NEEDS AND EXPECTATIONS OF HIGHER EDUCATION TEACHERS ON DIGITAL COMPETENCES

Before and During the COVID-19 Outbreak

EdDiCo
Supporting the Development of the Digital Competences of Educators

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1 Premise

This investigation into *Digital Competences for HE Teachers* has been carried out within the scope of the international EU-funded Erasmus+ project *Supporting the Development and Certification of the Digital Competences of Educators (EdDiCo).*

The aim of the EdDiCo project is to empower individual educators to:

- Identify potential technology for transforming and improving their education offerings
- Determine the digital competences needed to successfully apply those technologies and associated methodologies
- Find the educational resources necessary to acquire those competences

More information is available on the EdDiCo website: https://eddico.eu/

2 Purpose of this research

The purpose of this research is to **better understand the project's main target group (HE teachers) and their digital competency needs.** This requires that we understand:

- Who is our main target group?
- What are their digital competency needs and requirements?
- What technologies are HE teachers using?
- How do HE teachers learn?
- How do HE teachers develop certain competences?
- How do teachers relate to digital tools?

3 Interview methodology

3.1 Period

This analysis is based on interviews conducted in the time period **from January 2020 to March 2020.**

It must be noted that the spread of the COVID-19 outbreak in Europe, where the project is being carried out, has affected the research process. Specifically, the outbreak has highlighted in real time the impact that forced online teaching has had on the university environment and on the development of digital competences.

3.2 Target

The target interviewees were teachers and educators mainly from higher education institutions, but also from schools and the non-profit sector. Approximately three interviews per country were conducted and with a diversity of countries represented, spanning Italy, Germany, Spain, Finland and Lithuania.

3.3 Number of interviews

A total of **19** interviews were conducted within the partnership countries by member institutions of the EdDiCo partnership:[1]

Table 1. Interviews conducted

	Number of interviews
Fondazione Politecnico di Milano (FPM)	3
Stifterverband (SV)	2
Duale Hochschule Baden-Württemberg (DHBW)	5
Tampere University of Technology (TAU)	3
Vytauto Didžiojo Universitetas (VMU)	3
Universidad Internacional de La Rioja (UNIR)	3

[1] See: https://eddico.eu/partners/

3.4 Anonymity

Although most of the interviewees were not opposed to including their names in this paper, some preferred to be kept anonymous. **As a result, we decided not to use actual names and instead to refer to interviewees anonymously using descriptive designators such as: [Teacher, Germany].**

3.5 Means

Interviews were conducted in one-to-one settings, in most cases face to face but also by telephone or video-conferencing systems. The average length of each interview was between 25 to 45 minutes.

3.6 EdDiCo team interviewers

The interviewers were all project managers and researchers of the EdDiCo partnership institutions.

- **Matteo Uggeri, Laura Barlassina** - Fondazione Politecnico di Milano (Italy);
- **Yasmin Djabarian** - Stifterverband (Germany)
- Jochen Ehrenreich, Raimund Hudak - DHBW (Germany)
- Airina Volungevičienė - VMU (Lithuania)
- Jussi Myllärniemi - TAU (Finland)
- Aida Lopez Serrano - UNIR (Spain)

3.7 Authors of the report

This report was written by **Matteo Uggeri** and **Laura Barlassina** of Fondazione Politecnico di Milano, and then peer reviewed by all project team members.

4 Interview context and time period

> *We're all jumping in at the deep end. It's the best way to learn something new.*
> *Last Wednesday I taught my first 8 hours lesson on Zoom. I put a flipchart behind me, but I realised that I have to get a thicker pencil.*
> *The breakout sessions option is great: I can randomly create subgroups for short workshops of, for instance, 15 minutes, then get back to the plenary.*
> *I think we did it great. [HE Teacher, Germany]*

The above quote is from one of the interviews conducted after measures to combat the COVID-19 pandemic put on hold most analogue activities, university lectures included. As a consequence, **most universities, during these hard times, had to speed up the processes of adopting eLearning and other distance learning approaches in order to keep their courses running.**

It is therefore obvious how a set of interviews done during this period in five countries across Europe (Italy, Germany, Finland, Lithuania and Spain) suffered from an incredible 'before and after' bias. **At the same time, the work that this project is doing in trying to enhance the digital competences of HE teachers is extremely relevant, now more than ever.**

In the following sections of this report, we deliberately included the information collected in all situations, as it would have been impossible to divide them into two categories (such as 'before and during the lockdown"). Moreover, we need to emphasize that a few of the interviews took place partially before and partially during the pandemic and with the same person.

We did our best to 'take a picture' of the situation through these incredibly interesting conversations with the interviewed teachers, in order to report their knowledge and also attitudes toward the importance of digital competence development for educators.

5 Results

The interviews were structured into a set of 10 questions, starting with generic questions, and moving progressively toward more in depth questions that explored the specific situation of each interviewee. Therefore, the structure of this report reflects the sequence of the questions, although in some cases answers to questions have been unified or divided into sub-paragraphs for ease of reading.

