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ISSUE 3

# EARLY CODE NEWSLETTER



PROJECT NO: 22018-1-TR01-KA203-058832

## Our project has come to an end!

The project's aim is to foster and develop computational and algorithmic thinking in the early years. Officially, it ends on 31st of July, in challenging times, with a lot of lessons learnt!

**So, what we achieved and built during the project implementation?**



### Computational Thinking & Coding for children course curriculum

The first intellectual output - Curriculum for Preschool Teaching Undergraduates, aims to develop the competences in Preschool Teaching Students to raise technology builders of future. First of its kind, the curriculum was designed to improve preschool teaching undergraduates' skills and to foster computational thinking skills of preschool children.

### EARLYCODE online LLTA

The training initially planned to take place in Genoa, Italy, in 2020, was redesigned for online scenario as the pandemic situation was in place. We had a fruitful online training, between 07 and 18 June, 2021. The main scope was up-skilling preschool teaching undergraduates on Introduction to Coding Education and make them well equipped to inspire and teach children computational thinking principals utilising effective, innovative and engaging methods. During two weeks, our target group - undergraduate students - participated to lectures and practical activities. Pre-tests and post-test were applied to evaluate their attainments on fostering computational thinking.

### Handbook of Teaching Materials

The Educational Resources for Fostering and Developing Computational Thinking and Introduction to Coding is the second intellectual output. This resource has been prepared to increase preschool teaching undergraduates' knowledge (related to fostering algorithmic and computational thinking skills and introduce coding logic and practices in the preschool environments) and enhance their practicing skills, being developed based on national and international standards, principles and needs.

### Multiplier events

There have been planned 5 multiplier events in 5 countries, to reach stakeholders (academicians, preschool teaching undergraduates, preschool teachers, relevant NGOs and company representatives etc.) to distribute the project practice. Just like the LLTA, we partially reshaped these events and some of them were organized online. Still, we had an important number of participants in the hands-on activities and discussions in each country.

### Training Manual

The Manual for Computational Thinking and Introduction to Coding provides core teaching strategies for computational thinking (including pedagogical information and tips about children's learning, their learning motivators, learning style and involvement etc.) along with links to relevant educational resources.

### Dissemination

The project and its results were disseminated according to a plan. National & International Conferences, Workshops, letters, announcements on each partner websites, newsletters and project website are opportunities to promote the project.

Check the next pages of this newsletter for interesting details!

### IN THIS ISSUE

01 Overview and summary of project activities

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# ARE YOU INTERESTED IN IMPLEMENTING A COURSE FOR BASIC COMPUTATIONAL THINKING AND CODING? READ THIS NEWSLETTER

**WE CREATED A CURRICULUM DEDICATED TO COMPUTATIONAL THINKING...**

## Description

The course is designed for Early Childhood teacher undergraduates to develop an understanding of the current needs in Computational Thinking (CT) and Coding in Early Childhood Education.

## Course outcomes - selection

Upon successfully completion of this course, the student will be able to:

### Knowledge

- explain CT concept and its relevance in Early Childhood education,
- list components of CT,
- describe basic algorithms and coding process,
- provide information on Educational robotics and the ways to implement it in

Early Childhood education,

- support children motivation,
- apply basic rules and principles of CT and coding in Early Childhood education.

### Skills

- solve simple coding tasks,
- solve tasks based on understanding algorithmic concepts and sequences,
- explain basic algorithms, sequences, loops, conditionals etc.,
- use screen-free and screen-based digital devices developed for Early Childhood education,
- adapt CT teaching materials for different age groups and situations.

### Competences

- prepare lesson plans for development of CT and coding acquisition by
- setting appropriate learning objectives and learning outcomes ,
- choosing corresponding learning tasks and didactic materials,
- taking into account children's ages and previous experience
- develop new screen-free didactic materials for CT and coding acquisition appropriate for children age group and previous experience as well as certain learning objectives.



