EDICULA

Educational Digital Innovative Cultural heritage related Learning Activities

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INTELECTUAL OUTPUT: **O1 EDICULA EDUCATIONAL TOOLKIT**
DELIVERABLE: **D1.6 EDICULA+ educational toolkit**
LEAD ORGANIZATION: NTUA
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1. Introduction

The present report regards the Deliverable *D1.6 EDICULA+ educational toolkit*, in the framework of the first Intellectual Output (O1) of the EDICULA project. It briefly describes the second module of the EDICULA educational toolkit. A relevant report is deliverable *D.5 EDICULA-4-all educational toolkit* which regards the first module of the educational platform that is addressing the needs of a wider audience.

The main issues encountered and addressed in the development of EDICULA-4-all module, which were described in D1.5, are to a large degree valid for the EDICULA+ modelu, since both educational toolkits have a very high commonality. As has been explained before, this is expected due to the fact that the field of CH protection covers a wide range of issues, that are of interest to both the general public, as well as to more specialized users. In addition, the methodological approach for the architecture of both toolkits and the development of the thematic nodes, are common to both modules. These have already been described in detail in D1.2 deliverable. The present report will, describe the main differences between the EDICULA-4-all and EDICULA+ modules of the educational toolkit.

The EDICULA educational platform provides and supports the education on a holistic approach for transdisciplinary documentation of CH protection and sustainable rehabilitation; a very complex scientific field indeed. This necessitates the introduction of varying levels of complexity – taking into account the education background and needs of the users – with the EDICULA+ toolkit providing the advanced 'complexity" level.

In comparison to the EDICULA-4-all, the EDICULA+ module further enhances:
1. the enhancement of the educational aspects of engineering innovation
2. the emergence and establishment of transdisciplinarity as a new trend in the protection of monuments
3. the capabilities of multi-modelling methodologies for multi-discipline management and analysis of knowledge
4. the capabilities of Augmented Reality (AR) and Virtual Reality (VR) to effectively diffuse information for social responsibility and awareness (note: in conjunction with the development of digital games, see O4)

It should be clarified the thematic subjects (see D1.2) are common to both modules, and a common platform (moodle) is used for their development. The differentiation centres on the presentation/accessibility of the uploaded material to the users of each toolkit, based on their educational needs.

1.1 Cooperation framework for the development of the Architecture of the EDICULA+ Educational Toolkit.

The EDICULA+ Educational Toolkit covers a wide range of thematic areas, relevant to the protection and rehabilitation of CH assets. These thematic areas have been defined and described in deliverables D1.2 and D1.3. In the case of the EDICULA+ module, the special issues involved in these thematic areas, and the creation of necessary educational material, demanded a close cooperation between the EDICULA partners, in order to optimise the specific advanced information to be incorporated as well as to ensure an effective educational attribute, scientific quality and completeness.

NTUA is the leader organization of O1. All partners cooperated in order to provide their own knowhow as well as to identify the differences between the two modules. The close cooperation of all EDICULA partners ensured that each partner contributed to many more thematic areas compared to their own discrete

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expertise, in effect, being able to "approach" each thematic area from their point of view. This cooperation framework was more effective, providing the opportunity for exchange of ideas and experiences.

The architecture of the EDICULA educational toolkits and the respective deliverables, were approved by all partners at the 2nd Steering Committee on 19.04.2021. The roadmap and specific issues related to the development of the toolkits were discussed and presented during the E3 multiplier event (13.12.2021) and during the Review Meeting 1 (14.12.2021).

2. Differences between EDICULA-4-all and EDICULA+ educational toolkits

The development of the EDICULA-4-all toolkit has been described in detail in D1.5. This report describes the differences between the two toolkits:

Common issues
- The moodle environment
- The toolkit-to-user information presentation approach and educational aspects
- The technical requirements for the creation and operation of this educational toolkit

Module-specific issues
- The target groups that the toolkit will be addressed to
- The accessibility to different content

The common issues have been described in more detail in deliverable D1.5 and need not be repeated here.