2

5.1 Impact of digital transformation on the university teaching environment

> *The problem is not the technical solution, but the working time for preparation and evaluation. [HE Teacher, Germany]*

The overall finding on the impact of digital transformation on the teaching environment at the university is "a lot". Nevertheless, in nearly all cases, except for one

[2] Photo by Geralt - CC0 - https://pixabay.com/it/photos/imparare-educazione-libri-libro-4226965/

(that will be described later), **the interviewees stated that their university provided surprisingly little structured support in the midst of this transformation.** As a result, the initiatives were mostly carried out individually (or in small groups of colleagues) by the teachers themselves.

Despite the obstacles and initial difficulties, digitalization in this field increased during the interview period:

> *Many colleagues who were sceptical to online learning now actually use Moodle, not only to share slides, but also to do quizzes and interact with students. [Teacher in farm management and business administration, Germany*]

Although also the case before the COVID-19 outbreak, interviewees had the impression that **most universities took initiatives seriously to keep lectures ongoing during the COVID-19 crisis. These initiatives were primarily carried out by adopting digital tools (e.g., Microsoft Teams, Zoom, Moodle, and various learning management systems (LMSs)) while not focusing on didactical aspects of using the tools (e.g. providing teacher training on pedagogical use of tools).** This was primarily due to the pressure to act quickly. At the same time, the situation also revealed how development of digital competences was usually the responsibility of the teachers themselves.

5.1.1 Impact on students: Personalised learning

> *Digitalisation has a major impact on the study environment and makes teachers much more flexible in their study process. More collaborative activities appear to be attractive to students, and more convenient results can be created in the study process. [Management Teacher, Lithuania]*

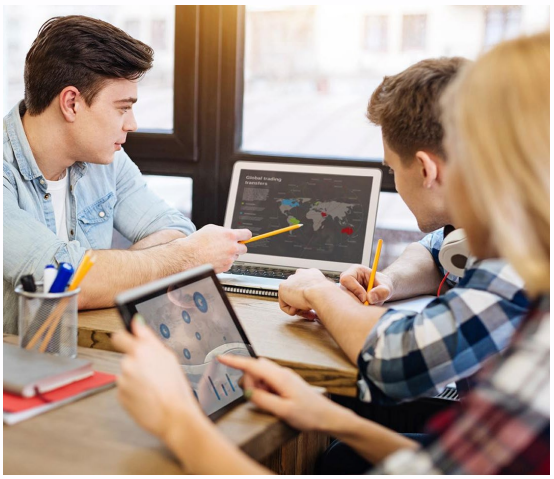
Most interviewees stressed that digital transformation was not only a necessity, but also an opportunity to improve learning, especially with regard to interacting with students. Specifically, interviewed emphasized that the learning environment needs to take into consideration the students' individual pace of development and the impact of digitalization in supporting students' academic growth. In particular, digitalisation allows for more focused and tailored teaching and learning.

> *Teachers explore new digital tools and possibilities of personalized and mobile learning and introduce it in their classes. [Adult Learning Teacher, Lithuania]*

> *I use digital media as a method to strengthen the self-esteem of young adults and to facilitate their exchange of ideas and experiences, and also to address topics which would be difficult to address in personal discussions. Example: how does chronic disease affect family planning or career plans? [Trainer/Facilitator, Germany]*

We also need to reiterate that digital does not necessarily mean a fully online solution: **blended solutions** (when possible before the COVID-19 outbreak) **were ideal situations where interactive tools and cloud computing** (such as shared document group exercises

using Google Drive) **proved very effective in making *active learning* possible, and also supported development of student soft skills.**[3]



Working online but within the classroom increases collaboration and exchange: the lecture can be interrupted to start a discussion together with the students, divided into (online) groups, and let them go to work online for a while. [Communication HE Teacher, Italy]

This same teacher also stressed the usefulness of digital tools in providing immediate and supportive feedback to students:

...if I find something well done in an assignment, I directly write a complimenting comment, which motivates the students. [Communication HE Teacher, Italy]

Another opportunity that was identified as heavily supporting digital transformation was gamification[4] – when it is utilized by teachers to design fruitful engagement activities for students, from simple competitions to more structured collaborative games in both the virtual or non-virtual classroom.

One interviewee, who was extremely proactive in terms of advanced technologies, described the use of virtual reality (VR) environments in his virtual courses on Chemical Plants.

> *The software systems that allow simulation with immersive reality and data processing have a very strong (and very positive) impact on teaching. They're extremely useful, as in most cases the real visit [to chemical implants] has many limits: industrial secrets, equipment, danger... It is more like "feeling the perfume": you cannot see everything and you cannot try anything. With VR you can. [Chemistry Plant Univ. Teacher Italy]*

It is beyond the scope of this report to explore the potential of VR in higher education post COVID-19; however, these findings can provide interesting insights.

[3] See also the eLene4Life report *Transnational Analysis of the Transferability to Higher Education of Corporate Active Learning on Soft Skills* from the Erasmus+ project eLene4Life (Uggeri et al, 2019).

