

D-PAIDEIA
Digital Education

D2.1 D-Paideia Pedagogical Digital Competencies Qualifications Framework



Co-funded by
the European Union

Deliverable No.	2.1	Work Package No.	2	Task/s No.	2.6
Project	D-PAIDEIA				
Work Package Title	Development of a Qualifications Framework for Pedagogical Digital Competencies				
Linked Task/s Title	Update of the qualifications framework on the basis of the results of the consultations				
Status	Final	(Draft/Draft Final/Final)			
Due date deliverable	5/12/2023	Submission date	5/12/2023		
Deliverable version	Final				

Document Contributors

Deliverable responsible	Maria Ranieri, University of Florence		
Contributors	Organization	Reviewers	Organization
Elena Gabbi	University of Florence		
Ilaria Ancillotti	University of Florence		

Document History

Version	Date	Comment

List of Abbreviations

Abbreviation	Description
EC	European Commission
EU	European Union
GA	Grant Agreement
GDPR	General Data Protection Regulation
IP	Intellectual Property
IPR	Intellectual Property Rights
R&I	Research and Innovation
WP	Work Package

Disclaimer: Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EACEA. Neither the European Union nor the granting authority can be held responsible for them.

Index

1. BACKGROUND OF THE QUALIFICATIONS FRAMEWORK	5
1.2 Main results of the scientific literature review	5
1.2 Methodology and main outcomes of the consultation process	6
2. THE DIGCOMPEDU'S OVERVIEW AND A PROPOSAL FOR ITS UPDATING	8
2.1 European Digital Competence Framework for Teachers	8
2.2 Additional competences for DigCompEdu	8
2.2.1 <i>Educators' professional competences</i>	9
Awareness of institutional policy (1.5)	9
Attitude towards the adoption of digital technologies (1.6)	9
Digital work-life balance and wellbeing (1.7)	10
2.2.2 <i>Educators' pedagogical competences</i>	10
Managing educational relationships with ICT (7.1)	11
Diverse and flexible facilitation strategies (7.2)	11
Digital identity and reputation management (7.3)	12
2.2.3 <i>Learners' competences</i>	12
2.3 Visual representation of the D-Paideia Framework	12

1. BACKGROUND OF THE QUALIFICATIONS FRAMEWORK

The Erasmus+ “*Pedagogical Digital Competences as a key element for the digital transformation*” project (D-Paideia) is funded by Erasmus+ GA101087643. The D-Paideia project is based on challenges that have been identified during the pandemic experience that occurred in 2020. Before the pandemic, DigCompEdu was considered one of the most comprehensive frameworks for teachers’ digital competence in education. However, the COVID-19 pandemic highlighted the limitations of the framework, particularly the absence of descriptors that address the social and emotional challenges of digital teaching and learning that emerged during lockdowns. As a result, there is a need to update DigCompEdu to ensure that it adequately covers this aspect and to train teachers for future challenges.

This document is intended to introduce the D-Paideia Pedagogical Digital Competencies Qualifications Framework. Following a thorough literature review, an initial proposal was formulated to update DigCompEdu, particularly focusing on the socio-relational aspects of educational technology use. Subsequently, this proposal underwent a validation and improvement phase, involving feedback and insights from teachers and experts in the field of educational technology. This collaborative process ensures that the D-Paideia Framework is not only informed by academic literature but also refined through practical expertise, making it a robust and relevant resource for educators in the digital era.

○ 1.2 Main results of the scientific literature review

The framework is based on a wide literature review that has been carried out to identify the required pedagogical needs and skills of teachers as they emerged from the COVID-19 pandemic period and their educational consequences. The literature review consists of three sections, including the theoretical background, the definition of educators’ digital competence and the teachers’ needs before and after COVID-19. The main highlights from each section are summarised below.

The first section provides a **theoretical background** for describing the international research view in the field of teachers' digital competences:

- There is no unique definition of teacher digital competence in the scientific literature. The different definitions emphasise mostly: 1) the technological competence, 2) the content knowledge, 3) attitudes towards the technology use, 4) the pedagogical competence, 5) ethical considerations, 6) the cultural awareness, 7) the critical approach and 8) the professional engagement.
- Teachers’ digital competence doesn’t exclusively refer to technical skills but involves more complex dimensions linked to digital practices entailing the use of different skills.
- An integrated approach to teacher digital competence is fundamental to capturing the complexity of such a dynamic concept.

