

Emanuele Bardone

University of Tartu, Tartu

Kerstin Zechner

University College of Teacher Education Lower Austria, Campus Baden

Newsletter WP 3

November 2024

CNL MOOC

Finalizing WP 3

Summary

The newsletter summarises the work on the CNL MOOC, the most important task of the third work package (WP 3), from a final perspective.

Anthropocene competence, transformation, cultural sustainability, digitality, MOOC

The work in WP3 aimed at the development of a diversity-sensitive MOOC (Massive Open Online Course) that transforms the CNL concept from theory into practical applications for educational settings, including schools and universities. This MOOC is designed to cultivate “Anthropocene competence”—the capacity to address climate change challenges through a solution-focused approach. WP3 takes upon its shoulders the task to create a MOOC accessible to individuals with various educational backgrounds and proficiency levels, strongly aligned with sustainable development and inclusive education principles. The primary audience includes teachers, headteachers, and researchers involved in both initial and ongoing teacher training, with the course tailored to their inclusive educational needs.

The requirements for Work Package 3 according to the application

The CNL-MOOC is supposed to support all 17 UN Sustainable Development Goals (SDGs), with a notable focus on SDG 10 (Reduced Inequality). Its purpose is to promote inclusive educational opportunities and awareness of sustainable practices, fostering a future of cultural optimism where all education stakeholders contribute to a resilient and equitable system.

The CNL-MOOC is designed around several foundational elements that meet specific quality criteria set by the project partners:

- **Sustainability:** The MOOC promotes Anthropocene competence, equipping educators to address climate-related issues with scientific integrity and a solutions-oriented mindset.
- **Inclusion:** Emphasizing accessibility, the course accommodates learners from varied starting points and abilities. Content is provided in accessible formats, including subtitles, simplified language, and translations such as Austrian Sign Language (ÖGS).
- **Digitality:** The MOOC is flexible for digital learning contexts and can be used in both fully online and blended formats.
- **Target Group Suitability:** Tailored for educators, the MOOC serves teachers, researchers, and trainers involved in both pre-service and ongoing education.

The CNL-MOOC will be organized into at least four thematic blocks, each comprising a minimum of five digital activities. These activities range from video presentations with subtitles, podcasts, and interactive exercises, such as quizzes and multiple-choice tests. Additionally, the CNL-MOOC undergoes a double, non-blind peer review to ensure high standards, transparency, and trust among project partners.

Each project partner contributes expertise specific to their field. Each partner is tasked with developing at least one activity related to a chapter in the CNL Manual Part 1, serving as a quantitative measure of involvement and contribution.

This collaborative effort also focuses on creating culturally and linguistically inclusive materials, with translations available in German and English enhancing accessibility for a diverse audience.

Key steps towards the design of the CNL MOOC

The initial work in WP3 focused on advancing the conceptualization and modeling of the CNL MOOC.

The first decision, led by the Tartu University team, involved selecting a platform to host the CNL MOOC. Given the nature of the MOOC, it was essential to choose a platform that is well-maintained, meets all technical requirements, and ensures compliance with security and data management standards. Another key factor considered was the MOOC's sustainability—specifically, its availability beyond the project's end. Ultimately, Moodle, hosted by the Lower Austrian University of Education, was chosen as it met all the initial requirements.

Once the platform was selected, we established a smaller team to coordinate the conceptualization and modeling of the MOOC. Three institutions collaborated closely in this coordination: the University of Tartu Team, the Universität Siegen Team, the Pädagogische Hochschule Niederösterreich Team, and the associated partner Thomas Lustig.

The coordinating team made key decisions regarding five fundamental aspects of the CNL MOOC:

1. the overall organization of the various topics;
2. the level of proficiency required;
3. the design template for each topic;
4. the specific topics to be included;
5. and, finally, the target audience.

In relation to the first aspect, the coordinating team developed the so-called CNL MAP. The CNL MAP was designed to group various topics and provide users with a navigational guide through the MOOC based on their interests and learning goals. Two organizing principles guided the map's design: the first was the four GreenComp macro areas—embodying sustainability, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability. The second principle was the three chapters used in the CNL Manual—CNL and environmental humanities, CNL and educational concepts, and CNL and educational practice.

This structure allows users to begin their learning journey either from a GreenComp area or from one of the CNL macro topics. With the two principles arranged in a matrix, users can combine one GreenComp macro area with one CNL macro topic. For instance, a user could choose a topic related to envisioning sustainable futures while focusing on a conceptual aspect of CNL or a more practical one by selecting "CNL and educational concepts" or "CNL and educational practice," respectively.

