



THIS ISSUE

Piloting Process p. 2

Dissemination Activities p. 9

Ongoing and Upcoming Events p. 10

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

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Welcome to the fourth e-newsletter of the Project ALGO LITTLE. We are happy to share information about our activities and everything we have achieved with this project.

The goals of the ALGO LITTLE project have been almost completely achieved. It is time to summarize our efforts to achieve the goals and share information about the implementation of the pilot project through the virtual classroom in all partner countries and everything we have achieved so far. We hope you will find interesting topics for your educational activities and practice.



PILOTING PROCESS

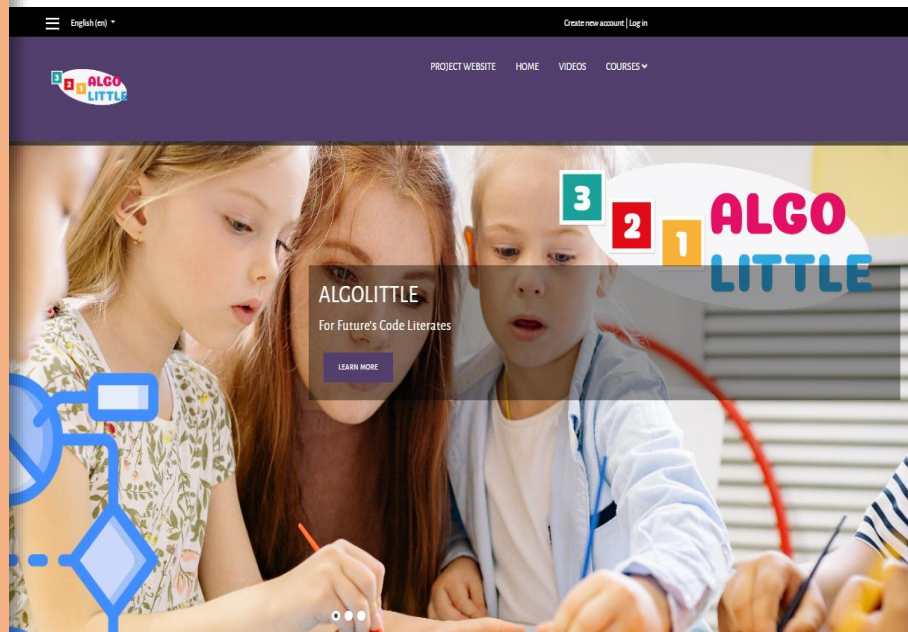
The main goal of our project was to develop an elective course curriculum and instructional materials that integrate algorithmic thinking skills into all development areas of preschool education.

We achieved our second intellectual outcome!

It was experimental and relates to the implementation of a pilot teaching process during the summer term of the 2021/22 academic year.

The virtual classrooms were set up in all languages of the partner countries through the learning system on our website.

EDUCLOUD converted teaching materials into interactive animated presentations that can be used not only in the learning system but also through our ALGOLITTLE YouTube channel.