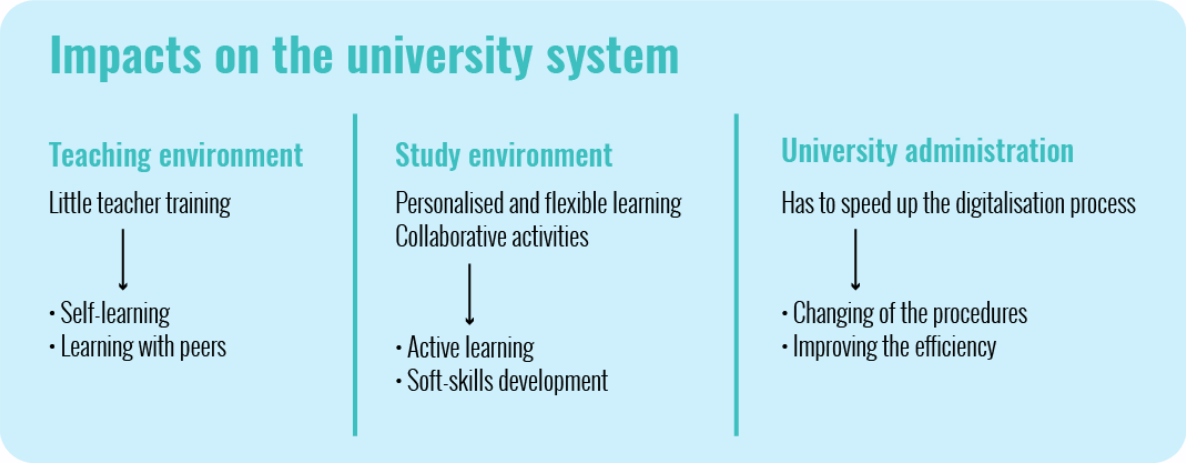
[4] Gamification can be defined as "the application of game-design elements and game principles in non-game contexts" (Huotari & Hamari, 2012).

5.1.2 Impact on university administration: Improving efficiency

Some interviewees found that **digital transformation can improve the (often heavy) burden of administrative and bureaucratic activities connected to didactics.**

> *Digital transformation impacts all different university roles: teachers, administrations, students. [HE Teacher, Italy]*

During the COVID-19 lockdown, university administrative offices, often known for their culture of extreme reluctance to IT, were forced to accelerate their digitalization processes, changing administrative procedures in order to improve their efficiency in adapting to the lockdown.



5.2 Definitions: What are digital competences?

General definitions of digital competences provided by the interviewees included:

- Skill to use digital systems for teaching and learning.
- Using digital media not for the sake of using digital media, but only where it makes sense from a didactic point of view.
- Competent use of the available digital technologies.
- A sound pedagogical concept for your teaching and facilitation.
- The ability to keep up to date with industrial, international and de facto standards regarding digital technology.
- The skills that people develop regarding the use of online resources, working through digital platforms, communicating through applications such as Facebook, Twitter, etc.
- Handling and knowing what I want to use, for what reason, with the effect I want.
- The use of technology to cross-focus on more engaging and dynamic faster-adaptive results.

- Abilities that involve the use of digital technology for every kind of activity, including communication and collaboration with students, student feedback and professional development.
- Everything that requires interaction with software for academic and professional development.

Although we are aware that definitions may be infinite, it is still possible to identify common elements that describe the relationship between technology (whether referred to as 'software' or 'digital tools') affordances and the learning goal of the teacher. This learning goal can be broadly understood not only related to the subject of teaching, but also to the development of student skills and improvement of the student-teacher relationship.

> *In their own subject, in terms of content, teachers need a more conceptual, comprehensive approach: what problem, which tool, how could I use it. [Egyptology and Coptology Teacher, Germany]*

In a way, the collected responses showed that teachers followed a kind of problem-based learning approach, which is in line with the overall research finding (see the previous and next paragraphs): **each teacher developed his or her digital competence independently (or at a minimum chose how), at his or her own pace, and – most importantly – based on his or her specific teaching, professional, and personal needs.**

5.3 Areas for enhancing teachers' digital competences

The first finding related to this aspect is that digital competences among teachers were extremely heterogeneous. In most cases, where we could find digitally competent teachers, teachers had developed only those digital competences that they found necessary for their specific didactical approach.

This finding applied both before and during the COVID-19 emergency. The new situation seemed to force most education professionals to move forward quickly in enhancing their digital competences – in most cases[5] in order to have the basic skills to manage tools and media which they needed to keep doing their lectures from home. In a way, **digitization was still perceived as more a need than an opportunity,** which is more than understandable; however, the risk is to view digitization from a narrow perspective, thus losing aspects of its potential in realizing beneficial opportunities for improving the learning process more broadly.

It was also found that **many people (not only educators) still have a distorted idea of the quality that ICT-supported learning can offer, due to a plethora of bad examples in the**

[5] At the time of this writing (March/April 2020). It must be noted again that due the speed of dramatic societal changes and the resulting change in working and teaching, a report such as this can only provide a snapshot of the actual situation at the specific moment at which it is occurs.

field: from the 'ancient' courses on the "Security Law" to trivial online quizzes passed off as gamified experiences.