## Topical units

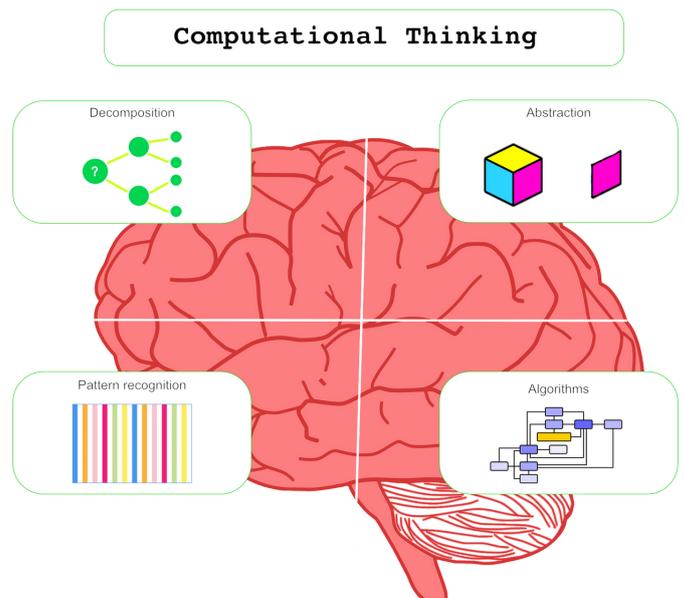
- 1.Introduction to CT
- 2.Introduction to Coding
- 3.Introduction to Educational Robotics
- 4.Screen based / free Technologies and Block-based Coding
5. How to Improve CT Skills of Children?
- 6.How to Improve Coding Skills of Children?
- 7.Preparing Instructional Materials and Games on CT and Coding for Children

**WE DEVELOPED A HANDBOOK FOR UNDEGRADATE STUDENTS...**

## Description

The EARLYCODE handbook was designed for teachers and undergraduates who want to develop their knowledge in teaching Computational Thinking and Coding in Early Childhood Education and to obtain further tools and strategies to improve their teaching skills.

It contains both a theoretical and a practical part about CT skills in ECE.



Four main elements of Computational Thinking  
Source: Handbook of Teaching Materials

**WE DEVELOPED A HANDBOOK FOR UNDEGRADUATE STUDENTS... (Continuation...)**

Firstly the manual introduces some theoretical concepts about ECE education, then it moves to a selection of activity plans that you can use immediately in your pre-school classroom. These plans are designed to focus not only on the CT skills, but also on other relevant pedagogical aspects.

They start from simple activities, that focus on physical activity to support children's spatial and motional awareness, to more complex ones, that both involve screen-free or screen-based devices and plugged/unplugged robotics.

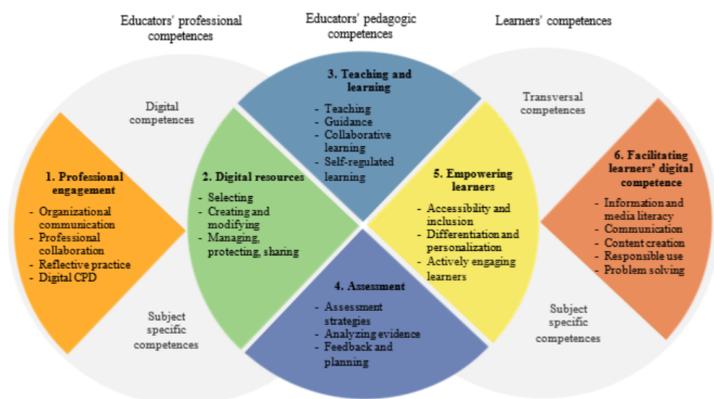
**Browsing the content**

From the handbook content:

- Introduction
- Introductory Overview
- Scope and application
- Resources
- Educational Approaches
- Activities: Learning strategies
- Activities: Learning Settings
- Activities: Recommendations
- General considerations
- Overview on Computational Thinking
- Components of Computational Thinking

The manual (IO-3) is compatible with the previous intellectual outputs of the project which are the curriculum (IO-1) and the handbook of teaching materials (IO-2). In addition, the manual includes information and guidance on how to implement the curriculum (Computational Thinking & Coding for Children) and how to improve computational thinking and coding skills.

The figure above reflects a model of pedagogical digital competence of teachers and their influence to the development of students' digital literacy.



Teacher competences and students' digital literacy  
Source: Training Manual, apud. Redecker, 2017

**Browsing the content**

From the training manual content:

- Introduction
- Introduction to Computational Thinking
- Introduction to Coding
- Introduction to Educational Robotics and SMART Pedagogy
- Educational Robotics and SMART Pedagogy in Preschool Education
- Screen- based and Screen-free Digital Technologies in Teacher Education
- How to Improve Computational Thinking and Coding Skills?
- Preparing Instructional Materials in Preschool
- How to Bring Changes into Preschool Education?
- Resources for Existing Preschool Computational Thinking Materials

**THE TRAINING MANUAL IS READY TO BE USED...**

**Description**

The Training Manual on Computational Thinking and Introduction to Coding for Preschool Education has been developed in order to guide trainers and lecturers to implement the curriculum in preschool education programs.

