

# Digital Pedagogy Cookbook

# Toolkit for Educators



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We are currently living a great information revolution without realizing and without fully knowing the technology that surrounds us. New changes mean that we have to constantly update ourselves in knowledge related to new technologies.

We have to develop new capacities to be able to "compete" in the labor market, in addition to learning to handle different technological equipment since these are part of our daily life.

The new technologies, related to our environment, are streamlining, optimizing and perfecting some activities that we carry out in our day to day life.

As well as other professions Educators are facing increased challenges faced to accommodate the rising importance of technology in education and the impact this has on teaching and learning. Digital Pedagogy moves the focus from only ICT tools and skills, to a mode of working in the digital world.

While innovation and digital technologies offer new possibilities for improving teaching and learning, Europe is slow to make the best use of them. According to the Survey of Schools: ICT in Education Benchmarking Access, Use and Attitudes to Technology in Europe's schools (European Commission, 2013e), teachers are generally positive about the impact of ICT on students learning but only one in four is taught by teachers that feel confident in the use of technology.

The **DigCompEdu** was born with the aim of creating a reference framework for the digital competences of educators. In this project the DigCompEdu is a general reference frame for the development of the project and it will be used in four areas: Area 2 Digital Resources, area 3: Teaching and Learning, area 4: Assessment and Area 5: Empowering Learners.

The Digital Pedagogy Cookbook project aims to introduce the digital pedagogy to educators using the recipe metaphor and to make a meaningful contribution to the up-skilling of educators.

The first Intellectual Output of the Digital Pedagogy Cookbook is the Toolkit for Educators, which is a guide for applying digital pedagogy using the recipes metaphor. The toolkit will provide all the theoretical and practical information needed by educators in order to understand digital pedagogy, improve their digital competences, create, evaluate and share their own digital recipes according to the European Digital Competence Frameworks for Citizens and for Educators. It will also provide information and resources about further professional development, skills recognition and relevant to the digital pedagogy resources and initiatives. The toolkit promotes informal learning of educators as it drives their learning in a more meaningful and selfdirected manner.

# Chapter 1:

# Digital Pedagogy Simplified



### What is digital pedagogy?

Digital technologies are everywhere and becoming increasingly important at every stage of life. It has changed the way the "older generation" communicate and interact with each other, the way they work and learn. The "younger generations" is now growing in a time where being disconnected is almost impossible and where digital tools occupy a great share of their leisure time and social life. It is also their primary mean of finding information and knowledge.



Harnessing the potential of ICT in the field of education and training is a new challenge. Indeed, it requires a change in training practices and methodologies as well as in designing curriculums and delivering mediums from part of the teacher/ trainer. This is where the digital pedagogy comes in:

"Digital pedagogy" is a rather new concept, whose definition will continue to drive debates and discussions among scholars and pedagogues for a long time. Broadly speaking it refers to the use of electronic elements to enhance or to change the experience of education<sup>1</sup>."

The Hybrid Pedagogy, a digital pedagogy centered journal further explains that "it is as much about using digital tools thoughtfully as it is about deciding when not to use digital tools, and about paying attention to the impact of digital tools on learning<sup>2</sup>". Namely, the key word remains "pedagogy" and how the knowledge and skills are being transferred rather than the specific means supporting this exchange. Paul Fyfe, associate Professor of English at the National Humanities Center confirms that "one of the current shortcomings or misconceptions around digital pedagogy is how frequently it gets conceived in terms of instructional technology – often thought of as just something that uses electronic tools or computers, rather than altering the pedagogical approach"<sup>3</sup>.

Digital pedagogy is not only about using a Power Point Presentation, a video or a serious game in a teaching situation but also about reflecting on how the lecture form itself should and could evolve thanks to the new digital component. This is where the teacher, being responsible of elaborating a teaching strategy, plays a key role.

- Introduction to MLA Digital Pedagogy Unconference, Brian Crowfall http://www.briancroxall.net/digitalpedagogy/what-is-digital-pedagogy/
- 2 Hybrid Pedagogy an open journal of learning, teaching and pedagogy http://hybridpedagogy.org/digitalpedagogy/
- Introduction to MLA Digital Pedagogy Unconference, Brian Crowfall http://www.briancroxall.net/digitalpedagogy/what-is-digital-pedagogy/

### The essential role of trainers and teachers

Using ICT to better engage students, create, disseminate, store and/or manage information is already being done in many schools, universities and other education institutions. However, digital pedagogy remains unevenly distributed across Europe as schools are unevenly equipped and teachers unevenly trained and comfortable to implement it.

In some contexts, ICT has become integral to the teaching-learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students' own smartphones or other devices for learning during class time, and the "flipped classroom" model where students watch lectures at home on the computer and use classroom time for more interactive exercises. In other situations, the electronic elements introduced in class are less advanced (power point presentations etc.) and/or remains exceptional. Digital pedagogy is not a magical solution with which all trainers would systematically achieve their learning objectives and all students succeed. Conversely, it is not only a fashionable trend of our modern world either. Using technologies may positively impact and enhance learning experiences if and when teachers are digitally literate and understand how to integrate it into their classroom. In order for technology to be efficient, there needs to be a purpose to it<sup>4</sup>.



 Tiffany Ford, Is there too many tech in the classroom? Blog https://guides.library.utoronto.ca/c.php?g=448614&p=3340274 Hence, digital pedagogues (educators) should constantly be asking themselves the following questions while considering using technological tools<sup>5</sup>:

- What tools are available for me and my students to play with?
- How can improvisation occur online to reinforce learning?
- Does digital learning end when the course ends, or is it sustained perpetually by the online learning environment (aka, the Internet)?
- Who are my students, and where can they be found? What are my students' URLs? What is mine?
- Do disciplines matter online? Do canons exist? What is the point of rote memorization when everything is available online all the time?
- Where is my authority now that all authority is a Google search away?
- What happens when learning is removed from the classroom and exposed to the entirety of the digital landscape?



### A new education paradigm



When asked whether technology is shaping education, the blogger and former CEO of a UK company specialized in on-line learning, Donald Clark says 'it empirically does and resistance to it is futile"<sup>6</sup>. According to him, we are experiencing a "revolution in content" in which everyone can access to almost any resources, anytime, anywhere thanks to apps such as Wikipedia, youtube, etc.

In fact, this new way of learning where there is no teachers nor curricula any more frees education from a specific place, date and time and extends it far beyond the classroom. When for some, teaching begins with authority and expertise; for the digital pedagogue, teaching begins with an inquiry encouraging students to explore and find out answers by themselves<sup>7</sup>. It is now well established that a wise use of ICT can lead to higher order thinking skills, provide creative and individualized options for students to express their understandings. It also better prepares them to a modern working environment where problem-solving and as teamwork as well as autonomy are valued.

Schools and education institutions plays a crucial role in developing student's digital skills especially as it provides equity of opportunity and access regardless of the learner's background<sup>8</sup>. The challenge being to shift from a vertical education model where the teacher/trainer delivers knowledge to the students to a more horizontal one where he/she acts rather as a "facilitator" allowing every student to learn at their own pace, using a combination of different methods and scalable tools.

- 6 More pedagogic change in 10 years than last 1000 years, Donald Clark at TEDxGlasgow https://www.youtube.com/watch?v=dEJ\_ATgrnnY
- 7 Actualité de la formation, Apprendre au 21° siècle les ressorts d'une pédagogie digitale attractive, 2017 https://www.actualite-de-la-formation.fr/une-du-sommaire/une-de-2017/ apprendre-au-21e-siecle-les-ressorts-d-une-pedagogie-digitale-attractive.html
- 8 Michelle J Eady, Lori Lockyer, Tools for Learning, technology and teaching strategies, University of Wollongong 2013 https://ro.uow.edu.au/cgi/viewcontent.cgi?referer=https://www.google. com/&httpsredir=1&article=1413&context=asdpapers;Tools

# Chapter 2:

The Recipe Metaphor in Digital Pedagogy



### A cookbook to promote digital pedagogy



While teachers and trainers are expected to know how to successfully integrate ICT into their classroom to make the learning more meaningful; many studies reveal that they often have difficulty in doing so because of the lack of technical skills and pedagogical support. Basically, they may have a general positive attitude toward technology, they may be able to use it in their personal lives, but they still not consider themselves qualified nor comfortable enough to teach with it<sup>9</sup>.

