



Report WP3: A4

Core textbook
content preparation:
Review of core textbook content
and optimizations



Result

Review of core textbook content and optimizations

Related to

WP3-A4: Review of core textbook content and optimizations

Statement of originality

This deliverable contains original unpublished work, except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation, or both.

Disclaimer

This report contains material which is the copyright of TET Consortium Parties. All TET Consortium Parties have agreed that the content of the report is licensed under a Creative Commons Attribution Non-Commercial Share Alike 4.0 International License. TET Consortium Parties does not warrant that the information contained in the Deliverable is capable of use, or that use of the information is free from risk and accept no liability for loss or damage suffered by any person or any entity using the information.

Copyright notice

© 2022-2025 TET Consortium Parties

Note

For anyone interested in having more information about the project, please see the website at: <https://tet-erasmus.eu/>



This publication is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International Public License](https://creativecommons.org/licenses/by-nc/4.0/) (CC BY-NC 4.0).

Table of contents

1. Introduction.....	3
2. WP3-A4: Review of core textbook content and optimizations.....	5
2.1. Results	5

1. Introduction

WP3 is divided into 4 main Activities (A1-A4). This report comprises the information associated with the work done for the last activity A4, namely “**WP3-A4: Review of core textbook content and optimizations**”, which involved the review of the updated material by the leading team of WP3 (UNIPi) and a consortium-wide review in a consortium meeting.

The University of Pisa (UNIPi) is the leading organization and coordinator for this work package.

The following Table 1 summarizes the main acronyms in alphabetic order, full name and short description.

Table 1: Acronyms, full name, and short descriptions

Acronym	Full name	Short description
ATs	Assessment Tasks	In the Constructive Alignment framework, assessment tasks are not isolated evaluations but are purposefully linked to the specified Intended Learning Outcomes (ILOs). They serve as a means to verify whether students have successfully achieved the learning objectives set forth in the curriculum.
CA	Constructive Alignment	Constructive Alignment (CA) is a pedagogical theory and framework developed by John Biggs that emphasizes the importance of alignment in the design and delivery of educational experiences. The key components of constructive alignment include Intended Learning Outcomes (ILOs), Teaching and Learning Activities (TLA), and Assessment Tasks (ATs). The theory posits that for effective learning to occur, these three components must be closely aligned to ensure coherence and transparency in the educational process.
CONALI	Constructive Alignment Ontology	The CONstructiveALignment (CONALI) ontology, is a recent application of ontologies in education, specifically in the context of Constructive Alignment (CA). Developed using the Ontology Web Language (OWL), CONALI provides a framework to represent the body of knowledge related to CA, encompassing semantic relationships in a computer-readable format. The last version is CONALI 2.0.

EdU	Educational Units	Low level granularity distinct modules or components within an educational program or curriculum. These units are designed to cover specific topics, themes, or skills, and they serve as the building blocks of the overall educational experience.
EGV	Educational Goal Verb	An Educational Goal Verb refers to a verb that articulates the specific actions or behaviors that students are expected to demonstrate as part of achieving educational goals. By incorporating precise verbs into ILOs, educators can better communicate the intended depth and complexity of learning, facilitating the alignment between ILOs, Teaching and Learning Activities (TLA), and Assessment Tasks (ATs) as per the principles of constructive alignment.
HE	Higher Education	Education that takes place at universities, colleges, and other institutions that award academic degrees. It typically follows the completion of secondary education (high school) and offers more advanced and specialized instruction. Higher education includes undergraduate and postgraduate programs, leading to degrees such as associate's, bachelor's, master's, and doctoral degrees.
ILOs	Intended Learning Outcomes	These are clear, specific, and measurable statements that articulate what students are expected to know, understand, and be able to do by the end of a course or educational program. ILOs serve as the starting point for instructional design and guide the selection of teaching strategies and assessment methods. These are made by EGV, context and content.
OWL	Ontology Web Language	Web Ontology Language is a powerful and expressive language used for representing and sharing ontologies on the World Wide Web. An ontology is a formal representation of knowledge, typically describing the relationships between entities within a specific domain. OWL is particularly designed to support the development of ontologies that enable machines to reason about information and enhance interoperability between applications.
SOLO	Structure of Observed Learning Outcome	The Structure of Observed Learning Outcome (SOLO) taxonomy is an educational framework designed to assess the levels of understanding and learning outcomes in students. SOLO taxonomy categorizes learning outcomes into different levels of complexity, providing a way to measure the depth of understanding a student has reached.

TLA	Teaching and Learning Activities	Methods, strategies, and activities employed by educators to facilitate student learning. In constructive alignment, TLAs are carefully chosen and designed to directly support the achievement of the intended learning outcomes, according to the selected EGV. The aim is to create engaging and relevant learning experiences that guide students toward the desired understanding and skills.
TET	The Evolving Textbook	Current project: development of a platform for engineering EdU representation, focusing on CA. The platform of TET requires to be built on educational ontology presenting scalability, and with alignment in content to allow collaborative update of the material.

2.WP3-A4: Review of core textbook content and optimizations

2.1. Results

The result of this activity is the following report on how to improve the core textbook content. The main result of this activity is the report on the core textbook content analysis. The report has been prepared by the leading partner with the contribution of the other partners in a consortium meeting to cross-validate and review the uploaded material in the templates after the first round, as well as separate check from the leading organization in accordance with the ontology schema.

