

TeaEdu4CT Project Newsletter N 6

July, 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.

Since the spring of 2022 the pandemic situation has improved in most countries and made it possible to organise the planned partner face-to-face meetings and project training events.

This is the last, the 6th TeaEdu4CT Project Newsletter, for the project is approaching to its end on August 31st 2022. We will inform you about the progress, the project news and the latest developments made in the Project in its final phase.

Your TeaEdu4CT team

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1. About TeaEdu4ST project

For those, who sees and reads the project Newsletter for the first time, we provide some information about this project. Computational Thinking (CT) is the main focus of this project, it is 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. Computational models, in addition to the existing educational physical environment and specific content laboratories, provide an opportunity for digital experiments and simulations. Then, 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 that allow them to develop or implement solutions in a highly digitised educational environment, such as decomposing and generalising skills and skills to automate, algorithmize, calculate, and design.

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. TeaEdu4CT Project News and the Project Latest Developments

The ERASMUS+ TeaEdu4CT project has entered its final stage. The main deliverables are 10 innovative modules targeted at the development of computational skills of prospective teachers using active and interactive methods, plugged and unplugged activities. The structure of the modules is organized in units, which can be used to be implemented as the whole or separately, they are suitable for integration into the existing pedagogical university course units. They were successfully piloted by ten project partner institutions in different countries. The received feedback data from the students were used for further improvements of the modules. Firstly, the modules were developed in English, then they were translated into other national languages of the project partner countries: Lithuanian, Turkish, Dutch, Italian, Greek, German, Swedish, Finnish and Estonian.

The translation is in the process of completion. There are the following ten modules already available for use (see Table 1). They can be found at the website of Vilnius University, it's Faculty of Philosophy, which is the coordinator of the TeaEdu4CT project:

<https://www.fsf.vu.lt/ct4teachers>

Table 1. TeaEdu4CT Modules 01-10 available in different languages

Language(s)	Modules 01
English	<u>Framework for the support of the modules: CT & STEAM for future teacher education</u>
Estonian	<u>Mooduleid toetav raamistik: raalmõtlemine (RM) ja MATIK tuleviku õpetajakoolituses</u>
Lithuanian	<u>Bendrasis modulis: informatinis mąstymas ir STEAM būsimiems mokytojams</u>
Turkish	<u>Kavramsal çerçeve: Geleceğin Öğretmen Eğitimi için BiD & STEAM</u>
	Module 02
English	<u>General Introduction to Computational Thinking: a basic module suitable for all teachers</u>
Dutch	<u>Algemene inleiding tot computationeel denken. Een basismodule die geschikt is voor alle leraren</u>
German	<u>Allgemeine Einführung in Computational Thinking: ein Basismodul, das für alle Lehrkräfte geeignet ist</u>
Lithuanian	<u>Bendras įvadas į informatinį mąstymą: pagrindinis modulis, tinkamas visiems mokytojams</u>
Swedish	coming soon
	Module 03
English	<u>CT for Preschool Future Teachers: Specific Features, Approaches and Practical Solutions</u>
German	<u>CT für angehende Vorschullehrkräfte: Spezifische Merkmale, Ansätze und praktische Lösungen</u>
Turkish	<u>Geleceğin Okul Öncesi Öğretmenleri için Bilgi İşlemsel Düşünme: Belirli Özellikler, Yaklaşımlar ve Pratik Çözümler</u>
	Module 04
English	<u>CT for primary education future teachers: specific features, approaches and practical solutions</u>
German	<u>CT für (angehende) Grundschullehrkräfte Besonderheiten, Ansätze und praktische Lösungen</u>
Greek	<u>Υπολογιστική Σκέψη για υποψήφιους εκπαιδευτικούς πρωτοβάθμιας κπαίδευσης: Συγκεκριμένα χαρακτηριστικά, προσεγγίσεις και πρακτικές λύσεις</u>
Italian	<u>Il pensiero computazionale nel lavoro delle e degli aspiranti insegnanti della scuola primaria: caratteristiche specifiche, approcci e soluzioni pratiche</u>
Lithuanian	<u>Informatinis mąstymas būsimiems pradinio ugdymo mokytojams: ypatumai, požiūriai ir praktiniai sprendimai</u>
	Module 05
English	<u>CT for STEM future teachers: specific features, approaches and practical solutions</u>
Dutch	<u>CT for STEM Toekomstige Leraren. Specific Features, Approaches en praktische oplossingen</u>

