DoCENT – Certification Programme

(Version 1.0)

Project: DoCENT – Digital Creativity ENhanced in Teacher Education

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List of Abbreviations

European Qualifications Framework (EQF)

Qualifications and Credit Framework (QCF)

Greek Institute of Educational Policy (IEP),

Digital Technologies in Education Institute - CTI – Diophantus

Scottish Credit and Qualifications Framework (SCQF)

Continuing Professional Development (CPD)

Association for Teacher Education in Europe (ATEE)

Lifelong Learning Platform (LLLP)

Face-to-face (f2f)

Massive Online Open Course (MOOC)

Intellectual Output (IO)

Educational Technology Laboratory of the National and Kapodistrian University of Athens (ETL/NKUA)

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1 Introduction

a. The project DoCENT

In the framework of the DoCENT, project we have developed creative digital teaching strategies, practices and tools for teacher educators, pre- and in-service teachers, to support their work and facilitate the creation and implementation of innovative teaching methods.

The objectives of the model are to raise awareness of teachers and teachers' educators on creative digital strategies, develop their competences in terms of how to use and apply digital technologies for creative teaching, and accompany them in the application, validation and recognition of their digital creative competences. This paper focuses on the last objective and explores different mechanisms and existing policies for certification of a teacher training programme.

b. About this document

The society and the technologies are increasingly changing, driven by the digitisation. This digital transition influences the scope of all sectors, including education. Teachers play an essential role in the society and their professional development is crucial for the continuous contribution to the quality and efficiency in education. This is why actors involved in decision making should support teachers' development towards digitisation and creativity.

In this paper, we will expand on a range of criteria and guidelines to evaluate the digital creativity in education and will provide three different evaluation tools.

This document aims to materialise the *criteria* and *procedures* to evaluate the acquisition of competences by pre-and in-service teachers. The criteria supporting the forms and models of the Continuing Professional Development (CPD) programmes are not explicit and uniform. The procedures to evaluate the acquisition by teachers and education managers, compliant with the criteria of those CPD programmes depend on the specific education policies of each country.

This paper will describe several cases of national and institutional CPD programmes and certification procedures in the DoCENT partner countries and will present the possibilities of expanding the DoCENT training at European level. Depending on the country, institution and context of the implementation of the DoCENT training programme a form of academic or extracurricular recognition will be presented.

The first Section defines what a CPD programme is, the existing types and forms of CPD programmes in three of the partners countries of the DoCENT project (Italy, Spain and Greece). Section 2 makes a reference to the DoCENT framework of digital creative competences (Intellectual Output 1, IO1) and the DoCENT training model developed throughout the project. Section 3 proposes three different evaluation methods. The context of evaluation should take into consideration the experience and existing knowledge of the learners. Furthermore, it should be relevant to the training approach of the DoCENT model. The process will take into consideration aspects such as satisfaction of the trainee, impact on the trainee's knowledge and competences and on the schools' team collaboration culture, and personal and professional growth. Finally, Section 4 outlines the current and future possibilities of certification of the DoCENT model.

2 Continuing Professional Development (CPD) programme

c. Defining a CPD programme

CPD programmes most often refer to the professional development of teachers who have completed their initial training. CPD could be defined as ongoing education and training for practising teachers, with the aim of supporting them in keeping abreast of the rapid and numerous changes taking place in schools (Collins 1991; Leclercq 1996).

d. The purpose of CPD

In the context of teacher training, CPD provides teachers the opportunity to keep up to date on content specific matters but also apply novel methods of teaching (student centred, flipped classrooms, blended teaching, etc.) and therefore extend their professional development. In this sense, the development of creative and digital competences and their implementation as teaching methods is a very useful CPD programme for the current needs of the Education.

e. The CPD programme of DoCENT

The DoCENT CPD programme includes in-person and online courses, i.e. *blended* training. The online course is available in the MOOC platform of the University of Naples Federico II: FEDERICA – www.federica.eu. This platform proposes MOOCs in different disciplines and the DoCENT project has a course addressed to teachers on digital creativity.

f. Countries' activities towards CPD

The following section aims to present an overview of the current action plans in Italy, Spain and Greece towards the development of digital creativity in education.

Continuing Professional Development for Teachers Working in Italy

According to the EACEA National Policies Platform[1], the CPD is a right and a professional duty for teachers. Each school defines CPD activities on its own and establishes networks with other schools in their territory. The activities must be consistent with the school's three-year plan of educational offer, the self-evaluation report and the improvement plan of schools, according to the priorities indicated by the Ministry of Education in the National training plan published every three years. The DoCENT project is in line with the national education priorities for 2016-2019 in terms of acquiring digital competences and establishing new learning environments.

In terms of CPD for teachers and trainers working in adult education and training, there is an Activity Plan for the innovation of adult education (Piano di Attività per l'Innovazione dell'Istuzione degli Adulti - PAIDEIA[2]) which began in 2014 with the aim of consolidating and updating staff competences, in order to favour the application of the new organisation of CPIAs (provincial centres for adult education). Currently, PAIDEIA is at its third edition and focuses on blended training activities, which is exactly the structure of DoCENT. The subjects in Italy involved in this plan are Indire[3], Invalsi[4] and the Regional School Offices (USR).

Continuing Professional Development for Teachers Working in Spain

According to the EACEA National Policies Platform, continuing professional development activities involve regular actions for the updating of their scientific, educational and professional expertise. Participation is voluntary. The Ministry of Educational and Vocational Training provides guidelines for the continuing training programmes offered by regional education authorities:

- Adapt knowledge and teaching methods to trends in science and specific teaching methodologies;

[1] EACEA National Policies Platform, https://eacea.ec.europa.eu/national-policies/en

[2] http://www.indire.it/wp-content/uploads/2017/12/Paideia_opuscolo2_blu_def.pdf

[3] http://www.indire.it

[4] http://www.invalsi.it/invalsi/index.php

- Offer training related to coordination, guidance, tutorship, attention to diversity and school organisation;
- Establish training programmes on Information and Communication Technologies (ICT) and foreign languages;
- Promote educational research and innovation programmes;
- Provide specific training as regards to equal opportunities between men and women, and co-education.

