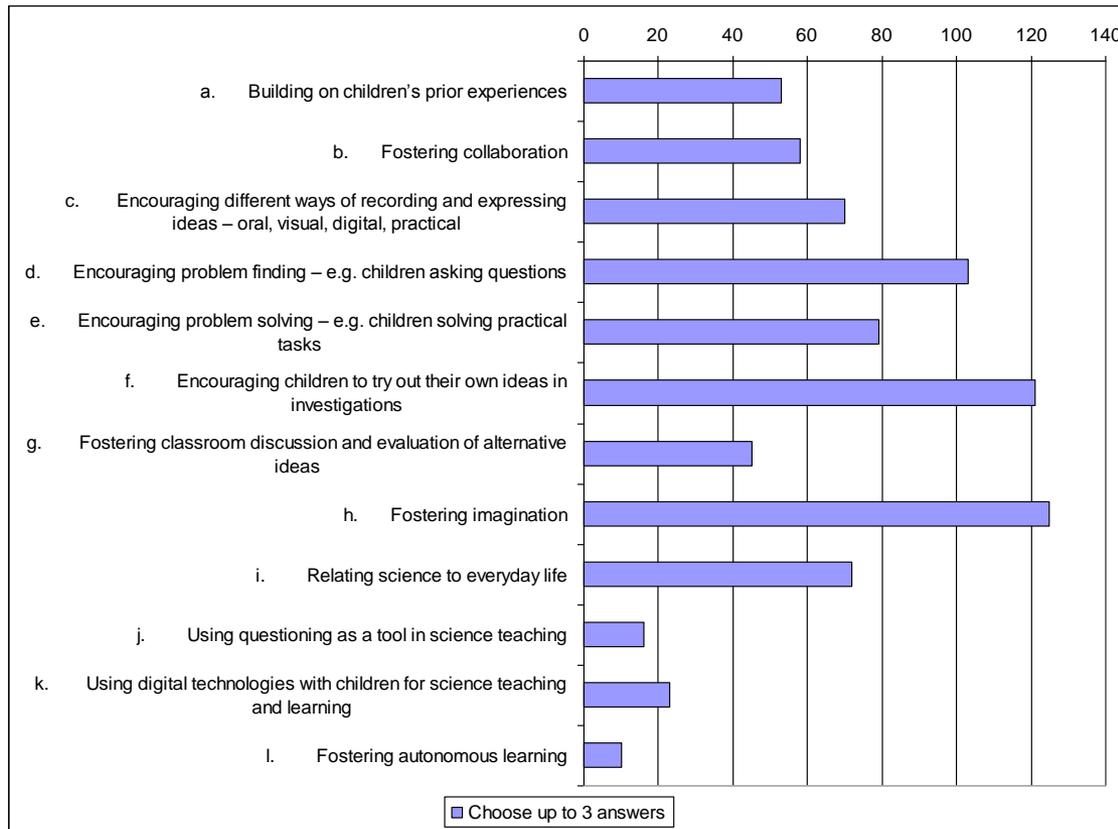
How often you foster the development of the following SCIENCE learning outcomes?



