



THIS ISSUE

Knowledge Paper P.2

Workshops P.3

Curriculum Development P.4

Ongoing and Upcoming Events P.5

## ALGORITHMIC THINKING SKILLS THROUGH PLAY-BASED LEARNING FOR FUTURE'S CODE LITERATES

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**Welcome** to the second e-newsletter of the Project ALGOLITTLE. We are happy to share information about our activities regarding the data collection process to develop the curriculum. An algorithm simply means a series of steps defined clearly to achieve a goal. Planned and well-designed steps take us to where we want to be.

ALGOLITTLE aims to start teaching algorithms and embrace algorithmic thinking starting from baby steps. In this issue, we share our efforts to collect data for our curriculum and what we have learnt. We hope you will enjoy reading this newsletter and find interesting topics for your educational activities and practices.



# WHY ALGORITHMS?

When we need a process including a limited number of steps to accomplish a task, this means we must create an algorithm.

And considering how many tasks and activities we have in our lives; the importance of algorithms shows up.

Algorithm steps must be in the correct order. For example, we always put on our t-shirt first and then our anorak over it. If we mix up the order and put on our t-shirt over our anorak it won't be a good ordered algorithm but a kind of humour.

So, following the steps in the correct order makes our daily life activities easier. If we plan our days, weeks and even months and specify their steps, we can complete many tasks more smoothly and we can have more time for leisure activities. And all leisure activities also have their algorithms. In order to experience the freedom and excitement of bungee jumping, for example, we need to follow its algorithm as well, just think about what would happen, if you did not attach your harness to your ankles before you jump?

We have many types of algorithms in our lives like LINEAR, SELECTION & LOOPS. For example, before bungee jumping, we can be asked which harness we would like to attach either leg or body harness, then we can SELECT one of them and in this way, we will have used a SELECTION in our algorithm. We can also SELECT the way we jump. There are many... So, another SELECTION will come up.



## KNOWLEDGE PAPER

### LITERATURE REVIEWS

The consortium started literature reviews to prepare the knowledge paper whose content would form the ground for the curriculum.

During the reviews, we obtained various pieces of information, especially focusing on the concept of “computational thinking” in different education stages including early childhood education period.

Algorithmic thinking skills as a part of computational thinking wasn't the focal point of many articles and we examined and analysed a limited number of studies matching the direct point of ALGOLITTLE.

Our experiences with the learning process and perception developments of children in the early childhood period and also the literature review results prove that algorithmic thinking skills can be taught and learnt in the early childhood period and algorithmic thinking as an analytical way of thinking enabling children to see and plan the ways of doing things is possible to learn at these ages, stating from small steps.

### JOINT WORK

The consortium agreed on a template of the report including the titles and subtitles. An online joint document was created, and all data collected and arranged were placed on this document collaboratively.

The knowledge paper includes the following information which you can find useful for the research in algorithmic thinking skills in early childhood education.

- 1- Algorithmic thinking
  - a- Definition
  - b- Types
  - c- Integration of Algorithmic Thinking into Preschool Education
- 2- Learning Areas for Algorithmic Thinking
- 3- Previous & Current Implementations about Algorithmic Thinking Skills in Preschool Education
- 4- Good Practices in the partner countries

You can download the Knowledge Paper on:

[www.algolittle.org/curriculum](http://www.algolittle.org/curriculum)



## Workshop in Turkey



## Workshop in Croatia



## Workshop in Slovenia



## Workshop in Italy



## Workshop in Portugal



## WORKSHOPS

### ORGANISATION

ALGO-LITTLE reached quite many preschool teachers and ICT teachers in the partner countries. We exchanged information during the workshop organisation.

The workshops were organised online. This enabled us to reach teachers from different provinces of our countries. So, we could collect the data regarding the implementations in different regions.

We consider that face-to-face meetings have an influence enabling participants to share more. However, if enough time is allocated, online meetings are also beneficial. Due to the pandemic, educators have been getting used to online environments more. Despite challenges, the information exchange was more than we expected in the workshops.

In Turkey, 200 teachers,  
In Italy, 132 teachers,  
In Slovenia, 70 teachers  
In Croatia, 46 teachers,  
In Portugal, 69 teachers  
participated in the workshops.

### RESULTS

In the workshops in Turkey, mutual interaction and awareness were established as a result of the examples, experiences, and discussions and this yielded a booklet including example learning activities.

In the workshop in Croatia, reflections from the participants gave concrete examples and ideas for integrating algorithmic thinking skills in different learning domains.

In the workshop in Slovenia, preschool teachers expressed interest in preparing more activities for children and interest in participating in the preparation of the guidelines for kindergarten teachers.

The workshop in Italy resulted in a very useful booklet including example activities coming from teachers.

In the workshop in Portugal, the participants were very engaged with the complexity of the concept of algorithm and the algorithmic thinking.