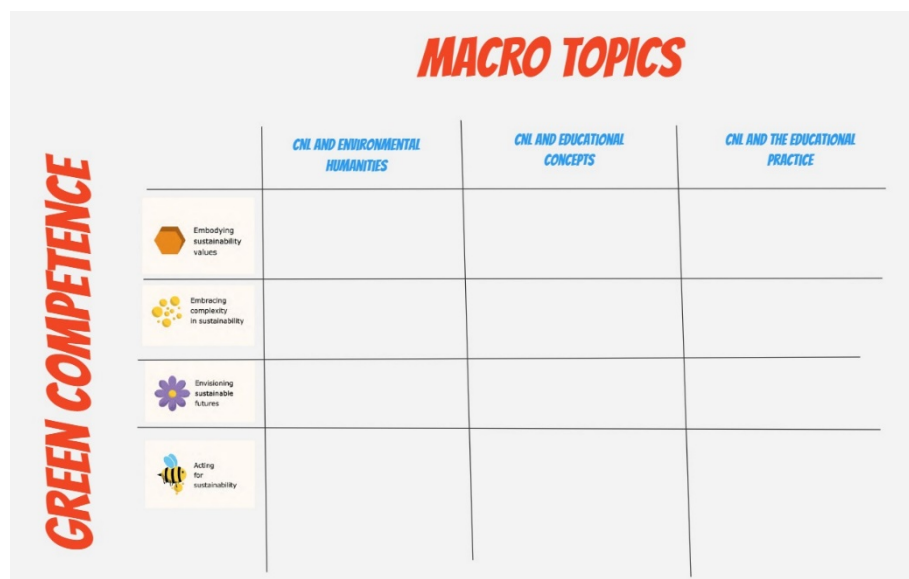


Figure 1: The CNL Map

Incidentally, the CNL Map also highlighted the connections between the GreenComp framework and Culture/Nature Literacy.

A second important aspect of this phase in the MOOC's development was the decision to include different levels of proficiency. Since the MOOC is designed as a self-paced learning tool, the coordinating team decided that each topic would offer two tracks: one for users who are new to the topic and one for those already familiar and seeking more in-depth exploration. This allows users to choose their track based on self-assessment of their knowledge. The advanced track also serves as a progression for those who successfully complete the first track.

The third aspect of the conceptualization and modeling phase was creating a design sheet to be used as a template for each topic. The design sheet was intended to ensure consistency and organization across topics. It was divided into two parts: the first section focused on general information, requiring a teaser that briefly describes the topic along with the learning objectives. The second part specified, for each topic and proficiency level, three elements: compulsory materials (what learners should watch, read, or consult), the assignment text (what learners are expected to do to meet the learning objective), and additional materials (for those wanting further exploration).

The fourth aspect was defining the specific topics available in the MOOC. Reflecting the work done in WP1 (CNL Handbook) and WP2 (learning scenarios), it was decided that the MOOC topics would mirror those in the handbook, with assignments informed by the learning scenarios.

The final aspect concerned the target audience. Early in the project, it was decided that the primary audience would be pre-service and in-service teachers, along with other educational practitioners, particularly school leaders and headmasters, and members of the school management. Additionally, the team considered that high school students might also benefit from the MOOC. In this context, offering a beginner track increases its suitability for use by high school students and their teachers.

Key steps to the realisation of the CNL MOOC and work process

During this phase, all project partners committed (to varying degrees) to creating content for the CNL MOOC. Since the MOOC topics mirrored those of the handbook (WP1), the design sheet was distributed to all participating partners. Concurrently, the Moodle course page was set up on the Pädagogische Hochschule Niederösterreich server, as decided in the previous phase. This page was kept private, accessible only to project partners, with oversight by the University of Tartu.

Once the Moodle page was operational, the first step was to create the CNL Map on the main page, where learners could select different topics leading to dedicated pages containing all relevant information and the two tracks—beginner and advanced. Emanuele Bardone (University of Tartu) led the design, enhancing the CNL Map with icons representing the four GreenComp macro areas for a visually engaging overview of the options.

Content creation began under the University of Tartu's supervision. Since the MOOC topics aligned with the CNL Handbook chapters, each chapter's lead author was assigned to complete the corresponding design sheet. All partners were involved during this stage. Cooperation developed via email and *ad hoc* meetings

Most partners chose to develop content in German. An initial pre-review process, conducted by the University of Tartu, ensured all sections of the design sheets were completed. Communication was managed via email, while design sheets were stored on the project's OneDrive to enable partners to make updates directly on shared files, thus avoiding information loss during email exchanges. This pre-review helped clarify expectations and offered partners guidance on potential materials for each topic.

