

TeaEdu4CT Project Newsletter 5 May, 2022

Dear newsletter readers, subscribers and followers of TeaEdu4CT project,

Since the start of the international project *Future Teachers Education: Computational Thinking and STEAM* (TeaEdu4CT) (Erasmus+ 2019-1-LT01-KA203-060767) in October, 2019, the Project activities have been going on, mainly online, throughout the life time of the project, due to the difficulties and lockdown caused by the pandemic of COVID-19 and quarantine in the years of 2020-2022. The 5th TeaEdu4CT project Newsletter will inform you about the progress made in the Project since July, 2021, and inform about the latest developments the project news.

Your TeaEdu4CT team

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1. About TeaEdu4ST project

Computational Thinking (CT), the main focus of the project, is considered to be an integrative skill to be addressed within the STEAM model. The emphasis is put on the primary role of computational models in modern research-oriented education, in addition to the existing educational physical environment and specific content laboratories, providing an opportunity for digital experiments and simulations. In order to develop, implement, and study practical solutions based on computational models that include both technical and social aspects, students should acquire additional skills necessary to develop or implement solutions in a highly digitalized educational environment. They include: decomposing and generalising skills, abilities to automate, algorithmize, calculate, and design.

As the project focuses on curriculum development activities for the education and training of future teachers, prospective teachers are the main target group, which is involved in STEAM education, particularly those, who are concerned with CT aspects and appropriate curriculum development, as well as future teachers of preschool institutions (kindergartens), primary schools, lower and upper secondary schools of various subjects including foreign languages, arts and humanities. The other target group – university teachers involved in STEAM education and in particular those concerned with CT aspects and appropriate curriculum development and implementation. Within the project, each project partner is responsible for the whole or a part of the curriculum module development in accordance with its best

competences, together constituting an integral set of curriculum modules focused on CT and STEAM.

2. The Project Latest Developments: Evaluation of Training Events C1 and C2

The project has entered into final phases, which due to COVID -19 pandemic were slightly delayed. The period of piloting of the developed modules (01-10) had to be expanded, firstly, due to difficulties caused by pandemic, secondly, the modules were developed in the English language. In order to be successfully piloted, they had to be translated into national languages. So the planned translation phase, which was planned to be consecutively conducted after the piloting phase, had to be forwarded and be conducted actually before the beginning of the piloting. Although the delay of one year compared to the initial work plan (however, it was justified by the logistical difficulties and restrictions in place, because of the pandemic), project partners have concentrated on the time available to work on the improvement of modules IOs 1-10 and their training materials, giving more attention to granularity and local adaptation of the content of the modules. These activities are in their finalizing process.

The COVID-19 pandemic has also compromised the organisation of the two Training Events (C1 and C2), which according to Application Form of the Project, were initially scheduled for October, 2020, then postponed and moved to February, 2021 and, finally, have been set for 13-17 September, 2021. It was decided to conduct them parallelly, so these Intensive Training Events were combined and took place at Vilnius University Faculty of Philosophy. The Training Events (TE) were conducted in English and at the same time, they also acted as major dissemination activities of TeaEdu4CT project results.

When partners started the organisation of the Training Events at the beginning of June 2021, materials were ready and the organisational process proceeded rapidly. An analysis of target group specificity (pre-service teachers & university staff) has been carried out by VU, the project coordinator, together with all partners, who have been involved in the events participants recruiting process. All partners contributed to the development of the Agenda and Guidelines for the Training Events, the organization and the logical sequencing of the modules, offered for training, have been agreed on and confirmed by project partners. Training materials were uploaded on the project shared folder on Google Drive.

The quality evaluation of these two Training Events (TE) was made primarily with the use of two tools, developed within the project: the *Training Event (C1) Evaluation* (Annex F) and the *Training Event (C2) Evaluation* (Annex G), which were completed by participants upon conclusion of training activities.

The evaluation of The Intensive Programme for Higher Education Learners (Training School for CT and STEAM (C1)). The goal of The Intensive Programme for Higher Education Learners (C1) was to introduce the TeaEdu4CT project aims, outcomes and modules developed for students studying at HEIs (from Vilnius University and project partner universities) to become school teachers, so as to train their computational thinking skills and demonstrate the practical possibilities and ways of development of CT skills at school. The *Training Event (C1) Evaluation* was designed in order to investigate whether quality indicators have been achieved and to what extent. The questionnaire had closed questions with a rating scale from one to 4

and two open questions. The analysis of received responses was conducted by Alessia Valenti (CESIE).

The *Training Activity (C1) Evaluation* was based on responses made by 53 respondents. All the respondents had the chance to fully express their opinion in an anonymous way and provide feedback information about what they appreciated the most and what they believe should be improved. Overall, the responses from participants was positive. This is confirmed by high marks provided during evaluation. Participants were asked to assess the relevance and usefulness of the training's content, trainers' performance and the appropriateness of the training materials used, as well as the impact of the training on their increased knowledge and skills. The training event was well received by participants: the average mark amounts to 3.61 (see Table 1).