The report includes two main sections, namely improvements and optimizations of the i) ontology schema and the ii) textbook content.

- i) **Ontology schema improvements:** The CONALI 3.0 has been approved by the consortium. Additional improvements can occur in the following stage of the project but the current release fits with the expected result, so no specific improvements have been identified. However, a way to improve the overall linkage of the CONALI 3.0 ontology in the TET platform is trying to define a new ontology (from technical perspective) that defines the main aspects, functions and relations of the platform itself with the CONALI one. This ontology (or other formal definition) will be developed during the technical WP4 as initial design stage of the platform itself to establish the linkage of WP3 and WP4. The design of these aspects

will also be based on the outcome from WP2 for technical decisions on main functionalities of the platform.

An inception idea was introduced during the initial meeting of the project and a draft of the ontology development is reported in Figure 4, highlighting the current stage of development that cover the right part (with the green CONALI3.0 label) of the schema, while the left (question mark and pink label) and the need to link left and right will be addressed WP4.

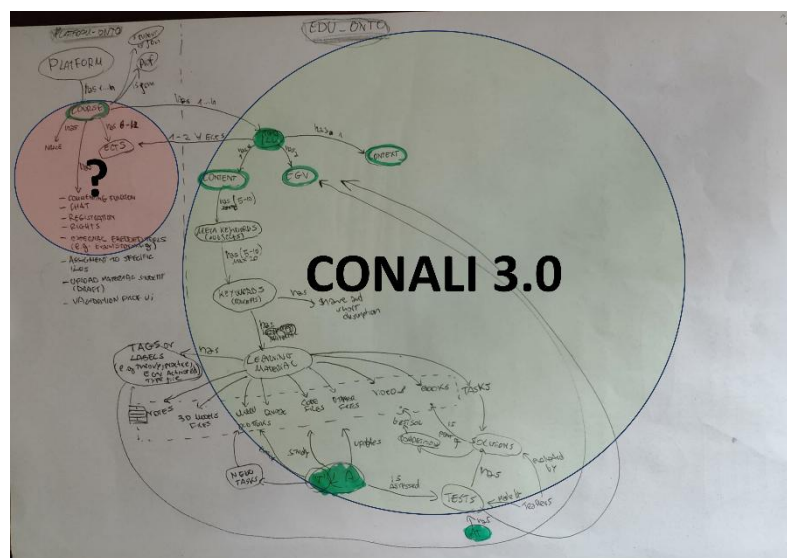


Fig. 4. Drafted CONALI 3.0 ontology linkage to the platform architecture during the initial meeting of WP3. The green part is developed in WP3-A2 and material added in WP3-A3 and optimized in WP3-A4. The pink part will be addressed in WP4 during the initial design stage of the platform to ensure linkage between CONALI3.0 and the platform architecture.

- ii) **Textbook content improvements:** Several issues have been identified during the consortium meeting and during the leading partner review. Among the most important the following topics have been identified with high relevance for the development of the platform and the improvement of the core textbook content:

How to manage the accessibility of data? Is this material public (most universities have copyright issues on the Teaching and Learning material)? Discuss GDPR issues (it can be anonymous contribution; the registration will be with official university email but will be hidden and student can use a nickname) and Licensing for the content (creative common license). Proposed solution concerns the creation

of a “accessibility right classification” table where each file updated from the consortium was classified as public (licensed under a Creative Commons Attribution Non-Commercial Share Alike 4.0 International License) or private. The table can be accessed in the Shared drive¹. This information will be used in the design of the platform and accessibility right for the material in WP4. As other point to be discussed in WP4 is the file format (e.g., PDF where possible) and language (e.g., using Google Translate for not English material).

After a second round of material update for all the consortium partners, specific recommendations are reported below:

- UNIPi (Manufacturing processes): Overall all the fields of the table are well-completed and rich in information. If possible, add additional material and related links (e.g., book chapters or slides). If possible, add the links to the written test in the AT template.
- PRZ (Data analysis; Simulation modelling): Add the links to the material highlighted in the template. If possible, add the links of the written test to the AT template. The remaining fields of the table are well-completed and rich in information.
- KTH (Assembly technology; Planning and control): Overall all the fields of the table are well-completed and rich in information. Both the courses are well done. If possible, add additional material and related links. If possible, add the links of the written test to the AT template.
- UNILJ (Mechatronic Actuators). Add the links to the material highlighted in the template. If possible, add the links to the written test to the AT template. The remaining fields of the table are well-completed and rich in information.

During the last meeting the updated materials according to the above guidelines were presented by each partner and the final cross-validation was performed. Final reviewed material was collected as part of the WP3-A4 output² and can be accessed for each consortium member.

¹ <https://unilj.sharepoint.com/:x:/r/sites/ErasmusTETproject/Shared%20Documents/WP3-Core-Textbook-Content-Preparation/WP3-A4%20Review%20of%20core%20textbook%20content%20and%20optimizations/Accessability%20right%20classification.xlsx?d=wde084285526140c1a18aaf733ac81f60&csf=1&web=1&e=DGoHOT>

² <https://unilj.sharepoint.com/:f:/r/sites/ErasmusTETproject/Shared%20Documents/WP3-Core-Textbook-Content-Preparation/WP3-A4%20Review%20of%20core%20textbook%20content%20and%20optimizations?csf=1&web=1&e=TdqumS>



Lead Partner



Partners