Priority guidelines for 2018 on continuing teacher training plans, annually established through the Spanish Institute for Education Technologies and Teacher Training (INTEF), contain eleven guidelines that include teacher's digital competence and sense of initiative and entrepreneurship.

The following network of institutions are involved in the CPD of teachers: university departments, institutes of education, professional associations, trade unions, educational reform movements, Teachers and Resource Centres, the latter being the most widespread network.

Continuing Professional Development for Teachers Working in Greece

The activities CPD for teachers listed in the EACEA National Policies Platform include the various implementations of CPD programmes made by the Ministry of Education, Research and Religious Affairs.

At present, B1 level training on utilisation and implementation of Information and Computer Technologies (ICT) is performed, within the framework of the Action "Teachers education for the utilisation and implementation of ICT in the teaching process" (B Level Education on ICT) in the context of the Operational Programme "Human Resources Development-Education and Lifelong Learning", co-funded by the European Union (European Social Fund, ESPA 2014-2020) and the Greek State.

In Greece, there is a separation of the teacher training between mandatory and optional. The short-term mandatory training is usually on a specific topic and can last from 10 to 100 hours. This type of training is for all teachers. The optional training concerns teachers serving in primary and secondary educational state schools under a non-fixed term employment. The DoCENT training covers the requirements and can be applied in any for these two.

3 Evaluation methods for digital creativity competences achievement

The DoCENT training follows a blended learning approach. It includes a face-to-face (f2f) and a Massive Online Open Course (MOOC). This holistic approach was chosen in order to cover all the aspects necessary to achieve digital creative competences. The f2f modules focus on the teachers' acquisition of the digital creativity competence of the DoCENT model. The hands-on activities enrich the participants with the existing educational technologies available for them. The last part of the training invites the participant to apply knowledge, competences and tools provided in DoCENT, and create their own individual scenario of a digital creative course. In addition, the DoCENT MOOC allows teachers to choose the module, based on the competence they wish to acquire.

The DoCENT framework of digital creativity in education contains 19 competences, organised in 6 different areas:

- Area A refers to teachers' professional environment, i.e. their use of technologies to collaborate with the different members of the educational community, as well as for their professional development;
- Area B focuses on the competences required to identify, select, create and share digital creative resources;
- Area C addresses digital creative pedagogies, i.e., the use of digital technologies in teaching and learning;
- Area D relates to the use of digital strategies to assess and foster students' creativity;
- Area E refers to the potential of digital technologies for promoting learner-centred strategies;
- Area F focuses on the competences required to enhance students' digital creative competences.