Estonian	<u>Raalmõtlemine tulevastele loodus-, täppis- ja tehnoloogiaainete (LTT) õpetajatele. Erialased aspektid, erinevad lähenemised ja praktilised lahendused</u>
Lithuanian	<u>Informatinis mąstymas būsimiems STEM mokytojams: savybės, metodai ir praktiniai sprendimai</u>
Swedish	coming soon
	Module 06
English	<u>CT for informatics (computing) prospective teachers: specific features, approaches and practical solutions</u>
Estonian	coming soon
German	<u>CT für angehende Informatik (computing) Lehrkräfte: Besonderheiten, Ansätze und praktische Lösungen</u>
Lithuanian	<u>Informatinis mąstymas mokant informatikos: specifiniai bruožai, metodai ir praktiniai sprendimai</u>
	Module 07
English	<u>CT for language arts and humanities prospective teachers: specific features, approaches and practical solutions</u>
Finnish	coming soon
Italian	<u>Il pensiero computazionale nell’insegnamento delle discipline umanistiche: caratteristiche specifiche, approcci e soluzioni pratiche</u>
Turkish	<u>Dil Öğretimi ve Sosyal Bilimler Öğretmen Adayları için Bilgi İşlemsel Düşünme: Belirli özellikler, Yaklaşımlar ve Pratik Çözümler</u>
	Module 08
English	<u>Educational environments for CT: design and aspects of integration</u>
Finnish	coming soon
Greek	<u>Εκπαιδευτικά περιβάλλοντα για την υπολογιστική σκέψη: σχεδιασμός και πτυχές ενσωμάτωσης</u>
Lithuanian	<u>Edukacinė informatinio mąstymo aplinka: projektavimas ir integravimo aspektai</u>
	Module 09
English	<u>Using Constructivism, and Project and Challenge Driven Pedagogy for learning Computational Thinking</u>
Dutch	<u>Constructivisme en project – en uitdagingsgerichte pedagogie voor het leren van computational thinking</u>
Italian	<u>Utilizzare il costruttivismo e la didattica basata sui progetti per apprendere il pensiero computazionale</u>
Swedish	coming soon
	Module 10
English	<u>Technological, pedagogical and instructional design aspects of teaching CT</u>
Dutch	coming soon
Estonian	coming soon
German	<u>Technologische, pädagogische und didaktische Aspekte des Computational Thinking Unterrichts</u>
Italian	<u>Aspetti tecnologici, pedagogici e relative alla progettazione didattica legati all’insegnamento del pensiero computazionale</u>

Modules 01-02 are basic modules, targeted at all prospective teachers, regardless the level of schooling and subjects to be taught at school upon university graduation. Modules 3-10 are more specific, targeting different groups of teachers. All of them are easily adaptable for integration into the existing university teacher education study programmes'curricula.

The feedback, received during the evaluation of module piloting and training events (C1-3), is overall positive. Students and participants of training events think that the modules' material, practical, interactive activities and resources are suitable for development of computational thinking of future teachers, who will be working at different levels of school education, they can be also used for development of computational thinking of school children, as well as in-service teachers.

It was agreed to complete all the tasks of the project left by August, 2022. It was approved of having the final project partner meeting in Stockholm, Sweden on August 1-2 to be organized by KHT.

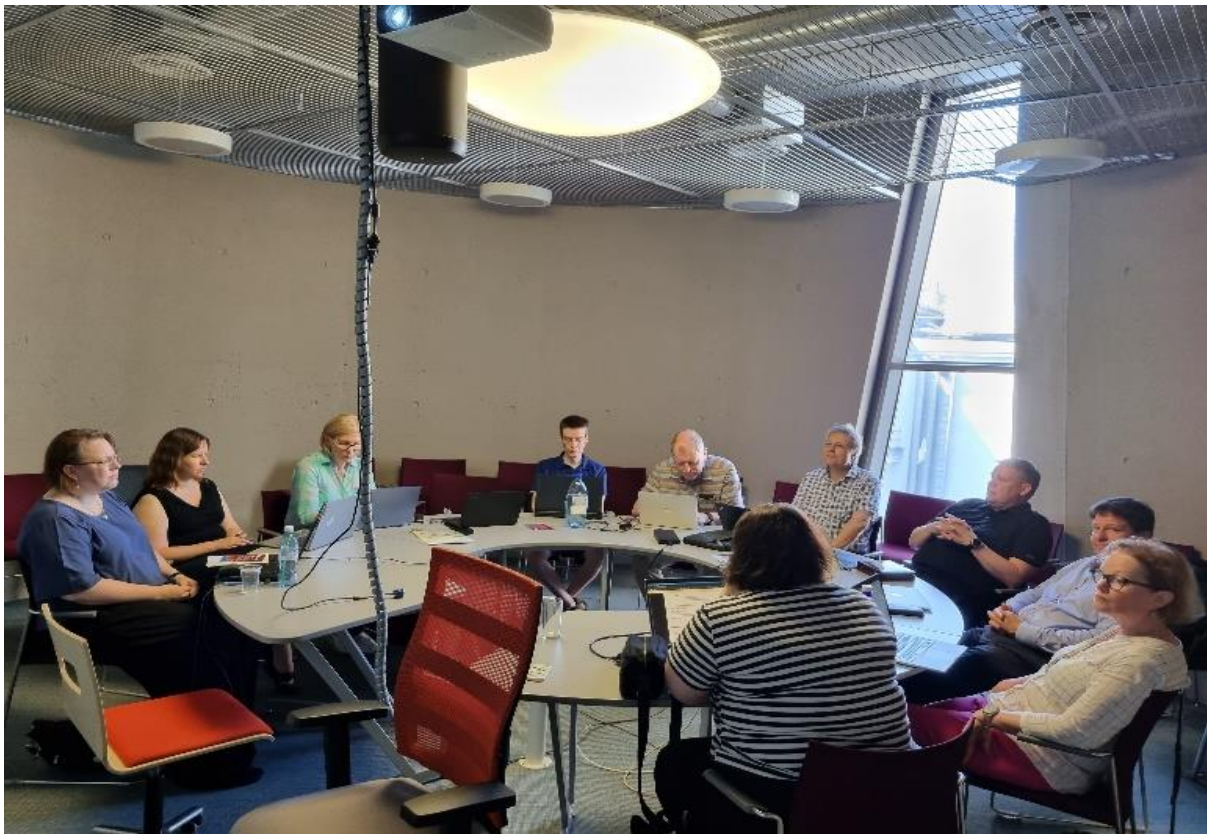
3. Project partner activities: Training summer school for CT and STEM (C3) at Tallinn University (TLU)