Regarding the differentiation of the two modules, it centres around two axes: The target groups (and the associated registered users requirements) and the accessibility to content. It should be highlighted that both toolkits are based and developed on the same thematic content – ontologies, however through utilization and adaptation of different semantics and narration. EDICULA-4-all focuses on the monument, the values, the aesthetics/architecture and the history. The EDICULA+ focuses on the various disciplines involved in CH protection, the relevant techniques and methodologies.

2.1 Access levels to target groups

In terms of access level to target groups:

- EDICULA-4-all educational toolkit, is more "narrative" in nature and is addressed to the wide audience (with open access), including basic level of information. Therefore, it regards a set of educational material of non-specialized level of information that can be readily transferred in life-long learning and school education, demonstrating the effectiveness of transdisciplinarity in fusing science into general knowledge
- EDICULA+ educational toolkit, is the advanced module (with registered access), more "scientific" in nature, addressed to scientists and experts in the field of CH protection with an adequate scientific background or experience. It provides knowledge with more scientific details and encompasses advanced information, relevant studies, scientific papers, data and metadata of the knowledge gained by the consortium in the emblematic use cases such as the restoration of the Holy Sepulchre. It can be transferred to professional and university courses addressed to architects, archaeologists, conservators, students in arts and other relevant engineering disciplines, demonstrating the need for a new teaching framework that promotes cooperation and utilizes complementarity between diverse disciplines

Within the above general framework, **it should be clarified that the user groups do not necessarily indicate the access level to a specific educational toolkit or content therein**.

The **access level** (i.e. what files become accessible and how much they can modify the existing courses) **is granted by the administrators** of the toolkit upon verification and evaluation. The access level is not analogous to the scientific background or level of expertise, but is personalized on a case-by-case.

Although this may sound cumbersome and tedious, it is however more efficient, to avoid users who are self-described as researchers, thus, granted advanced access to the toolkits. This in turn necessitates the provision of one or more administrators, during the future use of the toolkits, to support these features. The EDICULA partners, and NTUA in particular, are committed to support the module for the foreseeable future.

There are four basic levels of user privileges:

1. Administrator
2. Advanced User with restricted editing privileges
3. Advanced User
4. Basic User

2.1.1. Administrator

The administrator has full-access privileges within the toolkit and moodle platform and can edit, add, reorganize or remove thematic areas, courses and educational materials. Currently, the EDICULA participants have each an administrator account, to allow full access to the toolkit.

Obviously, upon evaluation from the EDICULA Steering Committee, other users can request and may be approved as administrator. For a non-EDICULA partner to be granted administrator privileges, they need to submit a formal report to the EDICULA Steering Committee describing their expertise, scope and educational rationale and roadmap for development of educational material. The Steering Committee will oversee the progress of the administrator's contribution in the toolkit and may propose modifications of privileges.

The EDICULA Steering Committee is the scientific responsible for the EDICULA toolkits. Therefore, it ensures that any additional approved administrators conform to the strict criteria of scientific excellence, quality of educational materials and ethics that govern the EDICULA project and the EDICULA toolkits.

Potential additional administrators could, for example, originate from prominent academic institutions or CH stakeholders (e.g. Ministry), who in cooperation with the EDICULA Steering Committee could aid in the optimization and further enrichment of the EDICULA toolkits.

The approval procedure mainly aims to ensure that any approved administrator does not modify the toolkit without consultation with the EDICULA Steering Committee and other administrators, in order to avoid deletion of existing educational material or addition of files that are not directly relevant to the scope, quality and ethics of the toolkits.

2.1.2 Advanced User with restricted editing privileges

A user of this category is similar to the one described below but has restricted editing privileges. One of the main benefits of developing the toolkits based on moodle environment is that it consists of discrete

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"courses". This allows the administrator to provide various degrees of privileges within specific courses to advanced users. For example, a user of this category may be able to only see (and download) the available material in one thematic area (i.e. course) without being able to add or edit anything, while in another thematic area, in which he/she are experts, they may be approved to add, modify, or reorganize educational materials within that course. In effect, based on the experience of the helios learning platform at NTUA, advanced users "register" for specific courses within a specific "curriculum". However, unlike the user level described below, they can participate actively in editing its content.