After collecting and pre-reviewing the design sheets, the content was translated into English. Throughout this process, each topic's content underwent a review led by the University of Tartu. The review focused on overall coherence, clarity of assignments and learning objectives, alignment between compulsory materials and assignments, and accessibility of materials. We ensured that all videos and documents were accessible via the platform or the web.

In terms of materials, we used a variety of tools and media, among them - existing videos specifically selected for each topic, video lectures, scientific articles, photo galleries, interactive videos, chapters from the CNL Handbook, and occasionally, we created a hypervideo. For the English version, when an English translation was unavailable, we chose alternative materials that would still allow learners to achieve the learning objectives of the topic. For the CNL Map, the person responsible for each topic also indicated the relevant GreenComp area. In several cases, a topic was aligned with multiple GreenComp areas, as it addressed more than one.

Throughout the process, all partners actively collaborated via email and ad-hoc meetings under the coordination of the University of Tartu. Pädagogische Hochschule Niederösterreich led the final stage, when the CNL MOOC was published and presented during the meeting in Maribor in October 2024.

During the development of the CNL MOOC, the University of Tartu conducted research that involved expert interviews with CNL researchers to design a reflection sheet. This reflection sheet aimed to help MOOC learners connect the CNL MOOC topics with their own lives. Comprising 21 questions divided across the four GreenComp macro areas—embodying sustainability values, embracing complexity in sustainability, envisioning sustainable futures, and acting for sustainability—the reflection sheet was designed to complement the cognitive aspects of learning by encouraging students to reflect on and question their assumptions, beliefs, and habits, fostering a more holistic learning experience.

This work on the reflection sheet also contributed to creating the CNL GPT, a custom chatbot based on ChatGPT, designed with tailored prompts and a dedicated knowledge base. The CNL GPT is intended to complement the reflection sheet by utilizing ChatGPT's conversational capabilities while minimizing misinformation through the customised knowledge base. The CNL GPT is available in all main languages, including English and German.

The results

WP 3 has successfully achieved all its objectives. The fifth project meeting was held in October 2024 in Maribor, where the CNL MOOC was officially unveiled.

The CNL MOOC is now fully available in two languages—German and English—and includes 23 units organized into four blocks, aligned with the four overarching competence areas of GreenComp.

The CNL MOOC can be used for self-study or integrated into teaching and learning processes. It brings together theoretical and practical concepts from the CNL manual and showcases the CNL learning scenarios as next-practice examples for teaching.

With the CNL Reflection Sheet and the CNL GPT, users have the opportunity to connect the knowledge gained from the MOOC's 23 thematic units to their own lives. A sample of the material is also available in Austrian Sign Language and Estonian.

Authors

Emanuele Bardone, PhD

He is currently Associate Professor of Educational Technology at the University of Tartu, Estonia, where he is also the director of the International Master's programme in Educational Technology. His main research interests include Critical educational technology, Responsible Research and Innovation and the role of uncertainty in teaching and learning.

Kontakt: emanuele.bardone@ut.ee

Kerstin Zechner, Prof. Mag. phil. PaedDr. MA, Bakk. phil. Dipl.-Päd. Dipl.-Päd. Head of the Department for Diversity (D2) at the University College of Teacher Education Lower Austria, as well as Professor in the field of Diversity and Inclusive Education; Lecturer with a focus on Inclusive Education at the University of Vienna; Organizer of the Summer School of the Austrian Federal Ministry of Education, Science and Research (BMBWF); Project member of 'Klasse Job' (BMBWF); Director of the SummerHOCHschule; initiator of numerous projects and research initiatives, as well as author of publications on the spectrum of diversity.
Kontakt: kerstin.zechner@ph-noe.ac.at

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project ID: 2022-1-AT01_KA220-HED-00085025

Programme: Erasmus+ KA220-HED

Project start: 1.11.2022

End of project: 31.10.2025

Participating countries: Austria, Estonia, Germany, Hungary, Slovenia

Lead: Pädagogische Hochschule Niederösterreich (TRF)

Partner organisations:

Eötvös Loránd Universität, Budapest (ELTE)

Universität Siegen

Ludwig-Maximilians-Universität München (LMU)

Universität Maribor

Universität Tartu (Tartu Ülikool)

1. Europäisches Klima- und Umweltbildungszentrum (EKUZ)

Landschaftsverband Westfalen-Lippe/Droste-Forschungsstelle

Bildungsdirektion für Vorarlberg

Target groups: Teachers at schools and universities, teachers in initial, continuing and further teacher training, head teachers, student teachers