FLIPPED CLASSROOM

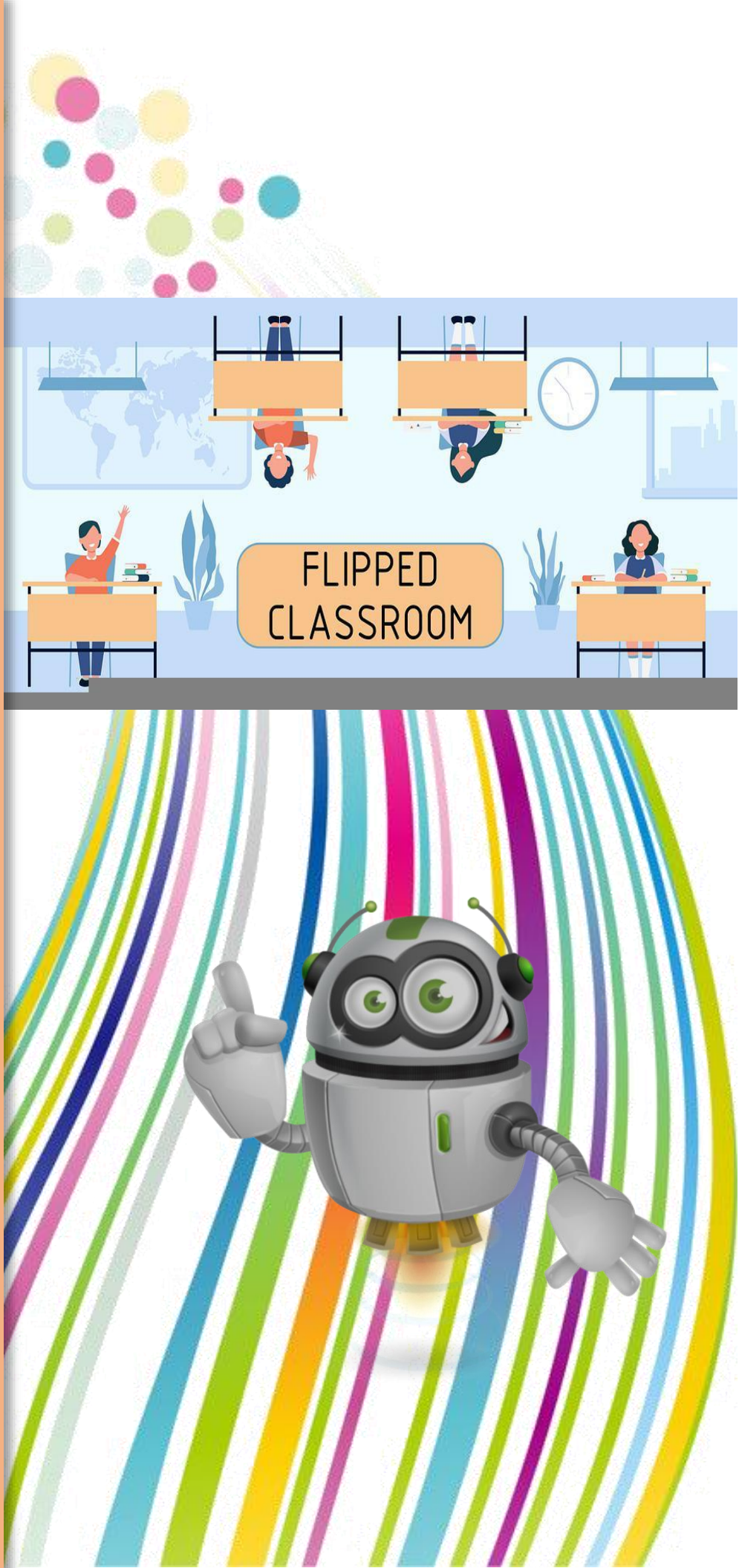
The lessons were conducted using the flipped classroom method according to the common curriculum.

It consisted of 28 teaching hours and was designed in accordance with the ECTS system. A hybrid teaching model is used in which, after the first session and discussion where students receive work instructions, in the next session they work independently on the teaching materials and create assignments for each module, participate in online discussions and solve quizzes on the learning platform.

At the beginning, students were asked for ethical consent and pre-tests were administered to evaluate the course.

Students designed and created examples of activities involving problem situations for a particular development area. In the above examples, they applied algorithmic thinking skills in a playful way for unplugged activities as well as activities with robots suitable for preschool age, such as mTiny, Bee-Bot, Cubetto or TrueTrue, and in this way designed games that also teach the basics of coding.

Our experience in piloting shows that algorithmic thinking, as an analytical way of thinking that allows us to identify problems and plan how to solve certain tasks, can be practiced and learned in a very early period of childhood.



PILOTING IN TURKEY

Izmir Democracy University carried out the pilot project between March 14 and 30. At the Faculty of Education of Izmir Democracy University, 23 preschool teacher candidates were selected. The participants were 2nd and 3rd grade students. 82,6% were female students. Before the piloting, online information meetings were held with the participants on two different days.

Participants successfully completed the assignments by following the presentations and videos on the online learning platform prior to face-to-face lessons.