It should be noted that, as in the case of the additional approved administrators, an advanced user with restricted editing privileges also needs to submit a report about his/her planned activities for final approval by the Steering Committee. The Steering Committee will oversee the progress of the user's contribution in the toolkit and may propose modifications of his/her privileges.

Again, this approval procedure aims to ensure that the user does not modify the toolkit without consultation with the EDICULA Steering Committee and other administrators, to avoid deletion of existing educational material or addition of files that are not directly relevant to the scope, quality and ethics of the thematic areas approved or the toolkits in general.

2.1.3 Advanced User

The advanced user regards a person (typically a CH expert, undergraduate/graduate student, teacher, faculty, stakeholder, or researcher) that requires full availability of the toolkit content for the preparation of their own educational material (teachers and faculty), for informative purposes or for support of relevant reports (CH expert, stakeholders) or as part of their research (researchers). The advanced user, a term which mainly refers to their level of expertise, as compared to the more basic level of the general public or students, will have access (study and download privileges) to most of the material uploaded to the toolkit, albeit, without the ability to modify the content and organization of the toolkits. The administrator, as in the case of the user category described above, may opt to "register" the advanced users to certain thematic areas (courses) or parts thereof.

As noted above, administrator privileges are not limited only to EDICULA partners, but as the Toolkit is gradually being utilized by other institutions, universities and stakeholder organizations, more administrators can be added – upon approval by the EDICULA Steering Committee - that will manage their respective staff, employees and students. It is, thus, up to their evaluation to decide on the extent to which a user will have access to the courses of interest.

2.1.4 Basic User

The basic user regards a person (typically general public, stakeholder, CH expert or secondary education student) who aims to use the EDICULA toolkit either for informative purposes or as part of a course project (especially the students). Again, the term basic user is not representative of their educational level or professional / scientific background but rather to their needs and expectations from the toolkit. Obviously, a basic user is expected to have access to a more limited number of courses and educational material, and no editing privileges.

For secondary education students, it is expected that their teacher will be registered as an advanced user with restricted editing privileges in order to manage the access limitations of the students. Alternatively, this will be done by a full administrator from a governmental body such as Regional School Administration, who in turn will register schoolteachers as advanced users only (i.e. without administrator privileges to

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avoid unwanted or accidental editing errors) and will overview the whole process of the EDICULA toolkit adoption in school curricula.

2.2 Transition from EDICULA-4-all module to EDICULA+ module

From the above analysis, depending on the extent of courses available to the users, they may be regarded to use EDICULA+ as compared to the EDICULA-4-all module. Effectively, the more courses and their content the administrator provides access to the user, the more he/she is shifted from an EDICULA-4-all content to an EDICULA+ content.

This access granting process, in effect, defines a "smooth" transition between the two toolkit modules, without universal clear boundaries of their content.

It can be vaguely described as a "twin" definition. Both modules are distinct, but no clear boundaries actually exist. From an engineering perspective, one can realise it as a gradual "diffusion" interface between the two modules (see also section 2.5 in deliverable D1.3).

The important outcome of such an access setting process, is that there exist no unique differentiations between the two modules, rather than boundaries per user as defined by the appropriate supervising administrator.

This transition affects the analysis of the clusters (see section 3.1 in Deliverable D1.3) and the interlinking matrix of the educational content (see section 3.2 in D1.3), both of which are governed by the accessibility environment granted to each user.

Conclusions

In this deliverable the EDICULA+ module is described, with emphasis on the way this is differentiated from the EDICULA-4-all module. The access level is the main issue, which eventually provides a "smooth" transition between the two modules, ad hoc per user, under the supervision of registered and approved administrators or advanced users with editing privileges.

The joint utilization of both the EDICULA-4-all and EDICULA+ toolkits in the educational, advisory or research processes, is at the core of the EDICULA project's scopes.