In the Training Manual you will find information about some key terms covered in the project such as computational thinking, coding, educational robotics, digital technologies in teacher education, teaching-learning process in preschool education, assessment and instructional material development.

**STILL INTERESTED?**

All the resources are available on the project's website, are translated in each of the consortium language: EN|TR|RO|LV|IT, and are downloadable. Choose your language and visit the website: [www.earlycoders.org](http://www.earlycoders.org)

*Read them and let them be the inspiration you need! Enjoy your reading!*

## ONLINE TRAINING ACTIVITY

07-18 June, 2021

Within the scope of the project, a Learning Teaching Training Course for undergraduates teachers has been held. The aim of this course was giving give future teachers materials and practices to be used in Early Childhood Education (3-6 years), and to use it to promote the development of Computational Thinking, daylife, motor, and didactics skills, thus to provide children tools to became active and aware digital citizen. More than 25 participants joined the course, and the project outcomes have been discussed and used during the training course. The training used planned online using both synchronous and asynchronous approaches, and digital educational resources.

## MULTIPLIER EVENTS

July, 2021

In the context of this pandemic situation, the multiplier events were partially affected. We reorganized the initial plan for this output. There were both face to face and online events to present and promote project findings. The increased number of participants and their background and interest for these meetings demonstrates the substance of our researches and novelty of the project itself.

PROMOVAREA REZULTATELOR PROIECTULUI

**EARLYCODE**

DEVELOPING TEACHING MATERIALS FOR PRESCHOOL TEACHING UNDERGRADUATES ON COMPUTATIONAL THINKING AND INTRODUCTION TO CODING IN PROJECT COVER 1781-64003-01/2020

09 IULIE 2021| EARLYCODE| ȘCOALA ȘPIRIȚII VOIEVOZEI| ORA 10-00

TEMATICA

- 1. Prezentare proiect EARLYCODE
- 2. Manual de materiale didactice
- 3. Manual pentru profesori

UNIVERSITY OF BUCHAREST, ȘCOALA ȘPIRIȚII VOIEVOZEI, EARLYCODERS

Thank you!



All participants, researchers, teachers, students and staff involved in this project, thank you for your commitment and enthusiasm. We are proud of the community build around this project!

## THOUGHTS FROM OUR PARTICIPANTS TO TRAINING

- "A course that brings educators together to gain skills that will positively affect many developmental areas of children, such as computational thinking and coding."
- "Thanks to the many teachers involved, I could gather many perspectives given and benefit from many insights."
- "Providing participants with relevant information and materials, creating a community interested in coding, robotics, early childhood education."
- "The passion, the experience and the will of the speakers to share their knowledge and experience with us, teachers and student teachers."
- "The joy of learning and interacting with foreign students."

- Erhan Güneş**  
guneserhan@gmail.com
- Mutlu Tahsin Üstündağ**  
mutlutahsin@gmail.com
- Anișoara Dumitrache**  
anisoara.dumitrache@fpse.unibuc.ro
- Mary O'Reilly**  
maryor@early-years.org
- Fiorella Operto**  
operto@scuoladirobotica.it
- Yıldırım Özkaya**  
egitimdanismanlikapek@gmail.com
- Linda Daniela**  
linda.daniela@lu.lv

Contact: [www.earlycoders.org](http://www.earlycoders.org) | [earlycoderseu@gmail.com](mailto:earlycoderseu@gmail.com) | [earlycoderseu](https://www.facebook.com/earlycoderseu)

## MEET OUR TEAM



**Anisoara Dumitrache PhD**, is university lecturer at the Faculty of Psychology and Educational Sciences, University of Bucharest. She teaches ICT related disciplines for "ICT in education" Master programme, and Bachelor degree, and has more fifteen years of experience in distance learning. She is founder member of Center for Research and Promoting Equity in Education. Her research interest include: distance learning,

educational platforms, Game Based Learning, Open Educational Resources & Practices, Google Educational products. Her research activity includes articles and studies published in specialized journals.

**Fatma Nur Çobanoğlu** is a graduate of Translation and Interpretation from Atılım University and doing her Master's degree at the Middle East Technical University in European Studies. She has been working at the APEC Education Consulting since 2019 and is responsible for the management of several on-going Erasmus+ projects. She is also responsible for designing and developing Erasmus+ projects, PRIMA projects supported under H2020 and IPA II projects for private companies, public institutions and non-governmental organizations. Within the context of management of the ongoing projects, the development and dissemination of project outcomes are other areas of her expertise.