The efficiency of ICT in education is highly dependent on how it is used and which purpose it is intended to serve ; considering this, the challenge is then to build digital literacy of the teachers/trainers and to convince them of its potential and its added value. This toolkit, addressed to educators in general, is a practice driven guide for applying digital pedagogy in a teaching environment. It is based on the European Framework for the Digital Competences for Educators (DigiCompEdu) that establishes a common set of educator-specific digital skills.

It acts as an operational manual enlightening the Digital Pedagogy Cooking Book that actually contains the "digital recipes". Each recipe included in the cooking book refers to one or more digital competences mentioned in the European Framework DigCompEdu and combines a description of its implementation as well as the learning objectives and a didactic analysis<sup>10</sup>.

- 9 Survey of School, Benchmarking Access, Use and Attitudes to Technology in Europe's schools, European Commission, Final Report, 2013 https://ec.europa.eu/digital-single-market/en/news/survey-schools-ict-education
- 10 Carla Haelermans, Digital tools in education, on usage, effects and the role of the teacher, 2017 SNS FORLAG https://www.snsse.cdn.triggerfish.cloud/uploads/2017/10/digital-tools-in-education.pdf

### Why using a recipe metaphor?

A cookbook to promote and raise awareness about digital pedagogy might be a surprising choice; but think about it: caring to cook a good meal in order to make friends and family happy is something that we all have in common and that have brought people together for centuries.

Approaching this rather conceptual topic in the form of a recipe is an innovative way to make it fun and more accessible to all. Besides, the recipe structure itself is well suited to explore the potential and valueaddition of digital applications into regular teaching material just like the secret ingredient that made grandma's apple pie so special.

The recipe metaphor is also an attempt to lower the "computer anxiety" some educators and trainers may experience refraining them from upgrading their teaching practices. One the one hand, the toolkit provides conceptual basis to understand what is digital pedagogy (Chapter 1) and includes a review of interesting and easy to use applications available on-line (Chapter 10). On the other, the cooking book proposes a selection of teaching recipes where some of these applications have been added as "digital ingredient" in order to demonstrate how they can improve the learning experience. These two manuals are complementary and are intended to give educators and trainers confidence to start implementing digital pedagogy with their students.

There are other similarities between the work of a chef and the work of a trainer: despite diplomas and certifications both of them gain most of their knowledge and skills after long hours spent in the kitchen or in the classroom. Each recipe refers to the DigicompEdu progression scale (Chapter 5) helping educators to self-assess their level of proficiency in digital pedagogy (chapter 8) and to choose the appropriate "digital ingredient".

Not only does it encourage self-learning but it also gives the opportunity for trainers to further develop their digital competences and to create their own recipe (Chapter 6 & 7) according to their teaching subject. On top of referring to the DigicompEdu, the toolkit also presents a review of other digital competences evaluation schemes operating either at national or European level (chapter 9) for teachers and trainers interested in obtaining additional certifications and recognition.

Finally, cooking recipes remain over time because friends and family members like to share them, comment on them, adapt them. On top of these two manuals; on-line communities of practice will be created where educators will be able to share their new recipes, exchange with their peers etc. These communities will also include additional resources (policy documents, videos illustrating techniques etc.) and give opportunities for further learning through social networking.

Extending the recipe metaphor into different media is expected to create a sustainable interest about digital pedagogy within the educator and trainers' circles. The toolkit also emphasizes the transferability potential of the recipe metaphor while establishing a clear parallel between digital skills applied by a teacher in his classroom and the general digital skills needed by any citizen in our modern societies and stated in the Digital Competence Framework for Citizens (chapter 4).

# Chapter 3:

### European Framework for the Digital Competence of Educators – **DigCompEdu**



## What is digital pedagogy?

For years, technology has been evolving and forming an important part of our daily life. Gone are the times in which the only way to connect was phone or mail, today smartphones and tablets can take them anywhere and be continuously connected to the world.



In the same way, all professions today are increasingly demanding with their workers regarding the skills they have to develop for effective work, adapted to all people and therefore with more value.

Seeing the gaps that are in the profession of educators in terms of their digital skills, the European Commission decided to develop the **DigCompEdu** to create a common frame of reference for educators, to be able to know what could be evaluated and know where they are to continue developing in digital competences. **DigCompEdu** is a scientifically sound framework that helps guide policy and can be directly adapted to implement regional and national tools and training programs. In addition, it offers a common language and approach that will help dialogue and the exchange of good practices across borders.

The **DigCompEdu** study is based on the previous work carried out to define the Digital Competence of the citizens, in general (which we will deal with in the next point), and the Digitally Competent Education Organisations (DigCompOrg). It contributes to the Commission's recently endorsed Skills Agenda for Europe and to the Europe 2020<sup>11</sup> flagship initiative Agenda for New Skills for New Jobs.

The **DigCompEdu** framework of the Joint Research Center (JRC)<sup>12</sup> is aimed at educators at all educational levels. The development of the framework has been based on the analysis, mapping and grouping of the elements that constitute the digital competence of the educators, as detailed in the existing national and international frameworks, the self-assessment tools and the certification schemes.

- 11 For more information go to https://ec.europa.eu/social/main.jsp?catId=1223
- 12 Joint Research Center https://ec.europa.eu/jrc/en

# DigCompEdu

Internationally and nationally, numerous frameworks, self-assessment tools and training programs have been developed to describe the facets of digital competence for educators and to help them assess their competencies, identify their training needs and offer specific training. The Digital Competence for Educators presents a common European framework for the digital competency of educators (**DigCompEdu**), since educators apart from the digital skills that anyone needs, need specific digital skills to apply them in their role as educators, and adapt to the new times that are running.

EDUCATORS' PROFESSIONAL COMPETENCES	EDUCATORS'PEDAGOGIC COMPETENCES	LEARNERS' COMPETENCES
<b>PROFESSIONAL ENGAGEMENT</b> Organisational communication Professional collaboration Reflective practice Digital CPD	DIGITAL RESOURCES Selecting Creating and modifying Managing, protecting, sharing	
	TEACHING AND LEARNING Teaching Guidance Collaborative learning Self-regulated learning	FACILITATING LEARNERS' DIGITAL COMPETENCE Information and
	ASSESSMENT Assessment strategies Analysing evidance Feedback and Planning	media literacy Communication Content creation Responsible use Problem solving
	EMPOWERING LEARNERS Accessibility and Inclusion Differentation and Personalisation Actively engaging learners	

### Areas of DigCompEdu



The DigCompEdu framework identify six different areas in which the digital competence of educators is expressed with a total of 22 competences. The six areas are the following<sup>13</sup>:

### Professional Engagement:

Educators' digital competence is expressed in their ability to use digital technologies not only to enhance teaching, but also for their professional interactions with colleagues, learners, parents and other interested parties, for their individual professional development and for the collective good and continuous innovation in the organisation and the teaching profession.

### 2) Digital Resources:

Educators are currently confronted with a wealth of digital (educational) resources they can use for teaching. One of the key competences any educator needs to develop is to come to terms with this variety, to effectively identify resources that best fit their learning objectives, learner group and teaching style, to structure the wealth of materials, establish connections and to modify, add on to and develop themselves digital resources to support their teaching.

At the same time they need to be aware of how to responsibly use and manage digital content. They must respect copyright rules when using, modifying and sharing resources, and protect sensitive content and data, such as digital exams or students' grades.

13 European Framework for the Digital Competence of Educators p.19

# 3) Teaching and Learning:

Digital technologies can enhance and improve teaching and learning strategies in many different ways. However, whatever pedagogic strategy or approach is chosen, the educator's specific digital competence lies in effectively orchestrating the use of digital technologies in the different phases and settings of the learning process. The fundamental competence in this area – and maybe of the whole framework - is 3.1: Teaching. This competence refers to designing, planning and implementing the use of digital technologies in the different stages of the learning process.

