Online Local Workshop for the Integration of Algorithmic Thinking Skills into Preschool Education

Reporting Partner Institution: Polytechnic of Viseu
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Objectives of the Local Workshops

The partners of ALGOLITTLE determined the objectives of the local workshops as follows.

1- To provide reliable information related to the integration of algorithmic thinking into preschool education by making benefit from the experiences and creative ideas of the workshop participants,
2- To compile the collected data with the information provided in the knowledge paper which all partners prepared through a joint work before the organisation of the local workshops.
3- To use the data collected during the preparation of the knowledge paper and the organisation of the online local workshops to prepare the higher education curriculum as the first intellectual output of ALGOLITTLE.
4- To assist preschool teacher candidates, preschool teachers and other interested educators to learn how to integrate algorithmic thinking into preschool education by sharing the collected activity examples with them

Expected Outcomes

The following outcomes were expected from the workshop:

1- The separate reports of the five countries that have organised and carried out the online local workshops

2- A summary of the reports giving a brief information about the processes

3- Quality evaluation of the online local workshop organisations

4- Activity examples to the integration of algorithmic thinking skills into different learning areas provided in preschool education

5- Grounding the base for the creation of the titles of the curriculum

Workshop Organiser/s (optional)

The workshop was organized by the local team of the Algo-Little Project: Maria Figueiredo, Cristina Gomes, Susana Amante, Helena Gomes, Belmiro and Rego.

The presentation was done by Maria Figueiredo. The rest of the team worked as facilitators of the small group discussions.

Participants

Partners decided to invite at least 20 participants to the online local workshops. If possible, the number of the participants and the workshops could be increased. Participants consisted of preschool teachers, ICT teachers, and experts on computer programming.

In the Portuguese case, most of the participants were working in Early Childhood Education. We had two professors from the Informatics Engineering Departament join us. From the Early Childhood Education sector, we had teachers with experience in 0-3 years-old but mostly with 3-6 years-old. There were also some students from Initial Early Childhood Teacher Education and some students from the technical program to work as assistants in Early Childhood Education. WE had close to 70 participants.

Methodology

All online local workshops included plenary sessions to present how to integrate algorithmic thinking skills into preschool teaching and a brief presentation about the project practice, to provide example activities and to share experiences.

The workshop organisation

- **During**

1- Opening
2- An introductory presentation on the project practice
3- A presentation on how to integrate algorithmic thinking skills into preschool education
4- Discussions about algorithms, algorithmic thinking skills, learning areas and integration activities
5- Closing

- **After**

1- Creating an email group for further exchanges
2- Sharing an online form to inquire about the quality of the local workshop organisation

Workshop Process

The local coordinator welcomed the participants and took care of the formalities as well as giving some technical suggestions regrding using the zoom platform. For the participants that would get credits from the participation, specific instructions were given regarding procedures for that.

The presentation of the project was also managed by the coordinator. It was highlighted how the project connects to previous activities of the School of Education so as to start establishing links between current practices and the innovation brought by the Algo-Little project.

This was followed by a presentation about algorithimic thinking (AT). A discussion ensued this presentation as the two colleagues from the School of Engineering reported about their work with Higher Education students – mainly in IT and Multimedia – and their difficulties with problem solving and computational thinking. The colleagues enriched the discussion with examples usually presented to their students. Overall, the participants were very engaged with the complexity of the concept of algorithm and algorithmic thinking. The examples from everyday situations – like brushing teeth or baking – and pre-school contexts were very usefull to support the participants understanding of the concepts.

The small group discussion about learning areas and activities connected to AT were facilitated by the members of the local team. Participants were randomly assigned to breakout rooms in zoom and each memebr joined a room. There was consensus that AT is not restricted to one specific learning area. Examples for all the Portuguese learning areas were mentioned and agreed upon by the participants. In terms of activities, there was a strong focus on how to organize the learning environment to promote situations in which AT is suggested to the children. The learning environment dimensions participants refered to were: the physical environment, including furniture and resources/materials, and the educational routines. It was felt that repetition and a sense of trust were essential to allow children to identify problems that could be approached through AT. The play-based approach was very welcomed but it sparked debate about the limits of adult intervention in play.

After the small groups, a plenary discussion was held where a speaker from each room voiced the main ideas. The time was short for all the discussions. It was agreed to organize a second session and to keep in touch through and e-mail list. Participants were all interested in following the activities of the project. The coordinator thanked everyone for their contributions and interest.

Results

- Main ideas of the discussion about the project

    - Great complexity of the concepts: how to prepare teachers to know about algorithms and AT?
    - Project is timely and innovative
    - A play-based approach is very relevant for the Portuguese context
- Participants' ideas about AT as presented by Algo-Little
    - Free play vs play-based needs to be clarified
    - AT is cross-curricular, relevant to all learning areas
    - The physical environment and the educational routines can be organized to create opportunities for problems to be identified and solved as algorithms
    - Younger children will need adaptations
    - Preferable to work in large group when teacher wants to model thinking and problem solving but small groups for children to approach problems
- Activity Examples
    - most groups focused on storytelling and ways to use stories
    - some groups mentioned having some experience with robots
    - most groups also talked about games that can be played
- The general evaluation of the workshop results
    - In all criteria, the results were close to excellent

Annexes (Upload to the google drive)

1- Participant List
2- Presentation/s
3- Information on the creditation as Teachers' Professional Development
4- Quality Evaluation Results