Table 1 - Results of evaluation of TE C1

Item	Average rating
1. The presented modules for CT development were interesting.	3.68
2. The training objectives were clear	3.19
3. The development of CT skills of future teachers is important.	3.83
4. The topics of the module will be useful for my future work as a teacher.	3.72
5. The learning materials in the module illustrate the content very well.	3.64
6. The activities of the module make me think about the importance of the topic.	3.51
7. The language of all materials was understandable and it was easy to follow.	3.45
8. Training activities improved my competences (knowledge and skills)	3.58
9. Teaching skills of instructors are very good.	3.64
10. Student training school is useful for my future career.	3.81
Average rating of TE C1	3.61

Written comments and evaluation feedbacks of participants, future teachers, have also been positive, indicating that they have appreciated the learning opportunity. It has been particularly important that 100% of participants recognised the conducted training event as useful for their future school teacher career.

There have been the following aspects highly praised: the ideas provided for real lessons, practical activities for individual and group work, unplugged exercises, programming/coding activities with *bots, which provided participants with a hand-on experience they have perceived as really useful for their future work at school. There have been no clear preference expressed for the usefulness of one module over others, but most participants have appreciated the module which was closer to their career (primary school, pre-school) or to their personal interests (coding, art, social). The main missing things in the training they have mentioned, have been related to the necessity of discussion of the Core Components of

Computational Thinking and to clarification of how Computational Thinking might be used in dealing with provided challenges. Some students have missed clearer instructions during practical activities.

The evaluation of Intensive Training Event for Invited HE teachers (C2)

The goal of The Intensive Programme for Higher Education Intensive Study Programmes (C2) was to present the modules developed in the TeaEdu4CT project to university staff, to introduce pedagogical possibilities and potentials of the modules to be used for development of computational thinking skills of the future STEAM teachers.

The *Training Event (C2) Evaluation* was designed to investigate, whether project quality indicators have been achieved and to what extent. The feedback about *Training Event (C2)* have been received from 27 respondents, who were Professors (45%), Researchers (41%), Ph.D. Students (7%) and Heads of Department (7%), coming from partner institutions and representatives of the pedagogical staff from Vilnius University, who are not directly involved in the project TeaEdu4CT activities. The profiles of the selected participants demonstrate a wide variance in the depth of experience. All respondents had the chance to fully express their opinion in an anonymous way and provide their comments.

Each section of the questionnaire included a series of items that the respondents could qualify as:

- Not Observed
- Needs Improvement = Performance is less than expectations
- Satisfactory = Performance meets the expectations
- Good = Performance exceeds the expectations
- Excellent = Performance exceeds the expectations significantly higher

These values have then been assigned a score from 0 = “Not Observed” to 4 = “Excellent”.

The Training Event (C2) Evaluation included the closed questions for following aspects: organisation of training, quality of instructors’ performance, training content, methodology and conclusions.

The average mark of the event, which includes all aspects of training – Organisation, Instructor, Training content, Methodology, Conclusions – amounts to 3.36 (see Table 2).

Table 2 - Results of evaluation of TE C2

Section	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Item 7	Average rating
Organisation	3.37	3.37						3.37
Instructor	3.67	3.37	3.11	3.33	3.33	3.30	3.48	3.37
Training content	3.37	3.15	3.37	3.26				3.29
Methodology	3.26	3.26	3.37	3.37				3.31
Conclusions	3.48	3.33	3.63					3.48
Average rating of TE C2								3.36

An average mark for organisation (items of clearness of training objectives and suitability of the structure of the modules (or its parts) for achievement of learning outcomes) amounts to 3.37.

Though the evaluation of some items of the quality of instructor performance were marked as *needs improvement* (NI) and *satisfactory* (S) (see figure 1), whereas the knowledge of subject matter of instructors was highly evaluated, an average mark for all items of instructor(s) amounts to 3.37, actually exceeding the mark of *good* (*Performance exceeds the expectations*).