### 4) Teaching and Learning:

Assessment can be a facilitator or bottleneck to innovation in education. When integrating digital technologies into learning and teaching, we must consider how digital technologies can enhance existing assessment strategies. At the same time, we must also consider how they can be used to create or to facilitate innovative assessment approaches. Digitally-competent educators should be able to use digital technologies within assessment with those two objectives in mind.

Furthermore, the use of digital technologies in education, whether for assessment, learning, administrative or other purposes, results in a wide range of data being available on each individual learner's learning behaviour. Analysing and interpreting this data and using it to help make decisions is becoming more and more importantcomplemented by the analysis of conventional evidence on learner behaviour.

At the same time, digital technologies can contribute to directly monitoring learner progress, to facilitating feedback and to allowing educators to assess and adapt their teaching strategies. In recipe 55: "Use G Suite Education to Share Online Resources with other teachers" you can find an example of a proposal in this area.

### 5) Empowered Learning:

One of the key strengths of digital technologies in education is their potential for supporting learnercentred pedagogic strategies and boosting the active involvement of learners in the learning process and their ownership of it. Thus, digital technologies can be used to facilitate learners' active engagement, e.g. when exploring a topic, experimenting with different options or solutions, understanding connections, coming up with creative solutions or creating an artefact and reflecting on it.

Digital technologies can furthermore contribute to supporting classroom differentiation and personalised education by offering learning activities adapted to each individual learner's level of competence, interests and learning needs. At the same time, however, care must be taken not to exacerbate existing inequalities (e.g. in access to digital technologies or digital skills) and to ensure accessibility for all learners, including those with special educational needs.

### 6) Facilitating Learners Digital Competences:

Digital competence is one of the transversal competences educators need to instil in learners. Whereas fostering other transversal competences is only part of educators' digital competence in as far as digital technologies are used to do so, the ability to facilitate learners' digital competence is an integral part of educators' digital competence.

Because of this, this ability merits a dedicated area in the DigCompEdu framework Learners' digital competence is captured by the European Digital Competence Framework for Citizens (DigComp). Thus, the DigCompEdu area follows the same logic and details five competences aligned in content and description with DigComp. The headlines, however, have been adapted to emphasize the pedagogical dimension and focus within this framework. According to the JRC, the core of the DigCompEdu framework is defined in areas 2 to 5. These areas explain the digital pedagogical competence of educators, that is, the digital competences that educators need to foster efficient teaching and learning strategies, inclusive and innovative.

Areas 1, 2 and 3 deals with the characteristic stages of any teaching process, whether with the support of technologies or not. The competences listed in these areas detail how to make efficient and innovative use of digital technologies by areas 2, 3 and 4.

Area 5 recognizes the potential of digital technologies for student-centered teaching and learning strategies. This area is transversal to areas 2, 3 and 4, providing a set of guiding principles relevant and complementary to the competencies specified in these areas.

However, the most important competence in the entire framework, as highlighted by the JRC, is in area 3: "Teaching and Learning". This competence refers to the design, planning and implementation of the use of digital technologies in the different stages of the learning process.



### **Progress Model**

For each of the 22 elementary competences, the competence descriptor is complemented by a list of typical activities. A progression model along six levels is proposed, for which a rubric with proficiency statements for self-assessment is supplied.

The proposed progression model is intended to help educators understand their personal strengths and weaknesses, by describing different stages or levels of digital competence development. For ease of reference, these competence stages are linked to the six proficiency levels used by the Common European Framework of Reference for Languages (CEFR)<sup>14</sup>, ranging from A1 to C2.

To encourage educators to use the DigCompEdu framework as a tool for their professional development, it was decided to couple CEFR levels with motivating role descriptors, ranging from Newcomer (A1) to Pioneer (C2). These descriptors are intended motivate educators at all levels to positively appreciate their achievements and to look forward to expanding them further.



For all competences, the progression of proficiency levels is cumulative in the sense that each higher level descriptor comprises all lower level descriptors, with the exception of the first level, Newcomer (A1). E.g., to be an Expert (B2) means to be able to subscribe to all statements at levels A2 to B2, but not to those at C1 and C2 level. The Newcomer (A1) level is largely described by the absence of certain competences, i.e. knowledge, skills or attitudes, present at the A2 or higher levels. Thus, Explorers (A2) are those who have overcome the concerns or doubts present at the Newcomer (A1) level.

For each competence a specific progression applies, depending on the characteristics of the competence in question and the way it typically evolves as a higher level of proficiency is obtained. However, some key words are common to the same level of proficiency across the competences of one area<sup>15</sup>.

At the end of the **DigCompEdu** document there is a glossary of the most used technical terms in this area.

14 https://www.coe.int/en/web/common-european-framework-reference-languages/ level-descriptions

15 For more information go to the page 31 in the European Framework for the Digital Competence of Educators

# Chapter 4:

A Summary of The Digital Competence Framework for Citizens and how it relates to **DigCompEdu** 



The DigComp Framework describes digital capability across 5 "**Competences**" and 8 levels of "Proficiency". Each competence area covers a handful of sub headings with examples given for each skill. Graphics and tables show the skills required at each of the various levels. It offers tools to improve digital ability, self-evaluate, set learning goals, identify training opportunities and facilitate job search. Key knowledge, skills and attitudes needed for digitally competence are identified and the guidelines are applicable at all levels of education, including non-formal settings. The 5 key competence areas and 8 proficiency levels are summarised below.

# The 8 proficiency levels

Inspired by the structure and vocabulary of the EQF

DIGCOMP LEVEL	TASK COMPLEXITY	AUTONOMY	COGNITIVE DOMAIN
1	Simple tasks	With guidance	Remembering
2	Simple tasks	Autonomy and with guidance when needed	Remembering
3	Well-defined and routine tasks, straightforward problems	On my own	Understanding
4	Tasks, well-defined and non-routine problems	Independent and according to my needs	Understanding
5	Different tasks and problems	Guiding others	Applying
6	Most appropriate tasks	Able to adapt to others in a complex context	Evaluating
7	Resolve complex problems with limited solutions	Integrate to contribute to the professional practice and to guide others	Creating
8	Resolve complex problems with many interacting factors	Propose new ideas and processes to the field	Creating

### Competence area 1: Information and data literacy

1.1. Browsing, searching, filtering data, information and digital content

Articulate information needs. Access, search within and navigate between digital environments.

1.2. Evaluating data, information and digital content

Analyse/compare/interpret/critically evaluate the credibility of digital content and its source(s).

1.3. Managing data, information and digital content

Organise / store / retrieve information digitally. Organise and process data in a structured way.

### Competence area 2: Communication and collaboration

#### 2.1. Interacting through digital technologies

Interact through various technologies with appropriate digital communication means for each.

#### 2.2. Sharing through digital technologies

Share digital content through appropriate tech, referencing and attributing when acting as intermediary.

2.3. Engaging in citizenship through digital technologies

Participate in society through the use of public and private digital services. Seek opportunities for self-empowerment and participatory citizenship through appropriate digital technologies.

#### 2.4. Collaborating through digital technologies

Collaborate using digital tools/technologies, and co-construct/co-create resources and knowledge.

#### 2.5. Netiquette

Aware of behavioural norms in interactions using digital technologies/in digital environments. Adapt communication to audience, cultural/generational diversity in digital environments.

#### 2.6. Managing digital identity

Create and manage one or multiple digital identities, protect reputation and manage the data one produces through using several digital tools and environments.

### Competence area 3: Digital content creation

#### 3.1. Developing digital content

Create & edit digital content in different formats, expression through digital means.

3.2. Integrating and re-elaborating digital content

Modify and integrate content into existing body of knowledge to create original, relevant content.

3.3. Copyright and licences

Understand how copyright and licenses apply to data, information and digital content.

3.4. Programming

Plan/develop instructions for a computing system to solve a problem or perform a specific task.

### Competence area 4: Safety

#### 4.1. Protecting devices

Protect devices and digital content, and understand risks and threats in digital environments. Know about safety and security measures and have due regard to reliability and privacy.

4.2. Protecting personal data and privacy

Protect privacy/personal data. Share data while protecting oneself and others from damages. Understand that digital services use a "Privacy policy" to inform how personal data is used.

#### 4.3. Protecting health and well-being

Protect self and others against health-risks and threats to well-being while (e.g. cyber bullying) using digital tech. Aware of digital technologies for social well-being and inclusion.