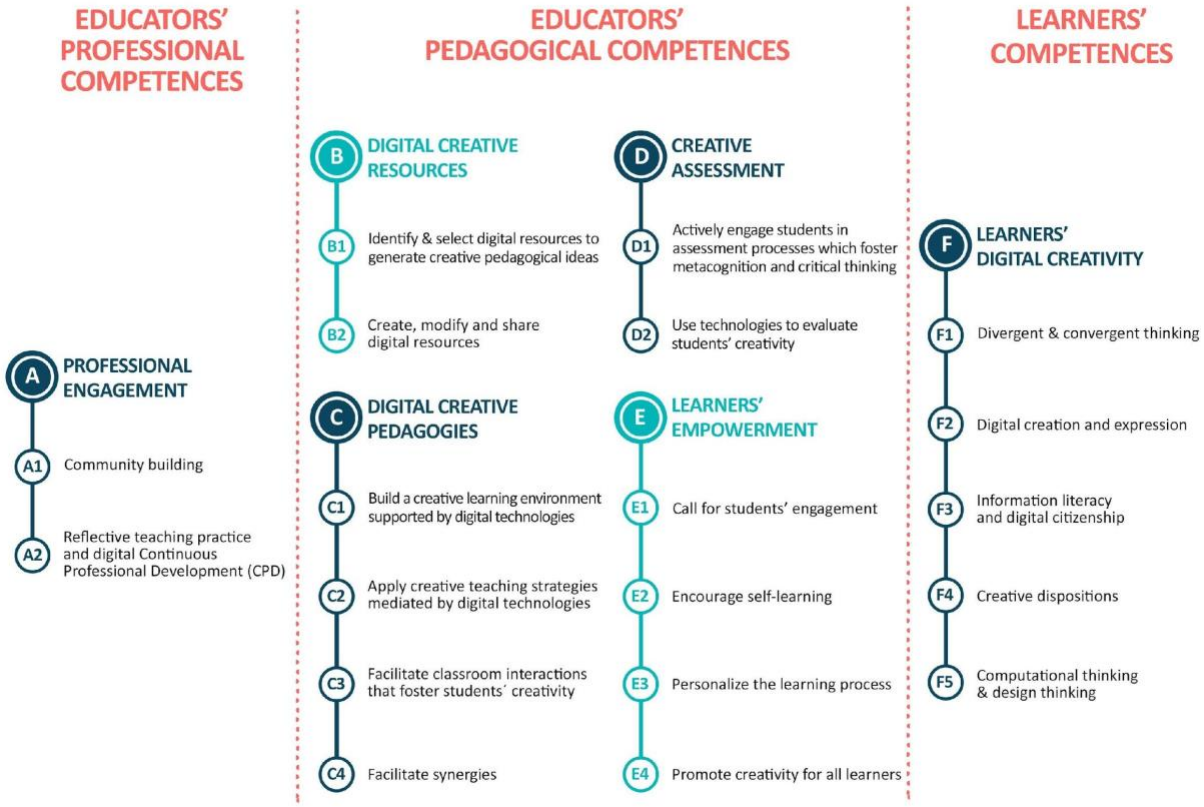

Figure 1 – DoCENT competence framework

Based on the preliminary outputs created throughout the project, an assessment programme was developed, which aims to follow the teachers' journey and assess their experience and knowledge on digital creativity in education before and after the accomplishment of the DoCENT training. A self-assessment tool is applied before and after the training in order to determine the progress of the individual. As stated in the previous sections, the ultimate goal of the DoCENT training is to help learners create their own pedagogical scenarios, including the digital creative competences defined in the framework of digital creative competences of DoCENT[5] and the innovative tools based on serious game and gamification elements. This is why the assessment focuses mainly on the scenarios created during the training. The training and the evaluation scenario are accompanied with in-depth interviews with the teachers, to further evaluate their digital creativity competences acquisition and stimulate their reflection over the design of their pedagogical scenarios.

[5] https://docent-project.eu/sites/default/files/2019-03/o1_-_framework_of_digital_creative_teaching_competences_-_v1.2.pdf

g. Self-evaluation tool

This tool is relevant to the development of digital creative teaching competences, which aims to investigate the development of digital creative teaching competences of pre- and in-service teachers. This evaluation tool has been pre-tested with national workshops organised by the project partners during the project lifetime. There were more than 175 participants that took part in the scenario's co-design workshops.

The aim of the self-evaluation tool is a questionnaire investigating teachers' digital creative teaching competences, who are willing to attend a continuing professional development training. This questionnaire respects the six areas of the DoCENT competence framework: Area A: Educators professional competences, Educators pedagogical competences (Area B, C, D & E of the framework) and Learner's competences (Area F of the framework). This questionnaire is to be administrated as pre-test (at the beginning of the training) and as post-test (before the completion of the training). Comparing pre- and post- test data will allow to provide insights on the improvement of the participants' performance regarding their digital creative teaching competences. The comparison happens on an average basis (collecting the points of each answer and dividing them by the number of questions - 23).

Demographic Data

A. Gender	B. Age	C. Experience as teacher educator for:	D. Years of experience as teacher educator
● Male	● Up to 25 years old	● Pre-service teachers	● 1-5 years
● Female	● 26 – 30 years old	● In-service teachers	● 6-10 years
● Other	● 31-40 years old	● Both pre-service & in-service teachers	● 11-15years
	● 41-50 years old	● N.A.	● 16-20 years
	● 51-60 years old		● 21 and above years
	● 61 and above years old		● N.A.

Please read each statement carefully and report the degree to which you believe that the statement is appropriate or in any case comes close to describing your perceptions and practice on digital creativity teaching remembering

that: 1 = strongly disagree and 5 = strongly agree, while the other scores represent intermediate degrees of agreement.

1. **I feel confident that I can use digital technologies** (e.g., social networks and media) **to collaborate with different members of the educational community**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

2. **I used to continually reflect on and critically assess my own digital creative pedagogical practice**

   [1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

3. **I have an interest in investigating about current research, innovations and best practices in the field of creative teaching & learning mediated by digital technologies**

   [1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

4. **I feel confident that I can identify and select digital resources to generate creative pedagogical ideas**

   [1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

5. **I am capable of creating, modifying and sharing digital resources**

   [1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

6. **I am capable of building a creative learning environment supported by digital technologies (**i.e. Creating a positive climate and promoting exploration and invention)

   [1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

7. **I feel confident that I can apply creative teaching strategies** (e.g. inquiry-based learning, project-based learning, design-based learning, game-based learning, modelling-based learning)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

8. **I feel confident that I can facilitate classroom interactions that foster students' creativity** (i.e. foster synergistic collaboration, stimulate expression and dialogue, encourage democratic practices in digital teaching & learning environments)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

9. **I am capable of creating authentic learning opportunities by linking curricular concepts to real life situations**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

10. **I feel confident that I can relate different sources of information, media and tools: encourage students to build knowledge based on different perspectives**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

11. **I feel confident that I can actively engage students in assessment processes which foster metacognition and critical thinking** (e.g. self-evaluation and peer-evaluation)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

12. **I am capable of using technologies to evaluate students' creativity by applying criteria** (e.g., fluency, flexibility, originality, elaboration) **and tools** (e.g., digital rubrics)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

13. **I feel confident that I can select and use digital tools and strategies which call for learners' interest and motivation**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

14. **I feel confident that I can encourage my students to take an active role in learning, working on their own learning needs, organize tasks, self-regulate and solve problems autonomously through digital and physical fabrication**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

15. **I feel confident that I can personalize the learning process by using digital technologies and strategies which address students' specific needs**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

16. **I feel confident that I can ensure accessibility to learning resources and activities, for all learners**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

17. **I feel confident that I can promote students' divergent thinking** (i.e. students' ability to generate and apply original ideas and solutions by forming remote associations, conceptual combinations, and approaching problems from different angles)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

18. **I feel confident that I can promote students' convergent thinking** (i.e. students' ability to evaluate and select ideas using decision-making strategies, so to produce the best possible answers)

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

19. **I use to adopt a "maker culture" in my courses which fosters students' creative expression of ideas, experiences and emotions in a range of media, through the creation of digital or tangible objects**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

20. **I use to encourage students to articulate information needs, find information and resources in digital environments**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

21. **I feel confident that I can help my students participate safely, effectively, critically and responsibly in the digital world**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

22. **I feel confident that I can use digital technologies to promote students' openness to experience, responsible risk taking, tolerance of ambiguity, learning from failure, and viewing challenges as possibilities for learning**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

23 **I feel confident that I can stimulate my students to solve problems and model systems, as well as understand mindsets and behaviours, by drawing on the concepts fundamental to computer science and design thinking.**

[1] Strongly disagree [2] Disagree [3] Neither agree nor disagree [4] Agree [5] Strongly agree

Evaluation scheme:

If your score is below 46 you have **No Competences**

This means that you have the opportunity to begin enhancing your digital creativity skills with DoCENT. The feedback you get at the end of this course will help you to identify the tools that you want to start with. As you do so, you will keep moving to the next steps and use additional tools and develop other digital creative competences.