At university, some of the online courses are not really well-made, which leads to low acceptance by the students and high course attrition rates. To achieve higher attendance rates, some lecturers then introduce compulsory assessment even for courses that were not initially designed for assessment. The better solution would be to increase the quality of the course offering. Trainer/Facilitator, Germany]

Although the **areas where teachers need to enhance their digital competences varied considerably, we can roughly classify them into three categories of desiderata:**

- Improvement of teaching through relationship-oriented learning for students
- Guidance for selecting, using, and applying digital tools for research and learning
- Deeper knowledge of hard IT skills

The following sections report on each of these categories and include supporting excerpts from the interviews.

5.3.1 Improvement of teaching through relationship-oriented learning for students

- Know how to use digital tools in the classroom for the purpose of engaging and motivating learners;
- Discover ways to get to know learners better and how to help them learn, instead of focusing on using technologies in class;
- Improve evaluation techniques;
- Incorporate collaborative learning methodologies;
- Be familiar with gamification techniques and how to use them to engage the students.

I think we could do more activities with students, teamwork and know how to motivate them in general through their digital world. [Applied Mathematics Teacher, Spain]

5.3.2 Guidance for selecting, using, and applying digital tools for research and learning

- Improve teaching and assessment methods and professional development for teachers;
- Acquire a specific digital literacy to better understand the technical terms of a web research, so that the experience can be useful and not frustrating because of its incomprehensibility;
- Become a "digitally competent teacher": having competences in communication, collaboration, content creation, and student empowerment;
- Have general familiarity with LMSs or educational platforms, not only those provided by one's own university;
- Be able to manage video production and editing;
- Search for educational content and innovative teaching methods.

The main finding was the teachers' overall sense of feeling overwhelmed by the wide range of digital opportunities available, a perception that even members of this project partnership (researchers, managers and practitioners of learning innovation) admitted experiencing at times.

> *There are many resources on the internet, but teachers do not know how to select the most appropriate content for our subject. [Political Science Teacher, Spain]*

5.3.3 Deeper knowledge of hard IT skills

- Improve digital problem solving;
- Acquire expertise in IT safety and programming;
- Understand data analysis or learning data analytics;
- Improve the quality of learning material (also for the classroom), both from a didactical perspective and in terms of graphics and appeal.

Some interviewees reiterated that many colleagues lack even basic IT skills, and that there is a lack of support from their university in gaining those skills.

> *Computer literacy is completely missing: the IT service does only specific support, it does not provide the basis. [Management Engineering Teacher, Italy]*

A teacher also noted that the digital competences related to research characteristics were needed: open scholarly communication, open access to publications, open research data.

5.4 Teacher self-perception of their level of digital competences [6]

An educator cannot ignore the digital revolution, so cannot be unaware of digital competences. It is essential to have basic technological skills to keep up with the times and the context in which you teach. This does not mean the abandonment of old methodologies, but that new ones must be known. [Communication HE Teacher, Italy]

Among the multitude of digital competences, all the interviewees named first the ability as that of using a variety of conference software programs like Zoom, Adobe Connect, Microsoft Teams, and Skype. **This period of emergency in which all of the interviewees had to work and teach online certainly underscored the importance of such software; teachers used the software, but with little awareness of how to use it effectively**. Online communication needs interaction and cooperation. Cloud solutions not only allow the ability to share documents, but also to receive comments and feedback, to support interaction, and to engage in productive exchanges.

In this context, some teachers stressed the importance of knowing how to manage an online course based on an LMS, such as Moodle or Canvas (e.g., managing students' requests, discussion forums, surveys, assignments, content uploading, and implementation of tools).

Multimedia content allowed teachers to better sustain students' attention because it was usually considered more engaging. Therefore, creation and the use of videos or interactive scenarios was something that often was required of the teachers.

> *Try it, I don't need to know exactly how it works. [HE professor in food management and business administration, Germany]*

The average digital competence level of the interviewees was medium, with very few with low competence levels and some with very high levels. The latter were the ones that had in years previously invested in the digitalization of their lessons and were able to able to apply innovative teaching methods that made extensive use of specific, technical and sectorial software.

[6] Photo by John Schnobrich - CC0 - https://unsplash.com/photos/FlPc9_VocJ4

On the other hand, a basic level of competence was found to be sufficient for transversal technological skills. **Minimum computer literacy was presumed, and therefore was not taught: self-learning was considered fundamental and necessary.**

It was also difficult for teachers to maintain a high level of technological competence over time, as the COVID-19 situation was evolving at very high speed.

> *I struggled to keep up with the times because everything changes too quickly: once I was much more updated, today I disinvested in computer learning. [Design and management of production systems HE Teacher, Italy]*

The COVID-19 lockdown accelerated this process even further, to the point that even experienced teachers were struggling with new software solutions that they were required to use – in some cases, the new software replacing that with which they were familiar.

5.5 How teachers develop digital competences

Many interviewees said that **a lifelong learning attitude is essential in order to be constantly updated and to develop digital competences. Learning to learn, continuous learning, ability to change, and asking for help and guidance were often mentioned.**

In general, there were two options identified by teachers for developing digital competences, each one with obvious pros and cons:

- Structured courses/workshops/training initiatives, that may be provided by the teachers' university or other institutions
- Autonomous forms of self-training, not necessarily in solitude, but often with the help of colleagues of even friends/acquaintances from other fields

5.6 Structured courses/workshops/training initiatives

In our limited research, we found that the first case seldom happened and was usually less appreciated by teachers.