#### 4.4. Protecting the environment

Aware of the environmental impact of digital technologies and their use.

### Competence area 5: Problem solving

#### 5.1. Solving technical problems

Identify technical problems when operating devices & using digital environments, & solve them.

#### 5.2. Identifying needs and technological responses

Assess needs & identify, evaluate, select & use digital tools and possible technological responses to solve them. Adjust & customise digital environments to personal needs (e.g. accessibility).

#### 5.3. Creatively using digital technologies

Use digital tools to create knowledge, innovate processes/products. Engage individually and collectively in cognitive processing to understand and resolve conceptual problems digitally.

#### 5.4. Identifying digital competence gaps

Able to support self/others with digital development understanding where competence needs updating/ improvement. Seek opportunities for self-development in line with digital evolution.

## Relation between **DigCompEdu** and **DigComp2.1**

Both the **DigComp 2.1** (in its initial version DigComp) and the **DigCompEdu** are born from the need to create reference frames that serve all citizens in general, and Europeans in particular. For this reason, the European Commission within the 8 key competences for lifelong learning chose the Digital Competence as one of them, the Commission defines the Digital Competence in the following way:

"Digital competence involves the safe and critical use of Information Society Technologies (IST) for work, leisure and communication. It is based on the basic ICT competences: the use of computers to obtain, evaluate, store, produce, present and exchange information, and communicate and participate in collaborative networks through the Internet."

For a few years now, technology has been tending to be introduced in all areas of our lives, for that reason, citizens (**DigComp 2.1**) and educators (**DigCompEdu**), so it is absolutely necessary to create tools to calculate the impact of these in our lives and especially referential frames to be able to evaluate the knowledge that we have of the matter and to know in which direction we have to continue to be able to advance with the knowledge.

For these reasons, today in Europe, the benchmark has become DigComp, a framework developed in 2013 and updated first in 2016 and then again, being the DigComp indicates the digital competence for "citizens".

To which was later born the **DigCompEdu** that proposes to define the necessary digital skills for teaching, thus indicating the digital skills that teachers should have. **DigComp 2.1**, the latest version of DigComp serves as a frame of reference for entities, administrations and professionals working in the field of training related to the use of technologies. The latest version of this document is adapted to digital advances, discussing transversal issues such as security and problem solving, and other more common ones such as content generation, interaction through digital tools or simple communication. All of them include differentiated competences (a total of 21) that are defined through 8 levels of aptitude, since the first two versions of DigComp (1.0 and 2.0) had only 3 levels of aptitude.

The figure of the educator requires an increasingly broad set of skills. Increasingly relying on digital devices and the duty to help students become digitally competent requires well-educated educators to develop their digital competence.

In conclusion, it should be noted that digital competence goes far beyond the usual use we make of our mobile or our computer, and implies a creative, critical and safe use of information and communication technologies, aimed at achieving the related objectives with work, employability, learning, free time, inclusion and participation in society and, therefore, requires knowledge related to both the specific language of these technologies, and certain behaviour patterns, including, of programming. Above all, taking into account the use that should be given by educators. All this entails the control of the main computer applications, the access to secure sources and the knowledge of the rights and freedoms that assist people in the digital world.

References The Digital Competence Framework for Citizens 2.1.

# Chapter 5:

# Analysis of the Educators Pedagogic Competences in **DigCompEdu**



Digitalization has increasingly introduced a new dimension in educators' pedagogical skills and competences which we have chosen to call Pedagogical Digital Competence (PDC).

"Pedagogical Digital Competence refers to the ability to consistently apply the attitudes, knowledge and skills required to plan and conduct, and to evaluate and revise on an ongoing basis, ICT-supported teaching, based on theory, current research and proven experience with a view to supporting students "learning in the best possible way"<sup>16</sup>. Pedagogical Digital Competence thus relates to knowledge, skills and attitudes, and to technology, learning theory, subject, context and learning, and the relationships between these. PDC is thus a competence that is likely to develop the more experienced a teacher becomes.



### Educator's pedagogic competences

Additionally, and according to the SAMR model (Substitution, Augmentation, Modification and Redefinition, the change in the methodology due to the digitalization can be categorized as follows:

#### • IMPROVEMENT:

- Substitution: Technology is used to substitute a preexistant element, but with no methodological change.
- Augmentation: Technology is applied as a substitute of an existing model, but implementing significant functional improvements.

#### • TRANSFORMATION:

- **Modification:** Using technologies, there is a redefinition of the tasks, producing a methodological change based on the ICT.
- **Redefinition:** New learning environments are created, notably improving the quality of education. In this chapter will analyse the Educators' pedagogic competences of the DigiCompEdu framework.

16 From, J. (2017). Pedagogical digital competence: Between values, knowledge and skills. Higher Education Studies, 7(2), 43-50 The pedagogic competences of DigCompEdu are focus in the following 4 areas:

#### Area 1: Professional Engagement

Using digital technologies for communication, collaboration and professional development.

#### Area 2: Digital Resources

Sourcing, creating and sharing digital resources.

#### Area 3: Teaching and Learning

Managing and orchestrating the use of digital technologies in teaching and learning.

#### Area 4: Assessment

Using digital technologies and strategies to enhance assessment.

#### Area 5: Empowering Learners

Using digital technologies to enhance inclusion, personalisation and learners' active engagement.

The core of the DigCompEdu framework is defined by Areas 2-5. Together these areas explain educators' digital pedagogic competence, i.e. the digital competences educators need to foster efficient, inclusive and innovative teaching and learning strategies. Areas 1, 2 and 3 are anchored in the stages characteristic of any teaching process, whether supported by technologies or not. The competences listed in these areas detail how to make efficient and innovative use of digital technologies when planning (Area 2), implementing (Area 3) and assessing (Area 4) teaching and learning. Area 5 acknowledges the potential of digital technologies for learner-centred teaching and learning strategies. This area is transversal to Areas 2, 3 and 4 in the sense that it contains a set of guiding principles relevant for and complementary to the competences specified in these areas.

The added value of the DigCompEdu framework is that it provides:

- a sound background that can guide policy across all levels;
- a template that allows local stakeholders to move quickly on to developing a concrete instrument, suited to their needs, without having to develop a conceptual basis for this work;
- a common language and logic that can help the discussion and exchange of best practices across borders;
- a reference point for Member States and other stakeholders to validate the completeness and approach of their own existing and future tools and frameworks.

# 1. Digital Resources

Educators are currently confronted with a wealth of digital (educational) resources they can use for teaching. One of the key competences any educator needs to develop is to come to terms with this variety, to effectively identify resources that best fit their learning objectives, learner group and teaching style, to structure the wealth of materials, establish connections and to modify, add on to and develop themselves digital resources to support their teaching.

At the same time they need to be aware of how to responsibly use and manage digital content. They must respect copyright rules when using, modifying sharing resources, and protect sensitive content and data, such as digital exams or students' grades.

Digital resources include the following competences:

#### 1.1. Selecting digital resources

(page 44 of the DigiCompEdu)

To identify, assess and select digital resources for teaching and learning. To consider the specific learning objective, context, pedagogical approach, and learner group, when selecting digital resources and planning their use.

### **1.2. Creating and modifying digital resources** (page 46 of the DigiCompEdu)

To modify and build on existing openly-licensed resources and other resources where this is permitted. To create or co-create new digital educational resources. To consider the specific learning objective, context, pedagogical approach, and learner group, when designing digital resources and planning their use.

## 1.3. Managing, protecting and sharing digital resources

(page 48 of the DigiCompEdu)

To organise digital content and make it available to learners, parents and other educators. To effectively protect sensitive digital content. To respect and correctly apply privacy and copyright rules. To understand the use and creation of open licenses and open educational resources, including their proper attribution.

# 2. Teaching and Learning

Digital technologies can enhance and improve teaching and learning strategies in many different ways. However, whatever pedagogic strategy or approach is chosen, the educator's specific digital competence lies in effectively orchestrating the use of digital technologies in the different phases and settings of the learning process. The fundamental competence in this area – and maybe of the whole framework - is 3.1: Teaching. This competence refers to designing, planning and implementing the use of digital technologies in the different stages of the learning process.