If your score is between 46 and 68 you have **Elementary Competences.**

This means that you are aware of the potential of digital creative technologies and would like to explore more and enhance your teaching competences with digital creativity. You need to start using digital tools in more consistent practice and increase your competence by collaborating and exchanging with digital communities. In addition, you can investigate about current research, innovations and best practices in the field of creative teaching and learning mediated by digital technologies. These actions will lead you to the next level of digital creative competences acquisition.

If your score is between 69 and 91 you have **Limited Competences**.

This means that you probably use digital technologies to some extent, with different member of the educational community and with the students. You need to learn and be able to identify and select digital resources to generate creative pedagogical ideas and further create and modify these digital resources. The programme will help you to improve your digital creative strategic thinking and feel confident that you can promote students' creative expression of ideas, experiences and emotions through the creation of digital or tangible objects.

If you have a score between 92 and 100 you have **Professional Competences.**

This means you have a consistent and comprehensive approach to using digital technologies and you feel confident to assist students in participating safely, effectively and responsible in the digital world, while also fostering their creativity. You continuingly explore and search for new practices. After completing the course, you will update on new developments and ideas and be able to help other teachers to enhance their digital creativity and become a full professional.

If you have a score above 100 you have **Full Professional Competences.**

This means that you are confident to promote students' divergent and convergent thinking, encourage and help other teachers to develop in this field and you use the most updated digital resources. You are a role model of the new digital creative teacher.

h. Scenarios evaluation tools

1. Grid tool for scenarios evaluation

Each of the six areas of the DoCENT competence framework are evaluated by a system of three degrees: [1] low, [2] high, [3] high. The purpose of this evaluation tool is to assess the learning scenarios designed by the teacher educators in terms of digital creativity. This evaluation tool includes a grid for evaluation scenarios which is used to support evaluators to assess the learning scenarios of DoCENT developed by teacher educators during the training. The aim of the tool is to get insights for the experts in terms of:

- Compliance of the scenario to the DoCENT framework competences on/for digital creativity
- Capability of the scenario to enhance teacher's educators' digital creativity competences
- Applicability, potential of use, user friendliness, promotion of collaboration
- SWOT (strengths, weaknesses, opportunities and threats) for scenario adoption/adaptation by teacher educators

Item 1: Competences of the DoCENT framework that the scenario aims to address

Educators' professional competences	Educators' pedagogical competences				Learners' competences
Area A: Professional engagement	Area B: Digital creative resources	Area C: Digital creative resources	Area D: Creative assessment	Area E: Learners' empowerment	Area F: Learners' digital competences
A1	B1	C1	D1	E1	F1
A2	B2	C2	D2	E2	F2
		C3		E3	F3
		C4		E4	F4
					F5

Item 2: Evaluation of the scenario in terms of its potential to enhance educators' digital creativity competences.

Criterion	**[1] low**	**[2] medium**	**[3] high**
Professional engagement			
Digital creative resources			
Digital creative pedagogies			
Creative assessment			
Learners' empowerment			

Learners' digital creativity			

Note: This item aims to assess the areas of competences of the DoCENT framework on/for digital creativity.

Mapping the responses between items 1 and 2 will provide insights on the compliance of the scenario to the DoCENT framework competences on/for digital creativity. The potential of the scenario to enhance teachers' educators' digital creativity competences will be investigated through quantitative data in item 2.

Item 3: Overall evaluation of the scenario

Criterion	Score (1-low, 5-high)	Comments
Applicability		
Potential of use		
User friendliness		
Promotion of collaboration		

This item introduces the criteria of the scenario implementation and include applicability, potential of use, user friendliness and promotion of collaboration. In terms of quantitative evaluation, they are scored on the scale of 1 – low score to 5 – high score. In terms of qualitative assessment insight will be done by the expert in the comments area next to each criterion.

2. Detailed Scenario Assessment tool

The following tool was created to assess the scenario in a more detailed way. It covers the criteria of the grid tool and completes it by covering more aspects such as: originality, teamwork, linking curriculum concepts with real life problems, integration of digital technologies, coherence, integration of specific creative pedagogies/strategies with the selected technologies, learning environment that promotes exploration/invention or maker culture, stimulates digital expression/dialogue. The evaluation of these aspects is realised by observation and in-depth studying of the scenarios. The teacher educators are supported by the following scenario evaluation form:

A. Originality	
Criteria for 1 point	It is not an original proposal. It does not integrate creative or original pedagogical strategies. Not little-c creativity.
Criteria for 2 points	The scenario shows certain originality. The proposal integrates the use of new ideas by the teacher (little-c creativity).
Criteria for 3 points	The scenario integrates creative or original pedagogical strategies, including for the teaching community of that curricular area (middle-c creativity).
B. Teamwork	
Criteria for 1 point	Does not encourage teamwork, collaboration or peer participation.
Criteria for 2 points	The scenario stimulates certain teamwork activities and participation by the students.
Criteria for 3 points	The scenario proposes activities that encourage collaboration, teamwork and participation, fostering an active work climate and critical thinking.
C. Linking curricular concepts with real-life problems	
Criteria for 1 point	There is no link between the activities and curricular contents, or the link is insufficient/insignificant.
Criteria for 2 points	The scenario shows some connection with curricular concepts.
Criteria for 3 points	The scenario demonstrates a strong link between the proposed activities and the curricular contents that students work at school.
D. Integration of digital technologies	
Criteria for 1 point	The scenario does not integrate digital technologies in any of its activities.
Criteria for 2 points	It integrates technologies, but some of those mentioned in the scenario are not adequate and coherent with the proposed activities.