> *I don't like specific CPD[7] courses on digital skills because afterwards I don't have the time to apply and practice what I have learned, and then the skills get lost again. [Pedagogist and English School Teacher, Germany]*

Some teachers stressed that official training courses were required to be taken during teachers' free time, and as a result, they were reluctant to enrol: this indicates that there was a lack of incentives, which is discussed further later on in this report.

[7] CPD = Continuing Professional Development, see https://cpduk.co.uk/explained

5.7 Autonomous forms of self-training

The second case offered interesting insights, in terms of the above-mentioned *adverse* attitude to formal lifelong learning courses. It can be differentiated in several useful ways, from learning by doing to problem-based and collaborative learning:

> *Learning by doing: when I planned a video workshop, I researched the potential of smartphone apps and saw that it was possible to create something without specialized camera equipment, just asking the students to use their own smartphones in a BYOD perspective. During the workshop I even learned from the participant's abilities! [Trainer/Facilitator, Germany]*

'Googling' solutions to problems or to find inspiration on how to improve learning was a very common approach, and including searching for tutorials on YouTube or similar forms of online search.

Asking help from colleagues was another very typical approach.

> *I look around among my fellow professors to see who is experienced in online teaching, and then I ask them for advice. [Food Management Teacher, Germany]*

MOOCs were mentioned as a resource, but only few teachers exploited their full potential.

> *I started a MOOC with real motivation and engagement, but it lasted no more than one week.*
> *I never came back for the second week, no matter how many messages they wrote me, no matter what kind of support they offered me. But this is just maybe because I prefer learning individually and at my own pace, and when I feel that someone is pushing me, I reject it and do not learn more. [Management Teacher, Lithuania]*

Participating in national or international projects (such as EdDiCo) was also mentioned as a learning method, as well as attending conferences on ICT, pedagogy, or eLearning. Some used tools and methodologies proposed by other Erasmus+ projects, such as the *Digital Skills Accelerator* (https://www.digitalskillsaccelerator.eu/).

Regarding **interpersonal exchange and non-digital learning methods,** the interviewees repeatedly emphasized the importance of exchanging ideas with colleagues and participating in workshops and conferences about digital competences.

> *We should move from focused learning to continuous daily learning. Learning should be structured and should be part of a personal plan of growth. We cannot learn only in case of necessity: we need continuity and, therefore, motivation. [Design and management of production systems HE Teacher, Italy]*

Although not explicitly explored, **most universities in the world had not only adapted their learning to become fully online, but had also trained their teachers** (**at the time of writing while still under the COVID-19 crisis).** This was achieved through the use of tools, in particular the LMS but more than anything the real-time platforms that institutions already

had or had recently bought licenses for, e.g., Microsoft Teams, Zoom, Adobe Connect, Big Blue Button and others. These tools suddenly became the main way for teachers to interact with students (and colleagues). At the moment, we cannot further explore this aspect, but **we hope that in a later phase** (hopefully with more bearable life conditions) **the emphasis will be put on digital competences development and less on training for managing proprietary digital tools, and possibly using an open education approach.**

5.8 When teachers attend a digital competences course

> *I am currently switching from F2F[8] teaching to online teaching. I do not have the time to develop my digital teaching competences in formal courses, I am just curious and try things out. Learning by doing. [Food Management Teacher, Germany]*

In general terms, teachers tended to develop their digital competences in informal ways, and we even had the impression that most of the learning happened unconsciously, meaning that **often teachers used digital resources, tools or methodologies without a real awareness of what they were learning and how this impacted their professional attitude.** This happened because teachers seldom attended official training courses within their universities or from other institutions. Again, the dominant approach was learning by doing, driven by teacher needs.

> *There are opportunities to attend to development activities, but no time or motivation. [Knowledge Management Teacher, Finland]*

It is therefore very difficult to say whether most teachers took part in structured courses during their free time, and it was most likely dependent on the university where they worked. **We may state that approximately half of the teachers followed courses or 'small initiatives' (such as 'introductory days' and workshops) at their university, and that the other half studied independently, in most cases in their free time.**

One interviewee described quite well the paradox between the two options:

> *Although the university where I work offers opportunities for developing digital skills constantly for teachers dedicated to the use of digital tools to promote student learning and the creation of open learning content, I took a course privately, as the ones provided by the university are not compatible with my times and needs. [Physics Fundamentals Teacher, Spain]*

Teacher exchange formats or **visiting other universities** were often mentioned as productive ways for teachers to learn during official working time.