PILOTING IN SLOVENIA

The piloting process of the Algolittle course at the Faculty of Education of the University of Maribor was carried out from 25. 2. 2022 to 31. 5. 2022 in the second year of study of Preschool education students. The modules were integrated into the course Didactics of introducing the child to the social environment. Students were trained and prepared didactic games involving learning through algorithmic thinking.

In May, children from the Ivana Glinška kindergarten visited us and spent the morning together with professors and students from the Faculty of Education. The children tried out games involving the use of robots and algorithmic thinking. All games were prepared by the students. The children had a lot of fun playing the games and learning content from the didactics of social studies.

The preschool education students successfully completed all modules of the Algolittle project. Throughout the semester, they acquired knowledge about algorithmic thinking, learned how to involve robots in guided activities, how to prepare didactic games with gamification, and how to adapt different content to children of different ages.



PILOTING IN CROATIA

Classes according to the Algolittle curriculum began on February 28 and lasted the entire semester until June 10, 2022. The course was chosen by 33 third-year ECE students. Hybrid teaching was applied in such a way that the students had two hours of face-to-face lessons for one week, while studying course materials online and completing assignments independently the second week.



In April, children from the Sušak kindergarten visited us and spent the morning with professors and students from the Faculty of Teacher Education. The children had a lot of fun playing games with robots and applying algorithmic thinking.

In addition to full-time study, the course was also offered as an elective to part-time third-year students, so 14 of them attended slightly modified content on the University of Rijeka's Moodle platform Merlin during the same period.

The students participated very actively and successfully completed all the tasks. They expressed their satisfaction with this form of teaching and promised to apply what they had learned in their future work.





PILOTING IN PORTUGAL

The piloting process in Portugal involved students from the Master's Degree in Early Childhood and Primary Education. Students enjoyed learning about algorithmic thinking and its prevalence and relevance in children's everyday life. Several opportunities for engaging with algorithms were identified in the daily routine and in children's play. With each module, focusing on different learning areas, new ideas were discussed with enthusiasm. The deck of cards for creative drawing was a highlight for the way it brought together several concepts that were being learned in the course.

Since the students were in Early Childhood Education centers during the time of the piloting, it was possible to plan and implement algorithmic thinking activities with the children. This promoted a deeper understanding of the concepts and made the sessions richer. Some groups started with culinary activities, others preferred challenges connected to sorting.

A particularly successful experience involved asking children to find ways (or an algorithm) for distributing cookies they had just made. The deck of cards was also taken to the centers and children enjoyed using it and learned about conditions and cycles in a fun way.

Through the Algolittle course, algorithmic thinking became relevant for children but also for the future teachers that acknowledged how reflecting on the ways we think and solve problems is important... and fun!



PILOTING IN ITALY

The Piloting activities in Italy, promoted by Scuola di Robotica, were aimed at primary schools and their teachers. Around 30 teachers participated in the two webinars presenting ALGOLITTLE and followed the lessons and modules. The participants took part in several activities, including the drafting of the Survey (the Scales) and the Modules quizzes.

The teachers came from all over Italy. Many teachers have implemented in the classroom some of the activities proposed by ALGOLITTLE in the Modules and Lessons especially Mariantonietta Valzano teacher from the Marco Polo Primary School in Rome.

THE ALGORITHMIC FRUIT SALAD

In April 2022, Scuola di Robotica, in collaboration with the primary school 'Cantore' in Genoa, created an 'algorithmic' fruit salad with primary school children.