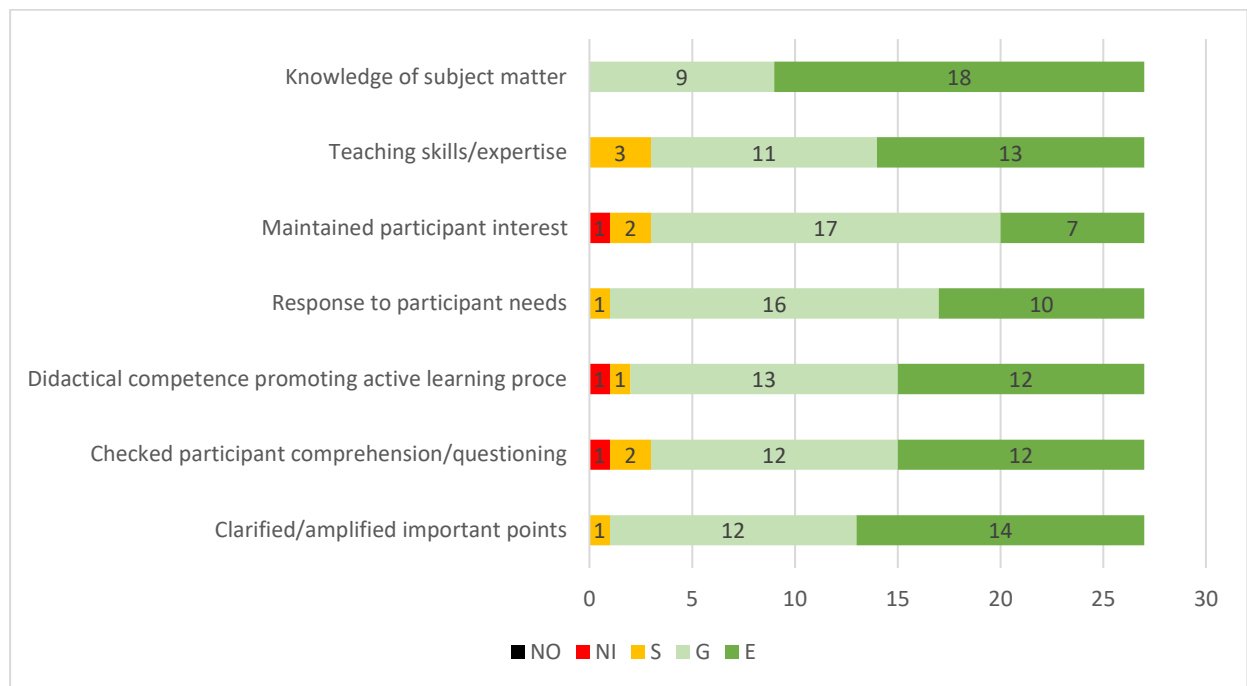


Figure 1 - TE C2 - II. Instructor

As to the evaluation of *content of training* (items: organized/easy to follow; appropriateness of training topics for needs of participants; suitability of modules for training of future teachers and instructional quality of training material) the respondents were more critical, an average mark for training content was rated as 3.29. An average mark for *methodology* (evaluated items: adopted approach supported my learning; balance between theory and practice; adaptability of activities and resources, offered in the module to different contexts and effectiveness of methods used) amounts to 3.31.

The evaluation of the *concluding items*: training objectives achieved; increased my competence of CT knowledge and skills and satisfaction with training event (particularly the last one received the highest rate of 3.63) but the average evaluation amounts to 3.48. The overall results clearly indicate that the participants' evaluations are positive. Participants in their comments appreciate the variety of materials and resources, the practical and interactive activities providing hands-on experience, and the quality of discussions relating to teaching, which allow the comparison of approaches to the same subject.

Provided suggestions for improvement are related to making modules' materials accessible for others to use; provision of definitions of CT terms and concepts that might be misunderstood, especially when translating modules into local languages. Some participants thought, that the content of some modules seemed to be too complicated and presented examples need revision and clarification.

The evaluation of Training events C1 and C2 has shown that the envisaged objectives for these activities have been achieved. Participants' interest and reactions to the training events were very positive, as confirmed by high marks received from both the target groups. This also provides evidence that project partners keep having a positive perspective of the project. The quality of cooperation and the competency and expertise of each member of the consortium, despite some (understandable) delays in the work plan, as well as time were efficiently used for the benefit of the improvement of intellectual outputs and feedback received about the quality of the Training events phase.

3. TeaEdu4CT Project News

International multiplier event. It is the first one, organized on 30th May (in Vilnius, Lithuania) and on 1st June (in Kaunas, Lithuania) by Vilnius University, in the series of 10 multiplier events (one international and 9 local workshops) planned to be organized by all TeaEdu4CT project partners in their countries for promotion and dissemination of project results (CT and STEAM seminars on modules developed in the project). This international multiplication event was attended by 25 foreign stakeholders and 37 local participants – all from other than the project partner institutions, also ten participants from the project partner institutions.



An article about the international multiplier event was published in VU news: <https://www.fsf.vu.lt/naujienos/fakulteto-ivykiai/4713-tarptautinis-projekto-teaedu4ct-partneriu-sklaidos-seminaras-vilniuje-ir-kaune>

Training school for academic staff in CT and STEM (C3) at Tallinn University. It is the last out of three planned project Learning, Teaching, and Training Activities. It is going to be a four day joint staff training event targeted at training university staff. It will be organized by Tallinn University on 27-30 June, 2022 in Tallinn, Estonia. Teaching Programme announced here: <https://sites.google.com/view/teaedu4ct-summer-school/programme?authuser=0>