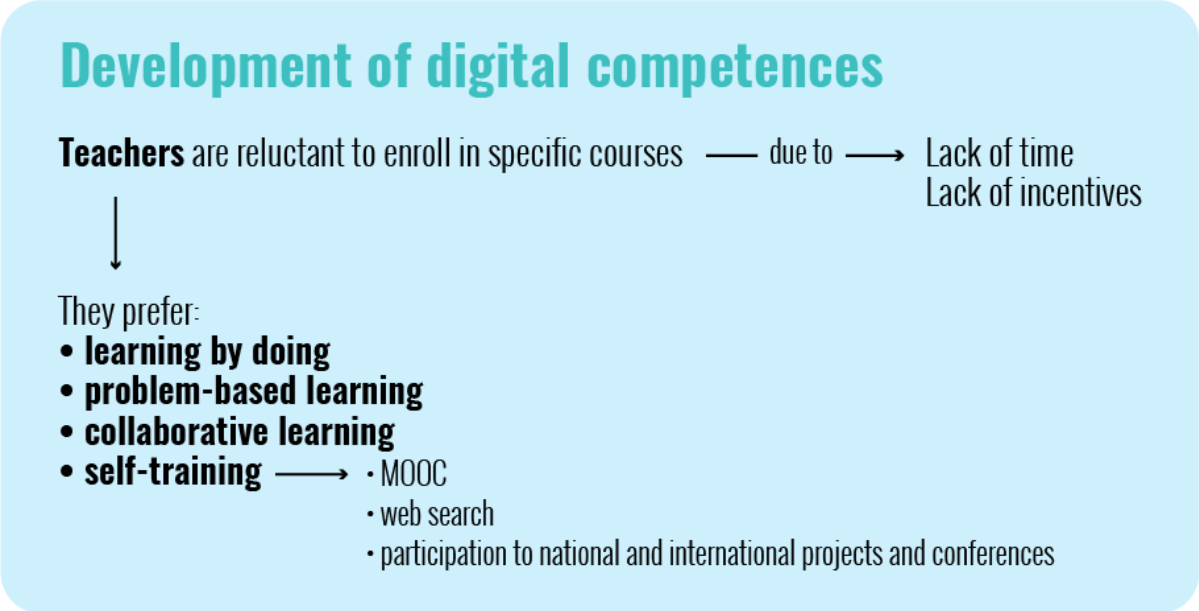
[8] F2F: Face to Face, opposed to online.

It is important to comment on the situation during the COVID-19 related lockdown of universities: **the interviewees stressed how their universities had become more active in providing suggestions and resources for training in digital competences once online lectures had become the only option. But at the same time, the boundaries between 'free time' and 'working time' became blurred when teaching from home.** Again, even more now than before, learning by doing has become the most common and fruitful option.

5.9 Lack of incentives

One major obstacle that has kept educators from taking part in continuing professional development courses (CPD) to develop their digital and non-digital competences is that their remuneration is tied to their teaching obligation, not to the hours of work per week. In Germany for example, a school teacher typically must teach between 23 and 28 hours per week, and a full-time professor between nine and 18 hours per week during the semester, regardless of the amount of time he or she invests preparing classes. This leads to a situation where many of the professors feel that they have to use their free time to develop competencies, thus facing a trade-off between devoting their extra time to better preparing their classes or developing their digital competencies. This helps to explain the relatively low participation rates in CPD courses among educators.

> *"When I take a CPD course, then I still have to do the same amount of teaching, so my to-do list just gets longer. This is why I carefully judge whether I actually need this CPD course. Already now I am in a situation that I know how I could improve my teaching, but this would require that I put more time and effort into it, which I cannot afford to do because of other obligations." (University Professor, Germany)*



5.10 Teacher involvement in development of digital competences training courses

> *My university does some training, but I don't find it interesting, it's always the same and doesn't bring me anything new. They do not consult me or any teacher. [Applied Mathematics Teacher, Spain]*

The harsh quote above reflects quite well the overall finding from our set of interviews, where **no teacher has been involved in the development of digital competence training courses,** apart from answering surveys from time to time.

In one case from Italy, a teacher was heavily involved, but she is part of the team responsible for university training on learning innovation.

5.11 Successful experiences of digital competences learning

> *I like to try things out. This is the best way to learn new things. [Business Administration Teacher, Germany]*

Most interviewees agreed that a successful learning experience must happen incrementally and in a traditional way, starting with literature, video or face-to-face lectures and then applying methodologies and tools in practice. This process could be viewed as a mild passage from a classic ex-cathedra approach to a *learning by doing* way.

Due to the emergency situation of the COVID-19 outbreak, most steps have been skipped, violently forcing teachers (and students) into a digital competences learning experience that is probably too much learning by doing, with a series of adjustments in learner progress.