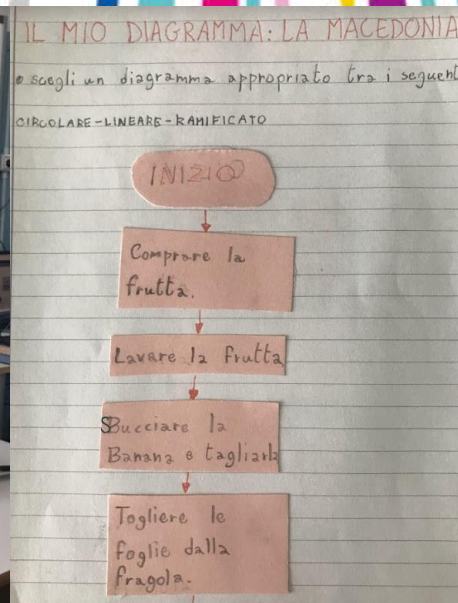
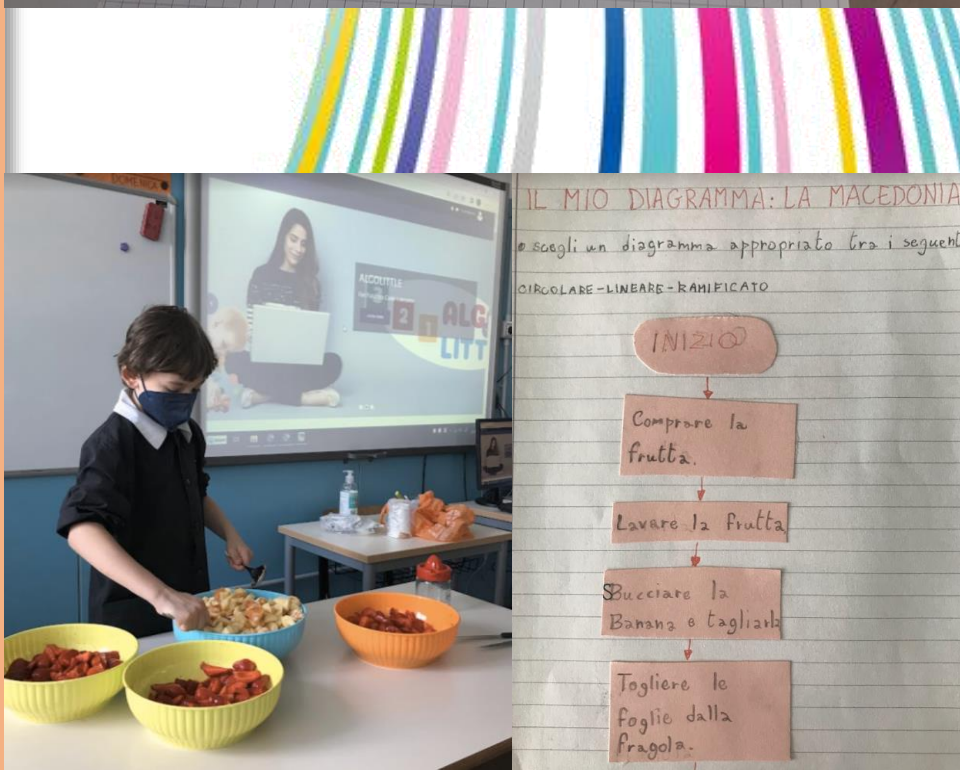
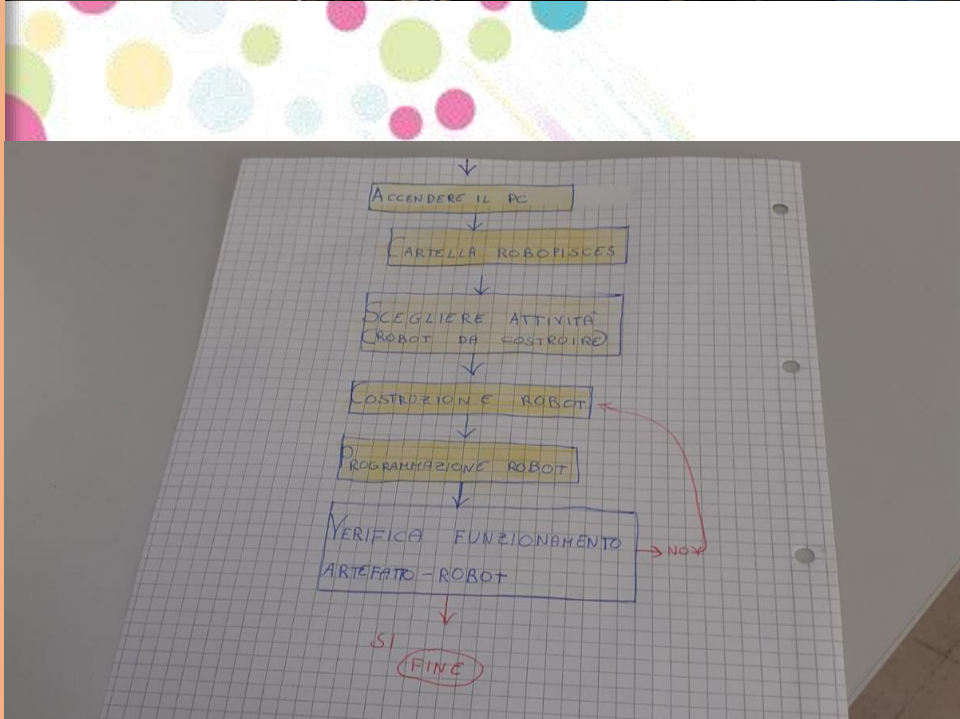
After presenting the Algolittle project very simply, with several examples and showing some small robots, we, with Teachers Stefano Fazzi and Silvia Beghello, and the first class B, organised a fruit salad according to Algolittle's recommendations.