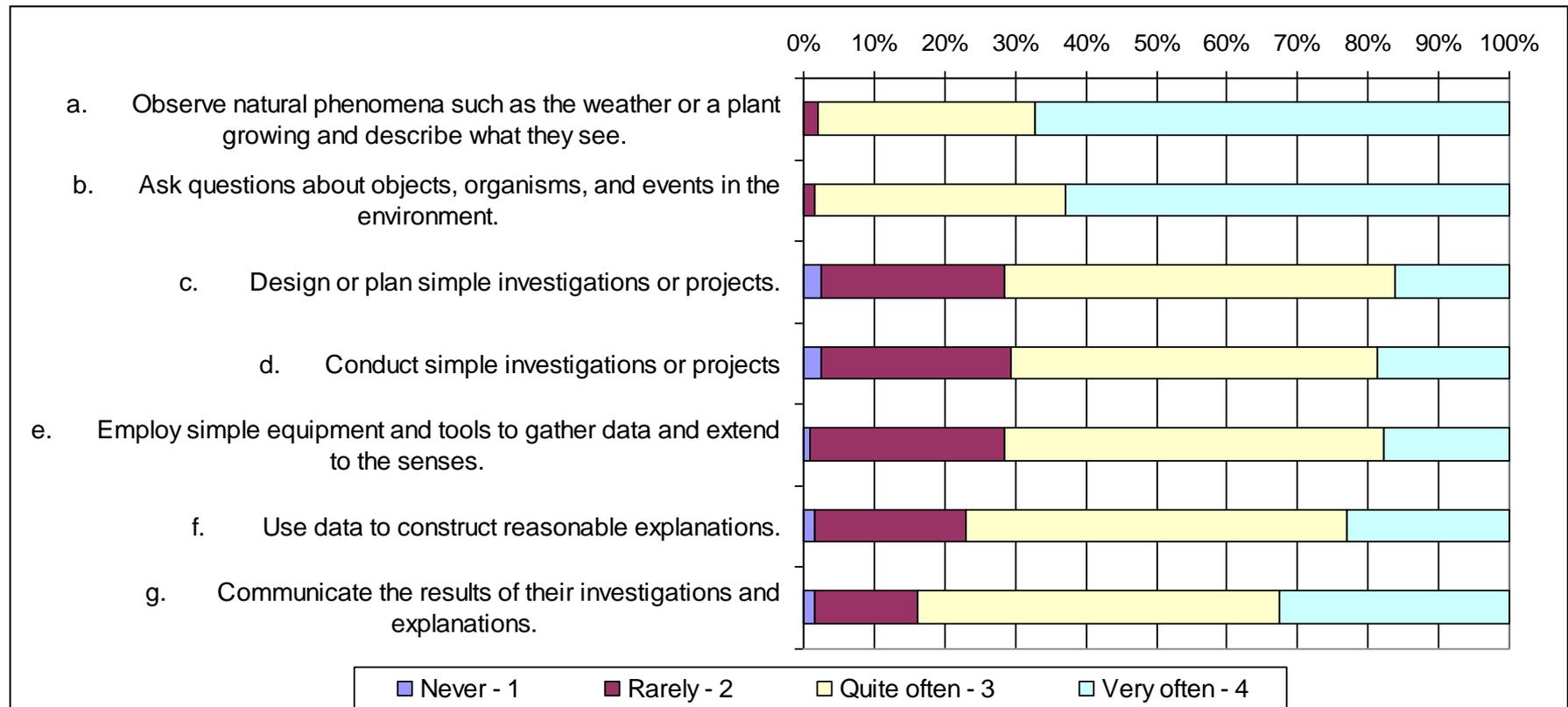
Which of the following activities contribute to the development of children's CREATIVITY?