5.12 Teacher knowledge of existing digital competence frameworks

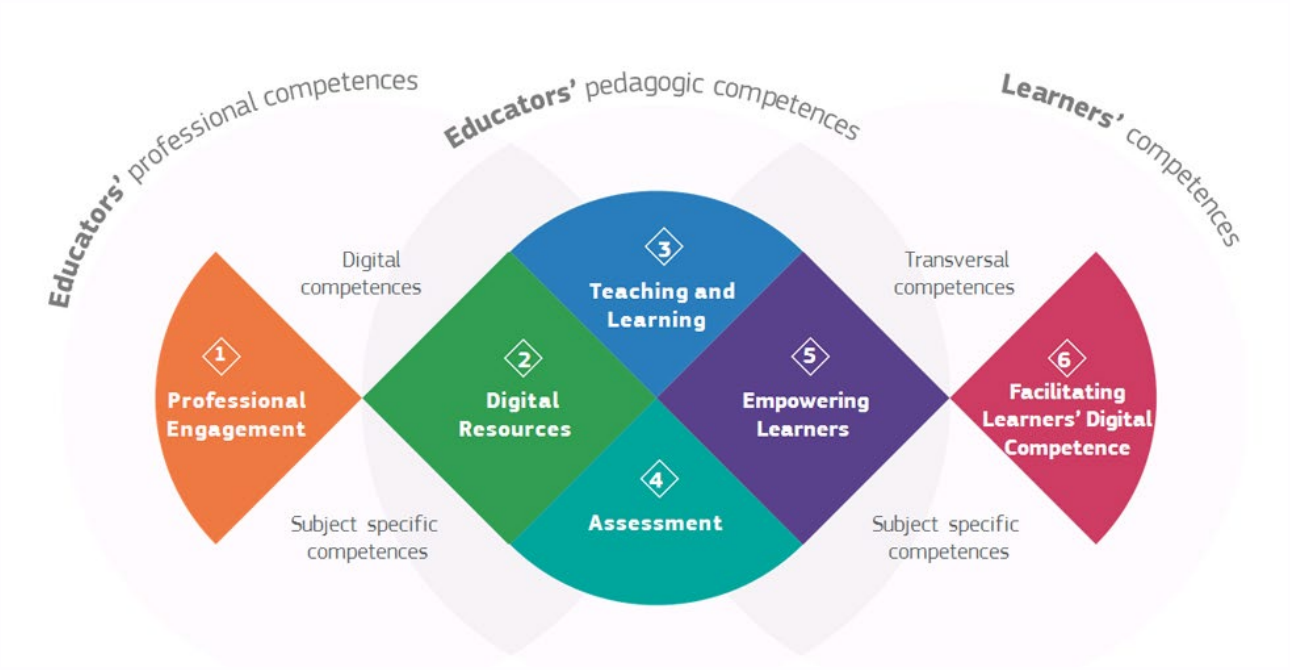
As development of a *Meta-framework on digital competences for teachers* is one of the main outputs of the EdDiCo project, we also asked teachers about their prior knowledge of existing frameworks.

In developing its meta-framework on digital competences for teachers, the EdDiCo team will most likely base its framework on the DigCompEdu framework.[9]

[9] The work is still in progress at the moment of writing and this actual report of interviews will be also used to develop the EdDiCo meta framework and its related outputs.

The European Framework for the Digital Competence of Educators (DigCompEdu) is a scientifically sound framework describing what it means for educators to be digitally competent. It provides a general reference frame to support the development of educator-specific digital competences in Europe. DigCompEdu is directed towards educators at all levels of education, from early childhood to higher and adult education, including general and vocational education and training, special needs education, and non-formal learning contexts. [From the DigCompEdu website - https://ec.europa.eu/jrc/en/digcompedu]

A few interviewees assumed that "some framework" on digital competences may exist at a European level, but almost no one knew of any details. **Some teachers had heard something about the DigCompEdu framework, but only one person knew it well.**



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The interviewers presented and explained the DigCompEdu framework to the teachers in order to monitor their reactions. **In most cases, the teachers made very positive comments regarding the clarity, completeness, and usefulness of this tool, which can be used for both self-training and self-evaluation, as it highlights professional shortcomings. Despite this, some teachers did not seem to appreciate the usefulness of the framework or parts of it.**

[10] Source: https://ec.europa.eu/jrc/en/digcompedu

Below are collective comments provided by the interviewees regarding the framework:

- I think that this framework of competences is very complete, it would be ideal for teachers to develop complete competencies;
- Good teaching needs good didactics and exact wording;
- Seeing the DigCompEdu competence framework, I am aware that I have not developed most of the competencies that appear in it;
- Much of DigCompEdu is what we learned in pedagogy;
- I don't see the added value of digital assessment in teacher education;
- DigCompEdu offers many resources, but honestly, I believe that teachers do not have time or possibilities to apply it fully in teaching;
- Currently, there are more important learning goals than developing my digital teaching.

Other frameworks that have been mentioned are:

- Learning to Read Eata Framework (University of Göttingen);
- Bloom's taxonomy;
- Leavitt's Diamond;
- Maturity models, like ISO 9000;
- The digital competence wheel: https://digital-competence.eu/.

6 Conclusions

Please note that these are only overall impressions collected by the project partnership, and not the viewpoint of the authors or the team.

The main findings of this investigation can be summarised in the following points:

- All teachers agree on the need for improving and developing their own and their colleagues' digital competences;
- At the moment, development of digital competences seldom happens in a structured way, and few higher institution education provide training programs for this purpose;
- If institutions *do* provide training, such initiatives are seldom appreciated, are underused, or ignored by teachers. In our interviewees' opinion, this is often because:
    - The training offer for digital competences development from their university is not focused on teacher needs, are of low quality, or are too time consuming;
    - Other ways of self-learning are often preferred and are mostly driven by learning by doing, such as asking help from peers, 'Googling' solutions, joining MOOCs, or participating in national or international projects.
- The IT environment (e.g., tools, software, and methodologies) evolves at such a rapid pace that it is nearly impossible to stay updated and most attempts to do so are frustrating;
- Most of the above-mentioned self-lifelong learning happens in teachers' free time;

Existing digital competences frameworks, including the DigCompEdu, are usually not known, ignored, or are appreciated but seldom applied.