Criteria for 3 points	The digital technologies in the proposed scenario are adequate and well-integrated in all activities.
E. Coherence	
Criteria for 1 point	The design of the scenario and the proposed activities lack coherence.
Criteria for 2 points	The digital technologies and/or proposed activities present certain consistency with the objectives set but are not sufficiently integrated.
Criteria for 3 points	The scenario is well organised and coherent with the content, objectives and competencies that are on focus. The selection of digital resources is adequate to achieve the pedagogical objectives.
F. Integration of specific creative pedagogies/strategies with the selected technologies	
Criteria for 1 point	There is no creative strategy involved in the design and the technologies are used without pedagogical support.
Criteria for 2 points	A creative strategy is mentioned and is linked to some digital technology, although there are inconsistencies in the scenario.
Criteria for 3 points	The creative strategy(ies) is/are coherently developed in the scenario (IBL, PBLs, GBLs; multimodality, including physical/digital/hybrid environments) and clearly linked to a digital technology. The environment allows divergent and convergent processes, where the results created are original.
G. Learning environment that promotes exploration/invention or maker culture	
Criteria for 1 point	The learning environment is not designed for exploration, neither it allows to link divergent/convergent processes to stimulate creativity or makers culture.
Criteria for 2 points	The environment allows divergent and convergent learning processes but with limitations in terms of creative outcomes, maker culture, educational play, or the use of tangibles, but with limited integration of its components.

Criteria for 3 points	The environment allows divergent and convergent processes, while the results created are original. The culture of creators is adopted, experimentation and invention are stimulated through maker culture, educational play, or the use of tangibles.
H. Stimulates digital expression/ dialogue	
Criteria for 1 point	It does not stimulate dialogue/expression or the student's maker culture.
Criteria for 2 points	Dialogue and digital expression are insufficiently triggered.
Criteria for 3 points	The setting fosters the creative expression of students' ideas, experiences and emotions through the creation of digital or tangible objects; stimulates the creation and expression of knowledge based on storytelling, engineering and the exchange of relevant objects/materials for a wider community.

i. In-depth interviews

The evaluation is accomplished by an in-depth interview with the participants. The objective of this evaluation tool is to allow the trainer to proceed to a qualitative assessment by stimulating the individual reflection of each participants on the scenarios design.

Content
1. Which content/contents of the curriculum the scenario refers to? 2. Which is the scientific content that is related to content of the scenario? *(i.e. in Mathematics it could be Linear Equations)* 3. Can you describe the structure of the scenario? 4. To what extent is the scenario suitable for the trainees' interests? 5. What kind of digital tools are used? *(i.e. Open source, open ended –closed ended question software, simulations, data base, web-based environment, microworld, etc.)*
Training method

1. What is the training model of the scenario? 2. What is the training model of the training?
Interface between user and the digital tools used
1. Is the interaction of the digital tools clear, concrete and definite, or is it confusing for the user?
Results of the training
2. Does the scenario allow to understand and evaluate the trainees progress?
Support of the training
1. Were the guidelines useful for you? 2. Did/or will they manage to address all the tasks?
Necessary tools
1. Was it easy to find the necessary digital or other tools for implementing this scenario?
The technical characteristics of the tools
1. Is the technology used functional, reliable, easy to use, effective, safe and compatible with other working environments?
Questions for personal evaluation
1. Did you use all the affordances of the scenario? 2. Which Pros and Cons do you define in your scenario? 3. Is the scenario appropriate for another level/kind of training? 4. Does it have any potential for expansion (i.e. more tasks)?

4 Certification mechanisms

This section will focus on the recognised training bodies that offer training certification and which could adapt the DoCENT CPD programme. The following section shows the procedures of each institution for accepting a CPD programme. The possibilities are not limited to the following examples. The latter were chosen as the most realistic at the present. The educational institutions included in this document are: *Educational Technology Lab* of the National Kapodistrian University of Athens and its collaborations with stakeholders of the Public Education in Greece *(e.g. CTI – Diophantus, the Ministry of Education) , Education and Professional Development* of the University of Barcelona*;* the *University centre for innovation, experimentation and dissemination of multimedia teaching, www.Federica.eu,* of the University of Naples Federico II. Finally, we will explore what are the certification programmes at European level, namely through the university network of the European University Foundation, a partner of the DoCENT project.

a. Institutional and national Level

i. University of Naples Federico II (UNINA)

Starting from the DoCENT model, UNINA has designed a university "Specialisation course on digital creativity" aimed at teachers and implementable in in-house post-university training activities (approval process is in progress) in order to exploit the results of the project. In order to receive a formal approval and certification from the university, a typical course description should be provided in the following order:

1. Improvement course in
2. Department of
3. In collaboration with
4. Course office
5. Duration: months: _____ / hours: _____
6. Minimum frequency percentage
7. University credits
8. Study title required for access
9. Graduate degree/degree awarded in the N. Minimum/Maximum permissible
10. Course activation
11. Selection procedure to access the course
12. Possible benefits for members and/or for those who achieve the course

13. Certificate of attendance (At the end of the course, the department's administrative office of the specialisation course issues a certificate of attendance signed by the coordinator of the course with indication of the duration and of the credits)
14. Course objectives
15. Organised by articulation of the training path (lessons – workshops – exercises)
16. Individual training activities
17. Internship
18. Stage
19. Seminars
20. Final check

METHOD OF DELIVERY OF EDUCATIONAL LOAD			
TYPE OF EDUCATIONAL ACTIVITY	N. OVERALL HOURS	N. TEACHING COMMITMENT HOURS	N. INDIVIDUAL STUDIO HOURS
FRONTAL EDUCATION (Lessons - Laboratories - Exercises)			
INDIVIDUAL-TYPE EDUCATIONAL ACTIVITIES (Assisted Teaching: Seminars - Internships - Internships - Study activities for the preparation of the final assessment)			
TOT.			