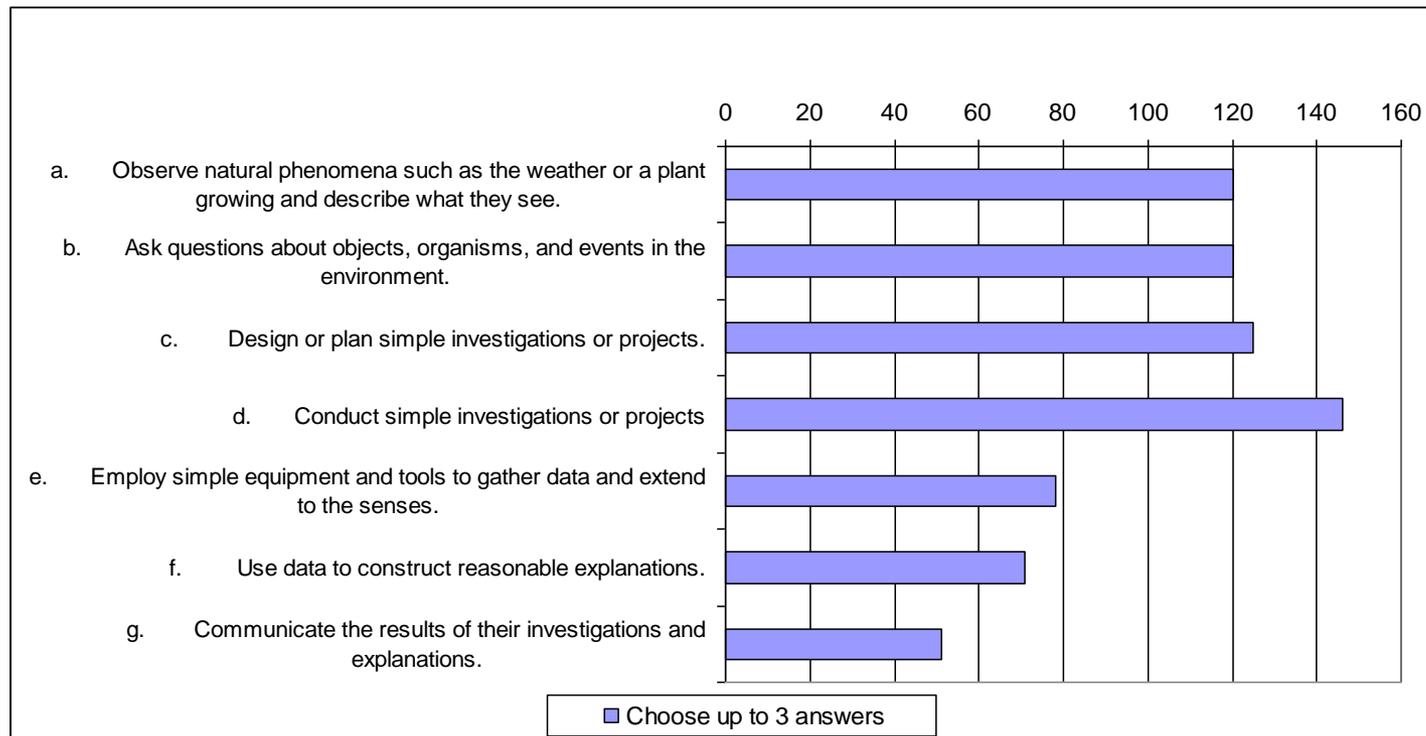
Which of the following approaches contribute to the development of children's CREATIVITY?



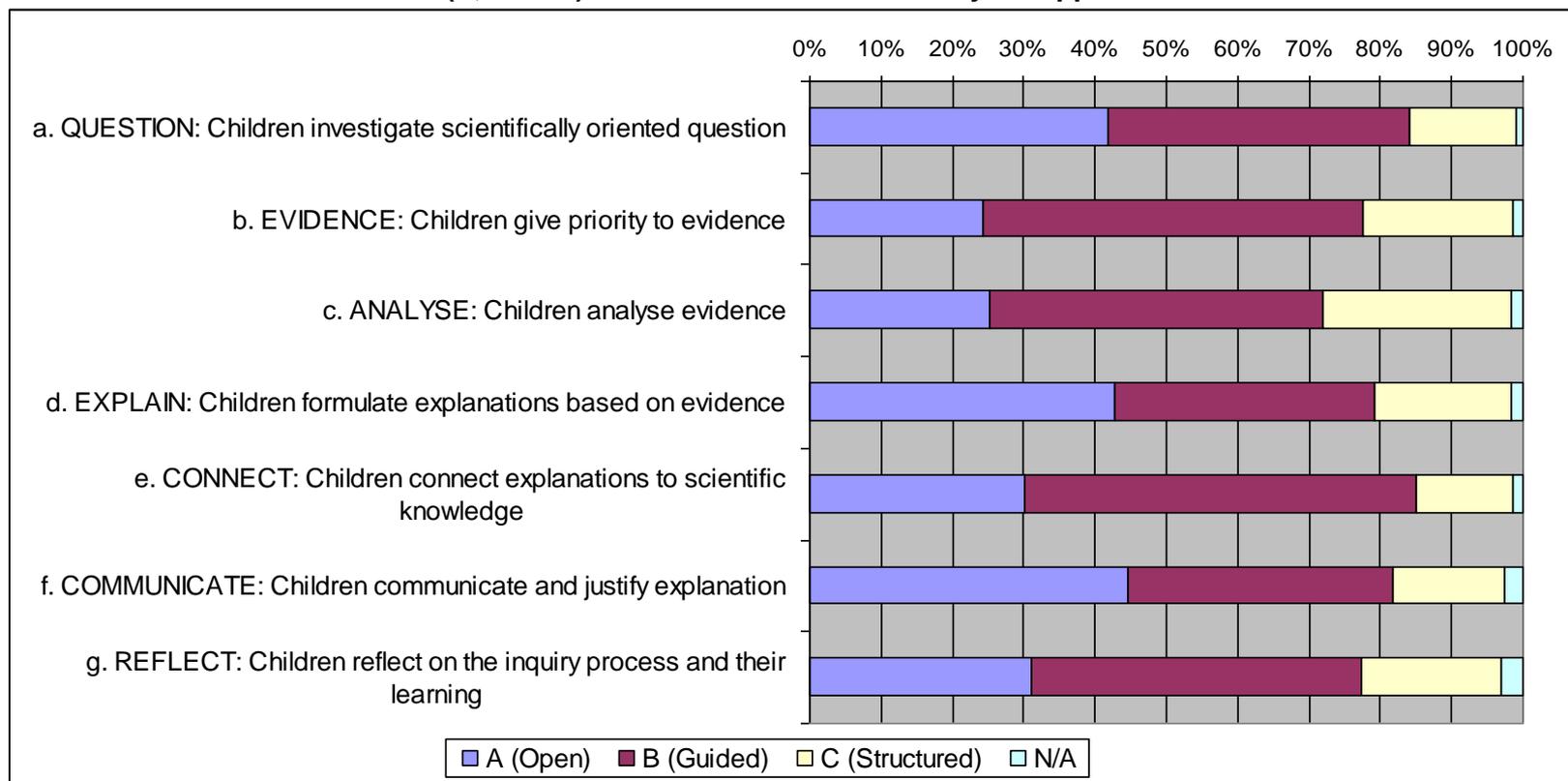
How often do you encourage children to undertake the following activities in SCIENCE?