## CURRICULUM

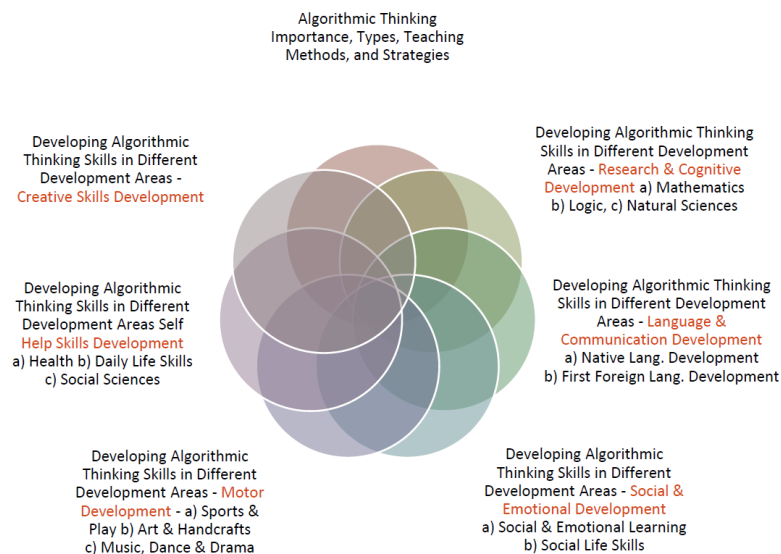
The educational methodology regarding employing algorithmic thinking skills in the subject areas of preschool education was studied from different perspectives and a whole teaching approach were developed. As ALGOLITTLE partners, we discussed the curriculum methodology and how we will design the teaching process in detail. The discussion made progress in three different aspects.

1- Curriculum modules would be determined according to the learning areas. (In some partner countries, preschool teaching didn't specify the learning areas. So, we eliminated this option.)

2- Teaching/Learning Activities would be classified, accordingly, the curriculum modules would be determined. (It would be difficult to classify the learning activities because they were so interconnected with each other. So, we eliminated this option, too.)

3- The curriculum modules would be determined according to the "development areas". This option was found appropriate by all the partners.

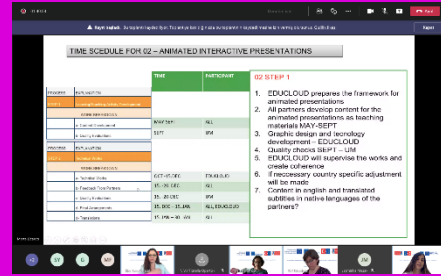
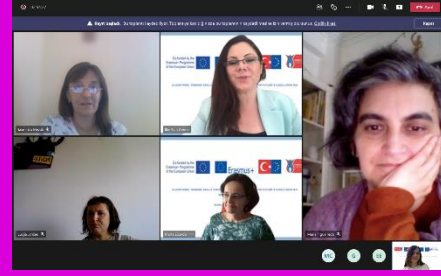
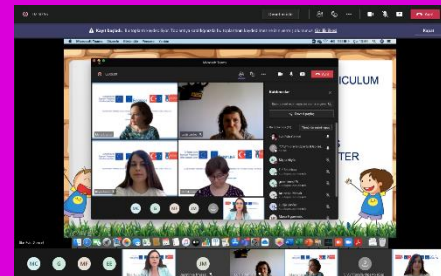
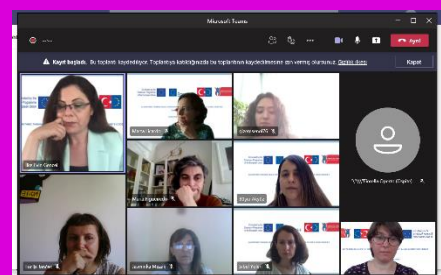
This has been a unique approach to integrate algorithmic thinking into preschool teaching according to the development areas. Project partners carried the proposed teaching approach a step further by conducting further literature reviews on the subject matter. The curriculum titles were developed as follows.





## 2ND ONLINE MEETING

We held the 2<sup>nd</sup> online meeting on 23<sup>rd</sup> June 2021 with the participation of all partners. At the meeting, we discussed all project activities and handled the preparation of the 2<sup>nd</sup> Intellectual Output in detail.



## ONGOING & UPCOMING EVENTS

### ENDING CURRICULUM DEVELOPMENT PROCESS

The consortium has been translating the curriculum modules and this will continue until the 15<sup>th</sup> September 2021.

You will be able to reach the translated versions in October on the project website [www.algolittle.org](http://www.algolittle.org)

EDUCLOUD introduced the Turkish version of the booklet prepared in Turkey and the modules of the curriculum in two different school seminars.

Partners have been working on a joint academic article regarding the curriculum development process.

### STARTING ANIMATED PRESENTATIONS

We will prepare interactive presentations including explanations in text, video, audio, and animated videos. We already planned the process at the second meeting.

For each module, partners will prepare the content of 2 or 3 presentations.

Partners will also present the curriculum to educators during the summer period.

USEFUL LINKS  
Activity Collection in Italian  
<http://www.algolittle.org/curriculum-2/>

Activity Booklet in Turkish  
<http://www.algolittle.org/ogretim-programi/>

Knowledge Paper and Activity Booklet in English  
<http://www.algolittle.org/curriculum/>



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