On 27-30 June 2022, a short-term joint university staff training event C3 was organized by TLU and held in Tallinn, Estonia. It was the last training event in a series of three ones, targeted at university teacher trainers involved in education and training of future teachers.



The event was attended by 48 participants representing 10 project partner institutions, plus teacher trainers from Tartu University, Estonia and Tampere University, Finland. The participants had the opportunity to get acquainted with the modules 01-10, to try some practical activities aimed at computational skills development working in groups, to actively discuss integration possibilities into STEAM subjects at different levels of schooling: pre-school, primary and secondary, as well as integration of CT into arts, languages and other school subjects' education. A short-term joint staff training event C3 organized by TLU in Tallinn was productive and all the goals of it were achieved.

During the C3 event, on the initiative of project coordinator prof. Valentina Dagienė and assoc. prof. Asta Meškauskienė, head of Vilnius University Competence Development Centre, the project partners have discussed the possibilities of international cooperation to use the TeaEdu4CT project materials, as well as materials of other projects (Ville, Bebras), for design and development of international programs for improvement of digital competences of in-service primary and secondary school teachers.



Professors Mart Laanpere (Tallinn University, Estonia), Mikko-Jussi Laakso and his colleagues (University of Turku, Finland), Erik Barendsen (Radboud University, Netherlands), Arnold Pears (Royal University of Technology, Sweden) have discussed and shared the experiences of in-service teacher continuous development in their countries. It was agreed by September, 2022 to have developed 2-3 programmes, 40 hours each, for in-service primary and secondary teachers.

The visit to the oldest Estonian gymnasium named after Gustav Adolf. It was a pleasant surprise for the participants of C3 training event to have the opportunity of getting acquaintance with Estonian education and teacher education and training organized at TLU. For many years Estonian 15-year-olds rank high in international PISA assessment. The visit to the oldest Estonian gymnasium named after Gustav Adolf, is the proof of this. The gymnasium is also the oldest in Europe, it was established in 1631 by Swedish King Gustav II Adolf, situated in the Old Town of Tallinn. Today it is one of the best schools in Estonia, where not only the old traditions are being preserved, but it is also modernized, the most innovative one and open to new education ideas. There are about 1400 students (from grade 1 to 12) attending it and there are 100 teachers working in it.



Gustav Adolf gymnasium specializes in Nature Sciences and Humanities. The main attention in the school curriculum is given to ICT skills development. Students start learning Programming in the 1st grade. Interactivity of learning is being prioritized, when senior students having good ICT skills are encouraged to provide support to their classmates, who need help. Two best ICT students from senior grades are even employed as ICT coordinators.

The creativity and innovativeness of learning environment is seen in every space of the school, old from outside and very modern inside.



The main school Hall can be easily transformed from School Cafeteria into a Concert Hall, in which they have the Organ, or into a big learning space.



Vaida Masilionytė-Dagienė (Vilnius university) tries to play *The Monster Piano* on the floor.

School Head Henrik Salum said, that the popularity of Gustav Adolf gymnasium and its success are mainly granted by creative schoolteachers, who have great autonomy in decision making.



They decide how to implement the national curriculum, so that each student would achieve the best learning results.

The gymnasium tour has ended on the roof of school building, which can be used for different purposes, also as a helicopter landing place, by the TeaEdu4CT project and C3 event participants' group photo.

That was a really meaningful accent to complete the last C3 training event of TeaEdu4CT project in Tallinn.