21. Articulation of the training path with indication of the course teachers
22. Course council
23. Financial plan

ii.

iii. University of Barcelona

The University of Barcelona, as an official institution, is entitled to certify and accredit courses at all levels with an official recognition in the cases of master degrees and doctorate studies. These studies are approved by the central government and are valid in Spain and in many other countries.

The types of postgraduate courses are:

- Master course: 60 ECTS
- Diploma (specialisation): 30 ECTS
- Certificate of Expert: 15 ECTS or more
- University extension Certificate (15 ECTS or less)

All courses can be structured by modules and the full course is evaluated according to the ECTS European scheme. The recognition of the certification/diploma is given by the University of Barcelona. In all cases these studies should be approved by the University once they are examined by an academic committee. All courses are revised regularly, and compulsory evaluated in order to ensure the quality of the studies provided by the University.

In addition, the University provides many training courses for teachers and for university lecturers. The certification for teachers follows certain conditions and is recognised by the regional government. In the case of training for lecturers, the University recognises these courses as a merit for their professional career.

There is one certification office that provides official courses leading to an official academic title (undergraduate, masters, and PhD). The certification office in charge of the certification process is part of the Institute of Professional Development of the University of Barcelona[6].

In order to certify the course offered by the University or one of their training institutes, a typical course structure description should be provided in the following order:

1. Name
2. Responsible Unit/ Department
3. Year
4. Type of Certification (Masters, postgraduate course, certificate, etc.)
5. Audience
6. Prerequisites
7. Number of places
8. Place of delivery (if face-to-face)
9. Cost
10. Number of ECTS credits
11. Calendar
12. Language

[6] http://www.ub.edu/ice/

13. Staff (e.g. coordinator, lecturers)
14. Competences to which the course contributes (e.g. specific (related to the specific certification), general)
15. Teaching methodology (e.g. problem-based learning, case studies, individual/collaborative work, use of virtual campus, MOOC)
16. Learning objectives
17. Workload for students (number of hours), and distribution (e.g. face-to-face, online, small group, big group. Individual)
18. Certification

- Assistance (minimum 80% for face to face)
- Successful accomplishment of the proposed tasks (specific learning tasks, group work, individual work, participation in discussion forums, etc.)

19. If the courses are both f2f and online, the requisites are f2f minimum 30% and maximum 50%

iv. National and Kapodistrian University of Athens

The National and Kapodistrian University of Athens has an Educational Technology Laboratory (ETL/NKUA), which is part of the Department of Pedagogy, of the Faculty of Philosophy, Pedagogy and Psychology, in the School of Philosophy. The head of the lab is professor Chronis Kynigos, who is actively involved in the DoCENT project. The experts of the laboratory who, over the last 20 years, have designed and implemented scientific work for teachers' training in systematic education in Greece, agree that the logic of DoCENT Framework is in line with the aims of ETL/NKUA.

Over the last 15 years, the Educational Technology Lab of the NKUA (ETL/NKUA) under the direction of Prof. Kynigos, is one of the backbones of teacher training in the didactical use of digital technology in Greece. Focusing on the present, there are mainly three certificate programs in which ETL/NKUA has a central role and a decisive involvement regarding the creative use of digital media in teaching.

- The first certification programme is a master course in Mathematics Education (level 7, of the European Qualification Framework - EQF), which may lead to a PhD (level 8, of the EQF[7]). In this course there are two semester courses focused on the didactical use of digital technology.

The master's degree and PhD can be attained by pre-service and in-service secondary education teachers of Mathematics, or primary school teachers that are interested in Mathematics Education.

- The second certification programme is a training course[8] for in-service teachers of public schools, which is not only supported by the Greek Ministry of Education but is also the only training of this kind that stands as an official and systemic proof of teachers' knowledge in the use of digital technologies in the classroom. This course is designed and implemented in collaboration with CTI Diophantus and the Greek Institute of Education, which is a stakeholder organisation in the Greek Educational Sector. The whole title of the training course is "In-service training of teachers in the utilisation and application of digital technologies in the teaching practice" and it is informally called B-Level education, since it used to be a second (B-level) stage of training. The first stage (A-Level), which is not to be considered as "didactical use of digital technologies", is a prerequisite short training on the necessary practices of an expert PC user in terms of word processing, use of worksheet, presentation applications, etc.

B-Level training has a duration of 78 hours, where the first 36 hours (first part) focus on general didactical use of digital technologies, for all kinds of subject areas, whereas the remaining 42 hours (second part) focus on the training needs of teachers in certain subject areas and expertise (Mathematics, Science, Language, Special Education, etc.)

In 2019, a total of 5,840 teachers have attended the first part of B-Level. The next step for them is to receive a middle-certification, which requires their success in a test, and then, if they want to, they can continue to the second part, to be fully certified in the use of digital technologies in the teaching practice.

The total number of teachers that have taken the first part of this training is around 30,000. Around 10,000 teachers have received the full certification of B-Level.

[7] http://me.math.uoa.gr

[8] https://e-pimorfosi.cti.gr/en/

- The third certification programme consists of a course for training teachers to be educators of their in-service colleagues, for the needs of the B-Level training program. This course has a duration of 390 hours. At the end, teachers become certified teacher educators after a successful examination.