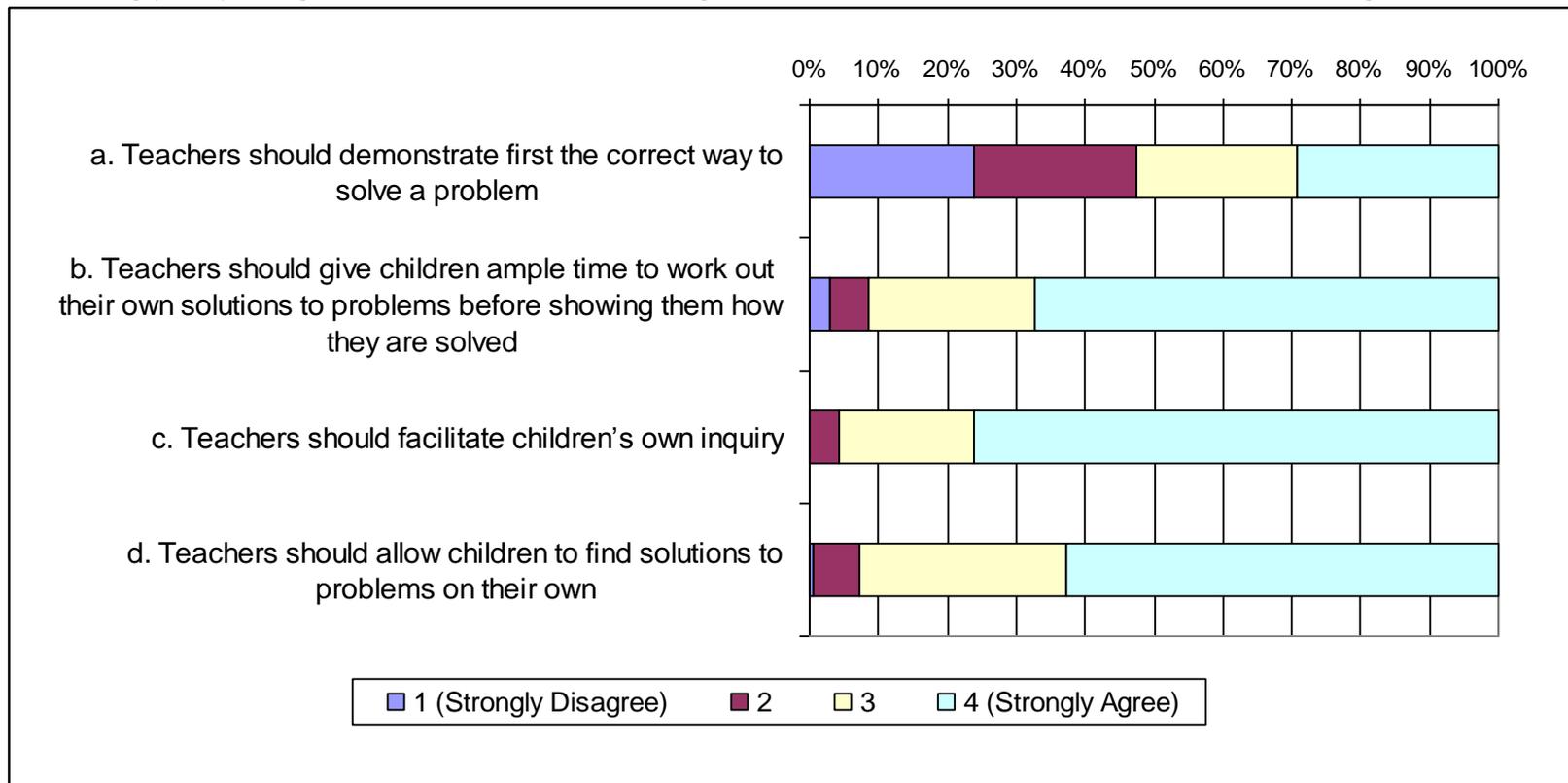
Which of the SCIENCE activities contribute to the development of children's CREATIVITY?