With the children, we discussed how to design fruit salad flowcharts, depending on the fruit chosen.

The adults cut the fruit with knives, but then all the children participated, writing their own flowcharts and mixing the fruit.

At the end, the children divided it into glasses, calculating how many spoons per glass, and we all ate it together!

It was a very fun experiment and we also discussed hygiene and good eating habits, for example, the need to increase fruit consumption in our diet, and why.



DISSEMINATION ACTIVITIES

YouTube CHANNEL

The ALGOLITTLE YouTube channel has been created, which includes interactive video presentations used during classes.

<https://www.youtube.com/channel/UCqXE8W0tAc8zsz-Kvazl0Zg>

We are very pleased with the number of views and hope that you can also find interesting topics for your educational activities in practice.



A DECK OF CARDS FOR CREATIVE DRAWING

Based on algorithmic thinking.

DOWNLOAD



ALGOLITTLE'S DECK OF CARDS FOR CREATIVE DRAWING

The Polytechnic of Viseu collaborated with a local secondary school – Escola Secundária de Emídio Navarro – in their ERASMUS+ mobility project “Walking to the Future with Mind Games” on 28th February.

A group of 15 teachers and 22 students from 5 countries, Portugal, Poland, Italy, Turkey and Greece, worked together with Algolittle’s “deck of cards for creative drawing”.

The project focus on the development of technological knowledge and competencies combined with mind games, so algorithmic thinking was a good contribution. The dynamic was very interesting as the deck suggests collaboration as well as algorithmic thinking. Many of the participants created new cards and enjoyed the cycles and conditions as challenging. The innovative material was highly regarded and the minds were at play!

Read the manual (<https://bit.ly/3vJlhCT>) and download the deck: <https://bit.ly/3b9Vb62>

ONGOING & UPCOMING EVENTS

4TH TRANSNATIONAL MEETING – LIVE IN IZMIR

As the Covid- 19 pandemic was in decline, partners attended the meeting in İzmir on April 20-21, 2022. The Croatian, Slovenian, and Italian delegates attended in person, while the Portuguese delegates participated online.

Prof. Dr. İlke Evin Gencil opened the meeting with a welcoming speech. She presented the completed, ongoing and upcoming activities in preparation for the intellectual outputs. Each partner member evaluated the project activities to date and shared their views on the process. The partners generally found the process to be smooth and effective.

All partners explained how their piloting processes were going on. Prof. Dr. Marta Licardo spoke about the analysis methods for the curriculum evaluation process.

The partners agreed to write two articles, one on the curriculum preparation process and one on the piloting process.

Planning the writing process for the article was handled and the scientific methods of research were discussed. The partners also agreed to publish a monograph as an additional work on the project.

The partners decided on the next meetings and their scheduling.



MULTIPLIER EVENTS

During the months of June and July 2022. Multiplier events will be held in all partner countries. The main objective of these events is to present, disseminate and support the intellectual outputs of the project practice. The events will help create new opportunities to extend the project practice to other institutions and develop partnerships for the future.

A collection of colorful geometric shapes including triangles, squares, and circles in various colors like blue, yellow, pink, and black, some with patterns like stripes or polka dots.

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