In addition to the programmes implemented by the ETL/NKUA, there is also a master course programme in which it holds a set of semester courses on the creative use of ICT in teaching. This course programme is called "Theory, Practice and Assessment of Educational Services"[9] (120 ECTS) and holds classes on the pedagogical use of digital technologies in teaching. Another upcoming course degree (starting at the end of September 2019) is totally in line with the concept of DoCENT. This novel master's course programme course is created by ETL/NKUA in collaboration with the University of West Attica[10] and specialises in the didactical use of digital technologies, named "Master's degree in Digital Transformation and Educational Practice"[11] (120 ECTS). The programme includes semester courses referring to digital resources, open educational resources, educational robotics, e-learning, distance learning, collaborative learning in education using media and social networks, which are in line with the DoCENT Framework.

In Greece, teachers' training programmes like B-Level are Master-planned by the Ministry of Education and they are assigned to organisations that are not fully private, to be concretised and implemented. The specifications of these programs are defined by the Ministry. Based on experience, a general description of such programmes is that:

1. All in-service teachers should be able to apply and take the courses, despite their expertise, and the location of the school they work.
2. The criteria for choosing the participants, from the pool of the applicants, should be defined in the call of the programme.
3. The duration of the programme should be around 100 hours.
4. It should have an examination and related assignments that leads to the certificate.

[9] http://thepae.ppp.uoa.gr/

[10] https://www.uniwa.gr/en/home-page/

[11] http://msc-ditrep.uniwa.gr/

5. It should be free of charge.

6. The digital tools used are those that the digital books (student books in digital form, http://ebooks.edu.gr/new/) include.

7. The schedule of training includes theoretical parts, as well as practice.

Master courses in Education are also approved by the Ministry of Education. The description of such programmes is usually the following:

1. Title – this is also the certification title that the participant receives

2. University or universities that are colligatively organising the programme

3. Duration (1 or 2 years) with the corresponding ECTS or EQF level

4. Language

5. Type of managing rules and legislation framework

6. Is the programme's certificate equivalent to a teaching certification (a license to work as a teacher)?

7. What Bachelor's degree holders are the target audience?

8. What is going to be the procedure for selecting the participant among the applicants?

9. How many places are available? If there is a possibility of increasing the number of places or an option to accept fewer candidates, it should be defined from the beginning.

10. Place of delivery

11. Cost

12. Annual schedule and timeline

13. What are the prerequisites to receive the certificate?

14. A description of the rights and the obligations of a course's student and a course's teacher

15. Which is the maximum duration that a student can take to receive the certificate?

b. European level

After reviewing the existing certification systems in the three partner-countries and explored the norms of CPD programmes, we will focus our research on the European mechanisms involved in international certifications of students and workers.

In the process of research, we started with the Lifelong Learning Platform (LLLP) – an umbrella of 42 European organisations active in the field of education, training and youth. The network represents more than 50,000 educational institutions and associations covering all sectors of formal, non-formal and informal learning. One of the priorities of the LLLP is the development and referencing of their national qualifications' frameworks to the European one ("EQF") and the adoption of the EU Council Recommendation on the validation on non-formal and informal learning in 2012. Nevertheless, the implementation of comprehensive lifelong learning remains a challenge in Europe, due to the difficulty in encouraging policies supports as they combine various administrations, tools and policies. The LLLP is interested to implement the DoCENT training in their training platform. However, the training will not be accompanied by an official recognition.

Furthermore, we contacted the European Qualifications Framework (EQF). EQF is a European-wide qualifications framework whose purpose is to make qualifications more readable and understandable across different countries. It aims to facilitate the mobility of students and flexible workforce throughout Europe and to help develop lifelong learning. The EQF was formally adopted by the European Parliament and the Council in April 2008, after which the United Kingdom has completed the cross reference of its frameworks – the Qualifications and Credit Framework (QCF) and the Scottish Credit and Qualifications Framework (SCQF). EQF is voluntary and allows the member countries to cross-reference their frameworks but does not provide a formal recognition on CPD programmes for teachers and teacher educators on an international level.

Further research was made at the European Consortium for Accreditation in higher education (ECA) – an association of recognised accreditation and quality assurance agencies in Europe. The association acts as an international driver of innovation in accreditation and quality assurance, which is why the DoCENT consortium referred to it. The ECA confirmed that there is no entity that currently is authorised to certify CPD programmes at international level.

Another international body is the Association for Teacher Education in Europe (ATEE). ATEE is a network of European teacher educators and aims to enhance the Teacher Education in the European Union through

active dialogue and international exchange of research and practice in initial and in-service teacher education. The association has a broad network in the field of Teacher Education and explored the CPD recognition programmes on EU level. The conclusion of ATEE is that there is no official body at EU level to certify CPD programmes and that these programmes are managed at country level. However, the ATEE admits the gap and agreed that the topic is relevant and could be a subject of further research & development.

i. Additional Opportunities

The Consortium is also assessing the possibility of performing another type of continuing development course. As part of the continuing development, the pre-/in-service teachers and trainers could consider a new cost-efficient methodology called blended staff mobility, combining traditional physical mobility with online material. This concept is adopted within the online platform Blended Erasmus+ Staff Training[12], which serves as a community platform for universities. The platform is created to host blended staff mobility trainings and is open to the public. The DoCENT course can be integrated and available for online training. During the physical training the participants can acquire a deep understanding of the DoCENT competence framework, the DoCENT MOOC and Serious Game. There would also be a hands-on session (4 hours) which includes experience with the Serious Game and designing an individual learning scenario, with the assistance of the DoCENT trained staff. With this 2-days course, participants would be prepared to implement their scenario in their curriculum and would increase their digital and creative experience. The DoCENT project consortium finds that the platform is a good way to acquire digital and creativity competences by a digital and creative method. After the successful completion of the programme, the participants would receive a certificate of attendance which they can use as a proof of their digital and creative competences.