Competences 3.2 to 3.4 complement this competence by emphasizing that the real potential of digital technologies lies in shifting the focus of the teaching process from teacher-led to learner-centred processes. Thus the role of a digitally-competent educator is to be a mentor and guide for learners in their progressively more autonomous learning endeavours. In this sense, digitally-competent educators need to be able to design new ways, supported by digital technologies, to provide guidance and support to learners, individually and collectively (3.2) and to initiate, support and monitor both self-regulated (3.4) and collaborative (3.3) learning activities.

Teaching and Learning includes the following competences:

#### 2.1. Teaching

(page 52 of the DigiCompEdu)

To plan for and implement digital devices and resources in the teaching process, so as to enhance the effectiveness of teaching interventions. To appropriately manage and orchestrate digital teaching strategies. To experiment with and develop new formats and pedagogical methods for instruction.

#### 2.2. Guidance

(page 54 of the DigiCompEdu)

To use digital technologies and services to enhance the interaction with learners, individually and collectively, within and outside the learning session. To use digital technologies to offer timely and targeted guidance and assistance. To experiment with and develop new forms and formats for offering guidance and support.

### 2.3. Collaborative learning

(page 56 of the DigiCompEdu)

To use digital technologies to foster and enhance learner collaboration. To enable learners to use digital technologies as part of collaborative assignments, as a means of enhancing communication, collaboration and collaborative knowledge creation.

#### 2.4. Self-regulated learning

(page 58 of the DigiCompEdu)

To use digital technologies to support learners' selfregulated learning, i.e. to enable learners to plan, monitor and reflect on their own learning, provide evidence of progress, share insights and come up with creative solutions.

# 3. Assessment

Assessment can be a facilitator or bottleneck to innovation in education. When integrating digital technologies into learning and teaching, we must consider how digital technologies can enhance existing assessment strategies. At the same time, we must also consider how they can be used to create or to facilitate innovative assessment approaches. Digitally-competent educators should be able to use digital technologies within assessment with those two objectives in mind.

Furthermore, the use of digital technologies in education, whether for assessment, learning, administrative or other purposes, results in a wide range of data being available on each individual learner's learning behaviour. Analysing and interpreting this data and using it to help make decisions is becoming more and more important – complemented by the analysis of conventional evidence on learner behaviour.

Assessment includes the following competences:

#### 3.1. Assessment strategies

(page 62 of the DigiCompEdu)

To use digital technologies for formative and summative assessment. To enhance the diversity and suitability of assessment formats and approaches.

#### 3.2. Analysing evidence

(page 64 of the DigiCompEdu)

To generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress, in order to inform teaching and learning.

#### 3.3. Feedback and planning

(page 66 of the DigiCompEdu)

To use digital technologies to provide targeted and timely feedback to learners. To adapt teaching strategies and to provide targeted support, based on the evidence generated by the digital technologies used. To enable learners and parents to understand the evidence provided by digital technologies and use it for decision-making.

# 4. Empowering Learners

One of the key strengths of digital technologies in education is their potential for supporting learner-centred pedagogic strategies and boosting the active involvement of learners in the learning process and their ownership of it. Thus, digital technologies can be used to facilitate learners' active engagement, e.g. when exploring a topic, experimenting with different options or solutions, understanding connections, coming up with creative solutions or creating an artefact and reflecting on it.

Digital technologies can furthermore contribute to supporting classroom differentiation and personalised education by offering learning activities adapted to each individual learner's level of competence, interests and learning needs. At the same time, however, care must be taken not to exacerbate existing inequalities (e.g. in access to digital technologies or digital skills) and to ensure accessibility for all learners, including those with special educational needs.

Empowering Learners includes the following competences:

#### 4.1. Accessibility and inclusion

(page 70 of the DigiCompEdu)

To ensure accessibility to learning resources and activities, for all learners, including those with special needs. To consider and respond to learners' (digital) expectations, abilities, uses and misconceptions, as well as contextual, physical or cognitive constraints to their use of digital technologies.

#### 4.2. Differentiation and personalization

(page 72 of the DigiCompEdu)

To use digital technologies to address learners' diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives.

#### 4.3. Actively engaging learners

(page 74 of the DigiCompEdu)

To use digital technologies to foster learners' active and creative engagement with a subject matter. To use digital technologies within pedagogic strategies that foster learners' transversal skills, deep thinking and creative expression. To open up learning to new, real-world contexts, which involve learners themselves in hands-on activities, scientific investigation or complex problem solving, or in other ways increase learners' active involvement in complex subject matters.

# Progression model

For each competence a specific progression applies, depending on the characteristics of the competence in question and the way it typically evolves as a higher level of proficiency is obtained. However, some key words are common to the same level of proficiency across the competences of one area. These are indicated in the Table in following page. DIGCOMPEDU PROFICIENCY PROGRESSION BY AREA (Pedagogic competences).

LEVEL	DIGITAL RESOURCES	TEACHING AND LEARNING	ASSESSMENT	EMPOWERING LEARNERS
A1 NEWCOMER	AWARENESS; UNCERTAINTY; BASIC USE	AWARENESS; UNCERTAINTY; BASIC USE	AWARENESS; UNCERTAINTY; BASIC USE	AWARENESS; UNCERTAINTY; BASIC USE
A2 EXPLORER	EXPLORING DIGITAL RESOURCES	EXPLORING DIGITAL TEACHING & LEARNING STRATEGIES	EXPLORING DIGITAL ASSESSMENT STRATEGIES	EXPLORING LEARNER-CENTRED STRATEGIES
B1 INTEGRATOR	FITTING DIGITAL RESOURCES TO THE LEARNING CONTEXT	MEANINGFULLY INTEGRATING DIGITAL TECHNOLOGIES	ENHANCING TRADITIONAL ASSESSMENT APPROACHES	ADDRESSING LEARNER EMPOWERMENT
B2 EXPERT	STRATEGICALLY USING INTERACTIVE RESOURCES	ENHANCING TEACHING & LEARNING ACTIVITIES	STRATEGIC AND EFFECTIVE USE OF DIGITAL ASSESSMENT	STRATEGICALLY USING A RANGE OF TOOLS
C1 LEADER	COMPREHENSIVELY USING ADVANCED STRATEGIES & RESOURCES	STRATEGICALLY & PURPOSEFULLY RENEWING TEACHING PRACTICE	CRITICALLY REFLECTING ON DIGITAL ASSESSMENT STRATEGIES	HOLISTICALLY EMPOWERING LEARNERS
C2 PIONEER	PROMOTING THE USE OF DIGITAL RESOURCES	INNOVATING TEACHING	INNOVATING ASSESSMENT	INNOVATING LEARNER INVOLVEMENT

# Chapter 6:

# The recipe



This chapter describes how to select recipes adapted to the DigCompEdu framework for the implementation of the digital pedagogy.

In our classification of the recipes, we will focus not only on educators' competences but also on their level of digital competence for each of the areas.

These considerations should be incorporated in each recipe. First of all, you need to determine which level of (digital) competences your learners have and identify the aim of your lesson. To decide which **ingredients** (tools and circumstances of the learners) you need, you have to reflect on the competence area to be trained and what kind of digital teaching competence area is needed.

In conclusion, to select and create the recipes it is necessary to consider four main classifications of the DigCompEdu: the classification **area** of the recipe (digital resources, teaching and learning, assessment and empowering learners); the **competence area(s)** you want to focus on (information and data literacy, communication and collaboration, digital content creation, safety and problem solving); own **digital skills as an educator** (A1 Newcomer, A2 Explorer, B1 Integrator, B2 Expert, C1 Leader and C2 Pioneer) as well as the **proficiency levels of the learners** (1-8).



# Selecting a Recipe

#### Example of a recipe in Area 2 at level A2

Using youtube videos for English SLA https://www.youtube.com/watch?v=O2mecmDFE-Q

#### Learning situation and learner group:

The learning group consist of 12 learners with a B1 English level. The class' aim is a listening comprehension task in a face-to-face class situation.