The COVID-19 outbreak lockdown seems to have abruptly changed the most current situation in the following way:

- Teachers who have been reluctant to use digital tools in the past are now forced to use digital tools and solutions for online-only didactic teaching purposes;
- The pace of technological evolution has accelerated even more, causing additional teacher frustration;
- More teachers are now more skilled and are aware of the potential offered by technology in terms of innovation in teaching (and also researching or managing courses);
- Although many universities invested time, energy, and resources into adopting digital solutions to support online learning, the focus has been often, at least in this first phase, on the software tool, and less on developing the digital competences of teachers.

In such a scenario, we strongly believe that the declared aims of the EdDiCo project are even more valuable and that this small but effective investigation has brought results that may be a useful resource for further project development of our projects. In addition, the project results can also support and guide the entire EU education system into a digital transformation whose boundaries and characteristics are still unknown and difficult to predict. One thing is certain: developing the competencies of teachers in this era is fundamental.

7 Acknowledgments

The EdDiCo team wishes to thank all those involved in development of this work, especially the interviewees and their institutions.

All images in this document have been purchased only for use in this document unless otherwise indicated.

8 Website

For further information about this project, please see: https://eddico.eu/

9 Contacts

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10 References

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Version 5.0 - July 2020

The improvements between the previous one are:

- Changed graphics
- Proof read

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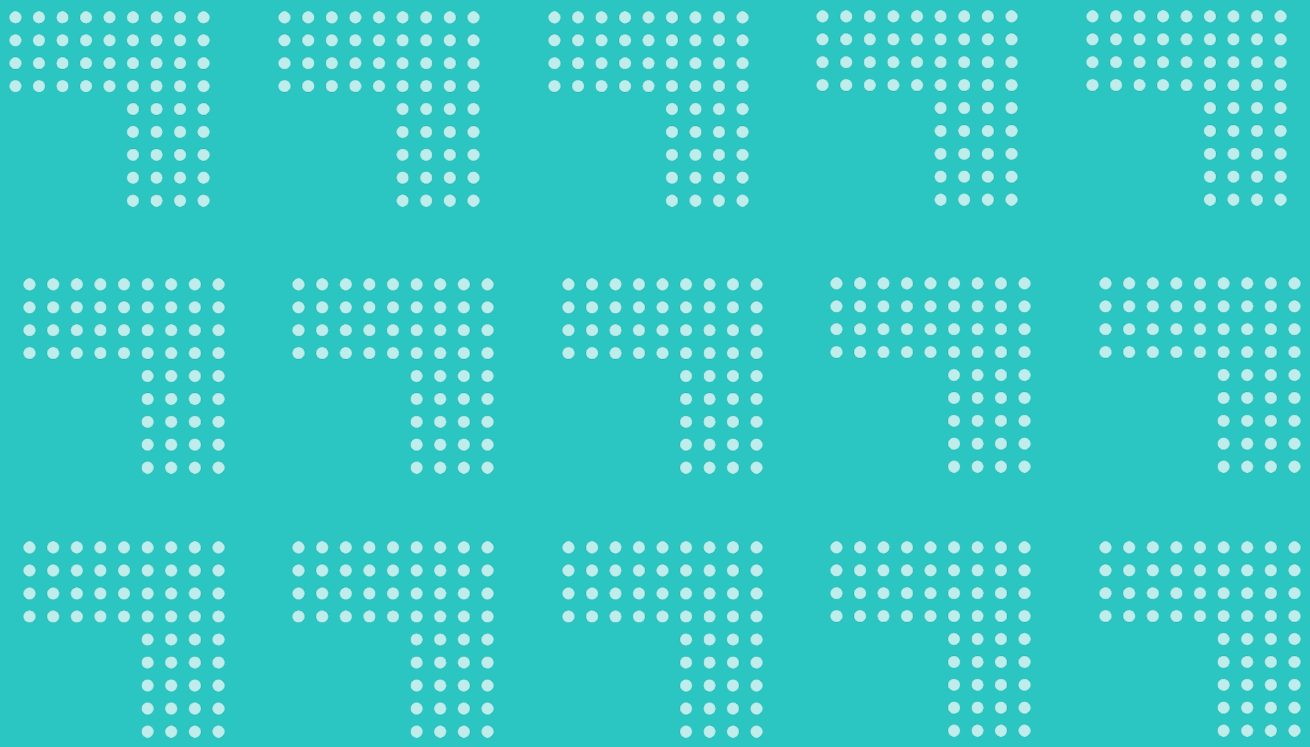

About the EdDico Project

With the advent of each new technology come predictions of fundamental changes in education. Yet few of these changes have been realized. Digital learning may indeed be the technology that breaks that pattern, but this will only come to pass if educators are empowered to take advantage of the technologies and methodologies available to them. The EdDiCo project aims at empowering individual educators to (a) identify the potential technology holds to transform and improve the education they offer, (b) identify the digital competences they would need to acquire to take advantage of those technologies and associated methodologies; (c) find the educational resources necessary to acquire those competences.

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