Another appropriate source for the DoCENT open course and certification is the Common Microcredentials Framework (CMF) issued by the European MOOC Consortium (EMC). The European MOOC Consortium

[12] http://beta.blendedmobility.eu

(EMC) consists of the main European MOOC platforms FuturenLearn[13], MiriadaX[14], EduOpen[15] and OpenupEd[16]. These partners represent most of the MOOC development work in Europe in terms of learners and number of MOOCs, by offering together over 2000 MOOCs. Together, they represent a large network of 250 higher education institutions (HEIs) and companies working in a variety of European languages, including English, French, Spanish and Italian. The CMF platform addresses the demand from learners to develop new knowledge, skills and competences from shorter, recognised and quality assured courses, which can also be used to earn traditional university qualifications. The ambition is to lay the foundations for a new international credential for universities to meet the needs of lifelong learners, globally. In order to be qualified as a micro credential within this framework, a course must adhere to the following specifications:

- Have a total study time of no less than 100 hours and no more than 150 hours, including revision for, and completion of, the Summative Assessment.
- Be levelled at Level 6 or Level 7 in the European Qualification Framework or the equivalent levels in the university's national qualification framework:

Level 6 and 7 in the EQF:

	In the context of EQF, knowledge is described as theoretical and/or factual	**In the context of EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments)**	**In the context of the EQF, responsibility and autonomy is described as the ability of the learner to apply knowledge and skills autonomously and with responsibility**
Level 6	Advanced knowledge of a field of work or study, involving a	Advanced skills, demonstrating mastery and innovation, required to solve complex	Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work

[13] https://www.futurelearn.com/?utm_source=RakutenMarketing&utm_medium=Affiliate&utm_campaign=3343141:WA+Agency&utm_content=3:1&utm_term=UKNetwork&ranMID=42801&ranEAID=VW0I2QEkbtc&ranSiteID=VW0I2QEkbtc-aa7u_7pqrXx20jdm5tQMgw

[14] https://miriadax.net/web/general-navigation/cursos

[15] https://learn.eduopen.org

[16] https://www.openuped.eu

	critical understanding of theories and principles	and unpredictable problems in a specialised field of work or study	or study contexts; take responsibility for managing professional development of individuals and groups
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

Source: https://en.wikipedia.org/wiki/European_Qualifications_Framework, consulted on: 15/7/2019

- Provide a summative assessment that enables the award of academic credit, either directly following successful completion of a microcredential or via recognition of prior learning upon enrolment as a student on the university's course of study.
- Operate a reliable method of ID verification at the point of assessment that complies with the university's policies and/or is widely adopted across the platforms authorised to use the CMF.
- Provide a transcript that sets out the learning outcomes for a microcredential, total study hours required, EQF level and number of credit points earned.

These microcredential courses will aim to be recognisable between different higher education institutions and thereby create an ecosystem where learners can one day take microcredentials from within a network of universities. This is an opportunity for the DoCENT curriculum to be recognised as a postgraduate programme and be used towards a larger qualification, such as a postgraduate certificate.

5 Conclusion

The implementation of the MOOC course of DoCENT at the platform of FEDERCA and the initiation of certified courses within the university-partners are achievements in long-term which will ensure the sustainability of the project. Our research shows that the partner institutions of DoCENT organise their CPD programmes objectives individually and according to their national requirements. Nevertheless, we believe

that there is an opportunity and need of developing CPD programmes at European level. Several European organisations that were contacted during the preparation of this paper expressed their interest in collaborating for the development of the opportunities for recognition of the DoCENT course on a European level in the form of a project or another European funding structure.

6 References

[1] EACEA National Policy Platform, (09/10/2018), *Continuing Professional Development for Teachers and Trainers Working in Adult Education, Italy,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-and-trainers-working-adult-education-and-33_en

[2] EACEA National Policy Platform, (20/12/2018), *Continuing Professional Development for Teachers Working in Early Childhood and School Education, Italy,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-working-early-childhood-and-school-education-36_en

[3] EACEA National Policy Platform, (18/07/2018), *Continuing Professional Development for Teachers and Trainers Working in Adult Education, Spain,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-and-trainers-working-adult-education-and-70_en

[4] EACEA National Policy Platform, (17/07/2019), *Continuing Professional Development for Teachers Working in Early Childhood and School Education, Spain,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-working-early-childhood-and-school-education-75_en

[5] EACEA National Policy Platform, (09/10/2018), *Continuing Professional Development for Teachers and Trainers Working in Adult Education, Greece,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-and-trainers-working-adult-education-and-27_en

[6] EACEA National Policy Platform, (31/12/2018), *Continuing Professional Development for Teachers Working in Early Childhood and School Education, Greece,* Link: https://eacea.ec.europa.eu/national-policies/eurydice/content/continuing-professional-development-teachers-working-early-childhood-and-school-education-30_en

[7] Kerr, R and Reda, V. *How MOOCs Can Make a Difference,* Link: http://ceur-ws.org/Vol-2193/paper10.pdf, Visited: 15/07/2019

[8] O'Grady, N. (30/04/2019). *The European MOOC Consortium (EMC) launches a Common Microcredential Framework (CMF) to create portable credentials for lifelong learners*, Link: https://about.futurelearn.com/press-releases/the-european-mooc-consortium-emc-launches-a-common-microcredential-framework-cmf-to-create-portable-credentials-for-lifelong-learners, Visited: 06/08/2019

[9] Collins, M. (1991). *Adult education as vocation, a critical role for the adult educator*. London: Routledge

[10] Leclercq, J. (1996). Teachers in the context of change. *European Journal of Education, 31(1), p73*