#### Selected Area: 2 – Digital Resources

#### Expected digital level in the area: A2 – Explorer

Tools needed:	Ingredients:	
Skills needed prior to cooking: Digital devices with fast internet connection,	Group of students	
	Level B1 of English SLA	Cook Time:
Teachers digital skills: Areas 1 and 6: A2	Class willing to use a Facebook closed group and mail list	60 Minutes
Speakers or headphones	Homework for face-to-face classes	

# Use Lyrics training to practice vocabulary

#### DigCompEdu Competence area: 2.3

#### **Progression Level: A2**

Learning/teaching situation: The recipe is aimed at educators who wish to offer their students motivating listening comprehension exercises and to have the learners practice vocabulary or even grammar structures through music.

Minimum digital skills level of Students: A2

Minimum digital skills level of Educators: A2

### Description

The recipe enables educators to implement digital resources in the teaching process so as to enhance the effectiveness of vocabulary learning and listening comprehension. It enables educators to increase learner motivation through the use of up-to-date listening materials and to allow learners to choose their own pace, learning content and difficulty level.

### Ingredients

- Computer, laptop or mobile device (with Lyrics Training app installed)
- Internet connection
- Speakers or headphones
- LyricsTraining user account
- Students: beginner skills

### How to do it (step by step)

Before you start, you need to register as a teacher.

Step 1: Go to https://lyricstraining.com/

Step 2: Click the "Log In" button on top of the page.

**Step 3:** Click "Genres" on the left hand-side on top of the page to search for a song or type in the song title you are looking for. The website now shows you all available videos.

Step 4: Select a video by clicking on the title.

**Step 5:** Click the "New Exercise" on the right handside at the bottom of the page.

**Step 6:** Fill in the title of the activity on the right handside.

**Step 7**: Choose the difficulty level from the options presented under "Level".

**Step 8:** Select the input mode: Write means the learners have to write down what they hear. Choice means the learners can choose a word from a variety of options. If you select both options, the learners will be able to choose the input mode.

**Step 9:** Scroll down to the lyrics. Select the words you want to the learners to fill in by clicking on the word.

Step 10: When you are done, click "Save".

**Step 11:** Press the "Preview" button to view the activity from a learner's point of view.

**Step 12:** Go "My Exercises" to see the exercises you have saved.

Step 13: Click on the title of the video to select it.

**Step 14:** Copy the link and send it to your learners by e-mail or other digital communication channel.

### There's more

You can also use the website without registering. However, in this case, you will not be able to create your own cloze activities. If you register as a learner, you appear on the high score charts, which may be very motivating for some learners.

The lyrics and all activities are user-generated so they may contain mistakes. Therefore, it is advisable to check the lyrics before using a song in class. In case you find mistakes, you can send feedback to the website team.

Please also note, that the videos are not filtered so there may be content that is not suitable for young learners.

### See also:

- LyricsTraining Brilliant adventure for learners: https://thedigitalteacher.com/reviews/lyricstraining
- LyricsTraining review for teachers: https://www.commonsense.org/education/website/lyricstraining
- LyricsTraining.com: A quick introduction: https://www.youtube.com/watch?v=Ez6t1F70H7w
- To register on LyricsTraining: https://lyricstraining.com/sign\_up
- LyricsTraining cloze activity (tutorial video): https://www.youtube.com/watch?v=XeJMo28g\_lo

# Using recipes adapted to Area 2 of the Framework

This chapter describes how to use recipes adapted to the DigCompEdu framework for the implementation of the digital pedagogy.

### Selecting digital resources for Listening Comprehension – Level A2

Using and modifying digital resources – Level A2

**Part 1:** Teacher considers the specific learning objective and selects the new resources to be used: My Big Fat Greek Wedding trailer. The teacher will create questions based on the video.

Things to consider: At A2 level the teacher will not be able to cut or embed exercises in the video. The teacher will just create a listening comprehension activity.

**Part 2:** Use office software to create worksheets to enhance the vocabulary skills: Create a worksheet with questions for the learners based on the video

**Part 3:** There is no restriction on originally produced questions or worksheet, so you don't have to think about copyright laws.

**Part 4:** Create a digital presentation of the task: A task description will be created and posted on the Facebook site with the link to the video and the worksheet/questions. The learned structures can be later practiced in the face-to-face class

Things to consider: The teacher needs to have created a closed Facebook group or if the group is not willing to use social media, the teacher will need to collect mail addresses and create a class mailing list.



# How to manage, protect and sharedigital resources – Level A2

**Part 1:** Share educational content (original worksheet) via Facebook or e-mail.

**Things to consider:** If using facebook, make sure the Facebook group is closed, For mailing, students have agreed about mail list policy in the class, if not they need to have agreed about the mailing list. **Part 3:** Take measures to protect sensitive data and resources: GDPR should be agreed before the creation of a Facebook group/the creation of a mail list.

**Things to consider:** The teacher includes a preparatory session on GDPR with students.

**Part 2:** Include links in the shared content: On facebook, share a pdf/word document in a closed group via messaging. By email, add an attachment to send to all the recipients.

Things to consider: The teacher needs to think about and form a structure on how to discuss and provide the necessary information in class about the content to be shared, the images, links and property rights. **Part 4:** Share information with colleagues. The teacher shares his/her experience with other teachers.

Things to consider: Involve other staff members in the concept of digital pedagogy

### Assessing Recipes under Area 2 in the Framework

This chapter describes how to assess/classify recipes adapted to the DigCompEdu framework for the implementation of the digital pedagogy.

As stated previously, in the classification of recipes, we are considering the specific digital competence area and the necessary minimal mastery level of digital competences.

In this sense, our example recipe on "Using Youtube videos for English SLA" covers Area 2 of the framework. It focuses on the selection of the teaching situation, the content to be digitalized and the digital tools to be used for the specific learning group. Further, it requires a minimal digital mastery of A2 and describes the steps needed for proper selection of materials and teaching situations.

# How to classify the mastery level:

The six levels represent the different stages under which educators' digital competences typically develop through implementing digitalization in their classes.

The levels are described as: A1 Newcomer, A2 Explorer, B1 Integrator, B2 Expert, C1 Leader and C2 Pioneer.

The framework offers detailed information about the **proficiency levels** and the characterisations applied to the **different competence** stages .

In the following part you can find the Area2 of educator's **digital competences** (= digital resources: selecting, creating, modifying).

**The Newcomer** barely uses the internet to find resources for their lessons, uses digital resources but doesn't change them in any creative way and safes data but only for him/herself.

**Example:** A co-teaching situation in which one trainer is at least an integrator and the second a newcomer: The integrator will create and structure a teaching situation that uses digital pedagogy and will encourage the newcomer to participate in the digital experience by giving the A1 trainers small tasks to be fulfilled that the integrator will control.

**Example:** Trainer B1 embeds one exercise in a learning platform and explains trainer A1 how to enter the platform and show students where to find the exercise.

**The Exploreris** able to use simple research strategies to find material to use in his/her class, uses certain software and programs to design worksheets and presentations, is able to use simple share methods like emails and links and is aware about copyrights with no deeper knowledge.

**Example:** our example described above.

**The Integrator** is able to customize his/her search strategies, selects and filters the results concerning basic criteria as well as the learners needs/interests to create material on a more advanced level (integrate animations, links, integrative elements etc..) as well as advanced shearing strategies (uploading, embedding in a website), knows how to deal carefully with sensitive content (exams etc.) and has basic knowledge about the copyrights.

**Example:** The role of the B1 trainer explained in A1.

**The Expert** finds and adapts digital content using complex criteria (e.g. apps/games for the learners, can give recommendations on resources etc.), can modify and integrate advanced digital resources (e.g. interactive games) and knows about licences and what and how far he/she is allowed to adapt and shares resources on a professional level (integrating resources in the digital environment, in protecting personal/sensitive data uses copyright regimentations correctly).

**Example:** For selecting materials, the trainer is not restricted to existing materials but creates original in an existing learning platform and adapts the platform to the needs. In our example, he/she could use, for example, a quiz app (e.g. kahoot) to create an own quiz about the trailer.

**The Leader** not only uses traditional search engines but also other resources (e.g. collaborative platforms), evaluates the data found, contextualises the data in class, has advanced strategies to create and adapt resources (e.g. interactive worksheets, games, apps etc.) and publishes digitally those resources.