Please indicate the variation (A, B or C) that **MOSTLY** characterizes your approach in the **SCIENCE** classroom.



How strongly do you agree with each of the following statements about the role of teacher in fostering INQUIRY skills?



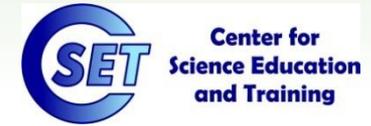


Conclusions 1:

About 80 % of the respondents consider as being “very important” the following purposes of compulsory education in science and mathematics: the “development of socially and environmentally aware responsible citizens”, the “development of important attitudes and dispositions as a foundation for future learning”, and the “development of more innovative thinker”.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Conclusions 2:

- The science teaching outcomes supported “quite often and very often” by teachers with a rating over 80 % are: “to be able to ask a question about objects, organisms, and events in the environment”; “to be able to employ simple equipment and tools, such as magnifiers, thermometers, and rulers, to gather data and extend to the senses”; “to know and understand the important scientific processes”; “to be able to communicate investigations and explanations”; “to understand that scientific investigations involve asking and answering a question and comparing the answer with what scientists already know about the world”; “to have positive attitudes to science learning”; “to have positive attitudes to science learning”; “to have positive attitudes to learning”; “to be able to collaborate with other children”.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.

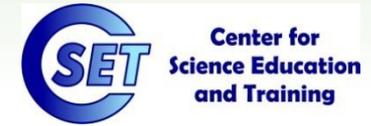


Conclusions 3 & 4:

- The major allies of teachers in their efforts to foster creativity at early age seem to be: “role/ pretended play”; “physical exploration of materials” and especially “Integrating science with other curricular areas”.
- In the great majority of cases (over 80 % expressed as “quite often and very often”), teachers support children to “observe natural phenomena such as the weather or a plant growing and describe what they see”, “ask questions about objects, organisms, and events in the environment” and “communicate the results of their investigations and explanations” during science classes.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Limits of the study:

- It might be possible that some of the teachers, mainly from rural areas or older teachers are not so accustomed with some terms used in the questionnaire.
- An involuntary bias in the selection of participants could be possible as it is expected that teachers knowing personally CSET team are more willingly to participate.
- Questions with multiple answering choices are some time confusing and make difficult the data analysis.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Acknowledgements

The authors acknowledge the financial support received from:

- the European Union Seventh Framework Programme (FP7/2007-2013) under area of activity 'Research and Coordination Actions on new methods in science education' (grant agreement no. 289081), project “Creative Little Scientists: Enabling Creativity through Science and Mathematics in Preschool and First Years of Primary Education”;
- the Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI) through the contract EU 176.

The authors are grateful to all Romanian school teachers who participated with enthusiasm and responsibility to the survey.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Disclaimer

This presentation reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



**For more information on
Creative Little Scientists
visit**

www.creative-little-scientists.eu



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.



Thank you !



The project CREATIVE LITTLE SCIENTISTS has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 289081.