**Example:** The trainer (together with some colleagues) creates or modifies an online learning platform (wiki/blog) where the learners can work together. In our example, the trainer could use the Moodle platform and incorporate tasks about the trailer or other trailers for the students to solve at home or in groups. On the platform, you also can track the students' progress.

**The Pioneer** is able to guide his/her colleagues on resource strategies and the selection of resources, has a storage of resources and shares them, creates his/her own interactive digital resources (apps, games) and publishes digital resources professionally.

**Example:** The trainer builds an app adapted to his educational needs with tasks for the students.

So in our example educators considered as explorers need to be aware of "the potential of digital technologies and are interested in exploring them to enhance pedagogical and professional practice. They have started using digital technologies in some areas of digital competence, without, however, following a comprehensive or consistent approach. Explorers need encouragement, insight and inspiration, e.g. through the example and guidance of colleagues, embedded in a collaborative exchange of practices."

Regarding transversal areas for area 2 the educator will need to:

- use digital technologies and be aware of digital search possibilities
- be able to transmit the expectations and goals of the digital activities to the learners

# How to classify the different areas of competence:

The areas of digital teaching competence refer to the different stages of the teaching and learning situation. As exposed above areas 2 to 5 could be resumed as:

2. Digital resources: The ability to select digital resources that are adapted to the learning context, the learning goals and the individual needs the learners have.

**3. Teaching and Learning:** The active use of digital devices and materials as well as embedding digital learning methods in class.

4. Assessment: Evaluating the digital learning progress

5. Empowering Learners: Encouraging learners to actively engage in the digital teachings.

This example focuses on recipes that are classified in the area of digital teaching competence focussing on the selection process. We are not going to consider how to implement the materials in the classes or how to present the teaching situation. We will neither consider the encouragement of the learners or the assessing process; rather, we will just focus on how to select digital resources and a teaching situation with consideration of all the implications of area 2 described in the framework.

For a complete implementation of the selected tools in the class, we need to analyse the same teaching situation in the areas 3 to 5 at the same digital level. These areas refer to describing and planning the teaching activity, the assessment methodology for the exercises and activities regarding the engagement of learners throughout the learning process.

Our example described above could be easily expanded in the other areas in the following way.

Area teaching and learning: For example, the trainer could (with the help of an integrator or expert) create a quiz with a quiz app (e.g. kahoot) about the trailer for the students to solve. Or, as an explorer or integrator he could use one of the existing quizzes, (e.g. film trailer or another topic depending on the learning aim). This way, leaners can actively use a digital device to learn. When the trainer is accustomed to the app, he/she can try to create an original quiz to further develop his/her competences.

Assessment: The described app also shows the learners and the trainer what they did incorrectly. It also shows who completed the exercise the fastest and who had the most points. So, teacher and students can directly see and evaluate the learning process and can even repeat the quiz several times to see if they are improving.

**Empowering learners:** The same app can be used for students to practice at home. They can repeat the quiz, or they can try other quizzes for practice. Later, at a higher digital level the learners could create their own quizzes in groups for their classmates to solve

# Chapter 7:

### Professional Development and Digital Skills Recognition for Educators



As we have already commented throughout this toolkit, the idea of DigComp in general for citizens, and DigCompEdu in particular for teachers is to create a frame of reference to be able to assess the level of digital competence that professionals of the education and thus be able to see where to move forward and what to improve.

Education professionals In the 21st century, and that means, to master ICT, in order to offer a better education and therefore, rather, better, better the quality of the educational programs they offer.

In this section, we will present and analyze some existing evaluation systems and certifications for the digital competences that we can find at European and international level at the moment.

### Europe: v-UPGRATeS (Erasmus+ Project)

The v-UPGRATeS project aims to introduce a comprehensive program for the improvement of VET trainers and teachers' digital skills through an ICT assessment. An assessment tool has been created, so teachers can test their skills in a two-folded process. The tool was developed by the project consortium which consists of experts from five countries (Cyprus, Romania, Spain, Greece and Germany) on the basis of a digital competence framework. With the test results teachers can design their digital professional plan. This includes the enrolment in several online courses, which were developed by the v-UPGRATeS team. Thus teachers can upgrade their digital skills in an autonomous process. The skills then will be validated as teachers can get a certificate.



### France: C2i y C2i2e

Since 2000, France has set up a computer system to certify computer and Internet skills, the B2i (Diploma in Computer Science and Internet) and the C2i (Computer and Internet Certificate). Four years later, the specialized C2i was established for professors whose exact title is C2i level 2 - Teachers (C2i2e), which became mandatory in the initial teacher training from 2007.

This certification aims to "verify the common and necessary professional skills of all teachers who exercise their profession in their pedagogical, educational and citizen dimensions through the following fields: the problems and challenges related to ICT in general and education, in particular, educational actions related to ICT research and the use of its resources, teamwork and networking, digital work environments and the evaluation and validation of ICT competences in the context of the curricular documents of the teaching programs. "

The official website of the C2i provides a test to get an idea of the skills required and for the self-evaluation that takes as reference the following 9 points:

- A1 Take into account the evolutionary nature of ICT;
- A2 Integrate the ethical dimension and the respect of deontology;
- B1 Appropriate work environments;
- B2 Information Search;
- B3 Visualize, secure and archive your data locally and in networks;
- B4 Make the documents intended to be printed;
- B5 Make the presentation of their face-to-face and online works;
- B6 Dialog and communicate at a distance;
- B7 Carry out collaborative projects at a distance.

Each of these points is available in a series of questions for the assessment of user skills. At the end of each part, the user obtains a result that provides the percentage valuation of correct answers and an indication of the questions about uncontrolled aspects that require training.

### USA: NETS\*T

Outside the European borders, we find the NETS \* T: The International Society for Technology in Education (www. iste.org) has developed the National Standard for Educational Technology for Teachers (National Educational Technology Standards for Teachers - NETS \* T), whose main document is based on five main lines:

- Facilitate and inspire student learning and creativity
- Design and develop learning and evaluation experiences typical of the digital age
- Model learning and work in the digital era
- Promote and model digital citizenship and responsibility
- Participate in professional growth and leadership

### Selfie

# NEW WAY

SELFIE (whose acronym in English means "selfreflection on effective learning by promoting innovation through innovative educational technologies") is a tool designed to help schools integrate digital technologies in teaching, learning and the evaluation of the students. It can highlight what works, what needs to be improved, and what the priorities should be. The tool is currently available in the 24 official languages of the European Union, and it is expected that more languages will be added over time.

SELFIE gathers, anonymously, the opinions of the students; faculty and management team about the way technology is used in the center. For this, short questions and statements and a simple scale of assessment from 1 to 5 are used. The statements cover areas such as leadership, infrastructure, teacher training and digital skills of students.

The benefits of this tool are the following:

- SELFIE involves the entire educational community

   executive team, teachers and students in a
   360-degree process that covers many areas of
   school practice.
- Because each center is unique, the tool can be customized. Your center can select and add questions and statements that suit your needs.
- SELFIE allows all participants to answer questions that fit their experience as students, teachers or members of the management team.
- SELFIE is free. The answers are anonymized and the data is safe.
- You can perform the evaluation from a computer, tablet or mobile.
- Once the self-reflection exercise is completed through SELFIE, each center will receive a personalized and interactive report with detailed information and a quick overview of its strengths and weaknesses.

### UE: e-twinning

It is not really an evaluation or recognition system, but we believe it is important to include it in this Toolkit. It can help educators to develop their competences in general and digital ones in particular. And above all, being an Erasmus + program of the European Union.

e-Twinninng is a platform financied by the European Union that offers a platform to educational teams (teachers, directors, librarians, etc.) of schools in any of the participating European countries, to communicate, collaborate, develop projects or which is the same, to feel and be part of the most attractive educational community in Europe.

e-Twinning promotes school collaboration in Europe using information and communication technologies (ICT) and supports schools by providing them with the necessary tools and services to facilitate their partnership to develop a common project. E-Twinning also offers free ongoing online professional development opportunities for educators. e-Twinning was born in 2005 as the most important initiative of the eLearning Learning Program of the European Commission and since 2014 is part of Erasmus +, the European Union's program on education, training, youth and sport.

Within your website, it is important to highlight the following sections:

Accreditation.- This section contains everything the teachers need to know about the recognition of what e-Twinning offers: European Quality, National Quality or e-Twinning Center, as well as project awards.

**Professional development.-** From self-assessment tools (MeTP) and self-taught materials (self-taught e-Twinning) or online seminars, to didactic meetings and peer learning through the e-Twinning activities, any teacher can navigate in this different type of tools with those who improve in teaching and learning methods.



### SPAIN: Validation of an Indicator Model (INCODIES) for Assessing Student Digital Competence in Basic Education

Following the structure of the DigCompEdu framework at a European level, a set of indicators to be used to evaluate the digital competence of students has been developed. 77 experts have participated in the elaboration of these indicators and they can be used to affirm the competences in the DIGCOMP framework.

This Model was funded by the Ministry of Economy and Competitiveness & European Regional Development Fund (FEDER) and it used 356 indicators divided among the 5 areas of the digital competence (48 in the Information area, 69 in the communication area, 102 in the creation of content, 72 in security and 65 in problem solving), and together they covered the 21 competences of the DigCompEdu and the 3 level of development.

# Chapter 8:

## Tools, Devices and Resources



## Tools, Devices and Resources

10.1 Examples of Hardware that may be needed for the various software examples of use described in 10.2

**Smartphone:** Is a cellular telephone with an integrated computer and other features not originally associated with telephones, such as an operating system, web browsing and the ability to run software applications.

**Tablet:** Is a wireless, portable personal computer with a touchscreen interface. The tablet form factor is typically

 smaller than a laptop/notebook computer, but larger than a smartphone.

Laptop: Is sometimes called a notebook computer by manufacturers, it is a battery- or AC-powered personal computer generally smaller than a briefcase that can easily be transported and conveniently used in temporary spaces.

**Personal Computer (PC):** Is a micro computer designed for use by one person at a time. Normally has an operating system such as DOS or Windows that is written to use with what microprocessor is being used.

Whiteboard: Is a non-electronic variation of the traditional "re-writeable" schoolroom blackboard. White instead of black and of a material that can be written on with colored markers (known as dry erase markers).

Projector & Screen: Is an optical device that projects an image (or moving images) onto a surface, commonly a projector screen.

**Speakers:** Are devices that converts analog audio signals into the equivalent air vibrations in order to make audible sound.

**Audio recording equipment:** Is equipment designed for sound recording, mixing, and audio production of instrumental or vocal musical performances, spoken words, and other sounds.

**Camera:** Is a device to capture still images or to record moving images, which are stored in a physical medium such as in a digital system or on photographic film.

Video recording equipment: A digital video recorder (DVR) is an electronic device that records video in a digital format.

**Internet access:** A process of connecting to the internet using personal computers, laptops or mobile devices by users or enterprises. Internet access is subject to data signalling rates.

10.2 Software / App	Example of use in education	
<b>Twitter:</b> Instant messaging to create networks of users who can communicate regularly with brief messages, or "tweets."		Track a #hashtag on a relevant research topic (in groups or individually) and see where it leads. Discuss the original source (e.g. retweets) and its credibility.
<b>Skype:</b> Free internet voice and video calling between subscribers.	S	Practice a foreign language by calling sister classrooms or volunteers in other countries.
<b>Zoom:</b> Internet voice and video calling between subscribers which can be recorded.	zoom	Task students with roleplaying job interviews. The interview panel can be in one place with the candidates in another. Record the interviews, discuss who gets the job and reasons for the choice.
Youtube: Free Video-sharing website.	You Tube	Video record a dance choreography and share a private youtube link to the video for home practice / feedback exercises / to catch up absent learners.
Facebook: Free social network where users can post comments, share photos and post links to news or interesting content, chat live & watch videos.	f	Start a competition based on class topic and post to Facebook. See which projects get most likes. Consider privacy, appearing high on people's feeds, how regularly to post, finding groups interested in voting, reviewing results using Facebook analytics etc.
Whatsapp: Free app for voice/ video calls & sending texts, documents / images & other media over a secure network.	0	Create a closed messaging group for the staff team to communicate, socialise and share ideas.
<b>Moodle:</b> Learning platform designed to provide a way of providing a personalised learning environments.	m	Create a 'gap fill' exercise for students to complete on the moodle. Share with colleagues and label correctly the appropriate courses for which it could be used. Ask for colleagues' feedback after use.
<b>Microsoft Powerpoint:</b> Software package to create electronic presentation.	P	Task students with using powerpoint in groups to present a project to the rest of the class.
Google drive/ Dropbox/ onedrive / icloud: Free cloud storage service		Create online portfolios of work that can be added to / edited by student(s) and teacher in real time.

10.2 Software / App	Exai	mple of use in education
<b>Google docs and sheets:</b> Free Web- based app in which documents and spreadsheets can be created, edited and stored online.		Create and share an exercise asking for examples (e.g. write the names of different fruits in French) and task students to answer in a certain colour and not overwrite someone else's answer. Conditionally format cells to their own colour.
<b>Google forms:</b> Free Web-based app in which forms can be created, edited and stored online.		Create a self-marking test which gives pre- written feedback on answers given or directs students to one page or another depending on their answers.
<b>Evernote:</b> Free app that keeps your notes organized		Set a research task e.g. Find out things about Iran and take notes in Evernote. After a set time, task the students with organising their notes using folders, sub folders and #tags. Projects may be simplified or expanded upon.
<b>Microsoft word &amp; Publisher:</b> Software to create electronic leaflets/Posters etc.	w	Task students to take a word version of information about an upcoming event and turn it into a flier using publisher.
<b>Prezi:</b> Free online tool to create electronic presentation.		With a colleague, create a presentation as your lesson plans so that rather than moving forward in a linear way, students get a visual reminder of the overall relationship between lessons / topics / objectives /activities during the lessons as you zoom in and out.
<b>IMovie:</b> Free video editing app for apple devices	<b>X</b>	Task students to add text to a movie showing your website, name of creator or copyright notice.
<b>Movie maker:</b> Software package to create and edit videos. (In Windows 10 it has been transformed and added as part of the picture editing software)		Task students to make a video presenting their project rather than standing in front of the class. Also allows shy students to engage in a different way.
Kahoot: Free app to create quizzes	Kahoot!	Create a learning check quiz for the end of a class.
<b>Powtoon:</b> Software to create engaging, animated videos	>	Create a powtoon explaining a topic and share before class. Class time then becomes more tutorial and less lecture. Search "Flipped Classroom". Share process, product & difficulties with colleagues.

10.2 Software / App	Example of use in education	
<b>Mentimeter:</b> Online tool to create presentations with votes, polls, word clouds, multiple choice questions, quizzes.	111	Start to discuss a sensitive topic with a series of interactive, anonymous polls. Philosophy, religion, bullying or sex education are examples.
<b>Pinterest:</b> Website where people can pin images and ideas in one place, ie a pinboard	P	Task students to create a moodboard for a project e.g. costumes and sets for a play.
<b>Audacity:</b> Free software for multi-track audio editor and recording.		Cut music to be a specific length appropriate to the class e.g. For dance, cut music to exactly 3 mins and teach 1 min of choreo per week for 3 weeks.
<b>Canva:</b> Free online tool to create electronic leaflets/Posters etc.	Canva	Task students to work together creating a poster for a school open day.
<b>Padlet:</b> Free online bulletin board that you can use to display information for any topic.	1	Task the entire class to begin an environmental project using padlet to take notes. Add parameters such as 'each student must add 1-3 items' or specific media types from each student.
<b>Slideshare:</b> Online sharing service for professional content including presentations, infographics, documents, and videos.		Tutors can use this to find presentations on relevant topics rather than having to create new material from scratch. Frees time for editing and personalisation of the material.
<b>Camtasia:</b> Software to create video tutorials / presentations via screencast/ plugin		Task students to create a video teaching lower level students how to complete a specific digital task. Use clear language and structure.
Instagram:	Ø	Imagine a historical or fictional character were alive in the modern day and task students to create an instagram account for them and collect relevant photos/followers.