The second section aims to understand **how educators’ digital competence is defined** in different contexts and to identify areas that could be added to DigCompEdu based on other existing models:

- Although included in the DigCompEdu, the digital communication component does not appear to be sufficiently expanded in its mediating role in the relationship with students.
- The ability to intervene to enhance teachers' and students' digital well-being, as well as health protection, is a factor regarded as important in online education practices and inherently linked to digital competence.
- Critical awareness of ICT policy in education and local resources is essential for teachers' reflection and agency in an ever changing social-economic landscape to improve their effectiveness.
- Motivational and attitudinal factors play an essential role in the acquisition and testing of digital teaching skills.

The third section focuses on the **digital competence of European teachers before and after the COVID-19 pandemic** to highlight their educational needs and expectations:

- The effects of the lockdown on teachers and students showed that the emotional, social and psychological dimensions of digital teaching and learning cannot be ignored;
- The Emergency Remote Teaching experience indicated that maintaining relationships - collaboration and communication - with students, families and colleagues appears to be a relevant aspect of distance learning;
- Online or blended learning requires more attention for students with special educational needs, especially for students with disabilities and those with low socio-economic background;
- In order to provide comprehensive training, ICT training programmes for teachers should focus on digital pedagogy and class management in an online environment.

○ 1.2 Methodology and main outcomes of the consultation process

The literature review reveals the possible additions to the DigCompEdu model. During this phase, the emphasis was on crafting an **initial draft** of the Adapted Qualifications Framework, building upon the foundations laid by DigCompEdu. The initial draft was meticulously assembled, incorporating the wealth of knowledge distilled from scholarly and institutional sources. This foundational document laid the groundwork for subsequent stages of development, serving as a reference point for further refinements and enhancements. Subsequent discussions and revisions, also informed by constructive feedback from the consortium, played an important role in shaping the evolving contours of the framework, fostering a dynamic and adaptive approach to the development process.

The adapted draft of the Qualifications Framework was submitted for discussion with teachers and digital education experts through the **consultations**, to assess the relevance given by practitioners to the aspects highlighted and be validated, greatly benefiting from feedback and exchanges with various stakeholders. The consultation tasks encompassed several key actions, including the preparation of guidelines, recruitment and organization efforts, the actual conduct of consultations and the subsequent processing of findings. The consultation guidelines provided a detailed framework outlining activities, timeframes, and tools essential for executing these tasks effectively. The D-Paideia consortium considered a proposed model as a basis for

discussion and invited relevant stakeholders to participate in the process of validation and further development of the model: European teachers and digital education experts. The feedback process was been conducted through a dual-mode workshop (synchronous and asynchronous), in-presence national events and online consultations.

The consultation process engaged a diverse group of participants, comprising 179 teachers and 30 experts from various backgrounds and nationalities, through the use of two different survey tools. During the data collection phase, several activities were carried out. The teachers' consultation gathered both quantitative and qualitative data through the teachers' questionnaire (13 items), including responses to open-ended questions. The data were collected through six events in presence or online, primarily focusing on collecting data from the teachers' questionnaire and discussing the proposal with the participants:

- An online EU webinar took place on June 21, 2023, at 5 PM CEST, involving participants from across Europe.
- Five national consultations were conducted from June to July 2023.

Furthermore, in September and October 2023, the expert consultation was conducted, which yielded both quantitative and qualitative data through the experts' questionnaire (19 items).

The teachers' questionnaire reported the perceptions of the 179 participants on the importance of specific aspects of digital competence for teaching. Among the competences examined, those related to health and well-being, awareness of ICT policy and self-efficacy received the highest levels of agreement from participants. The overall data suggest substantial support for integrating these additional competences into DigCompEdu, with minimal differences of opinion among participants. The analysis highlights the perceived relevance of various dimensions among teachers, expressed as a percentage of general agreement (for scores from "*Slightly Agree*" to "*Strongly Agree*") when combining items related to the same area. Notably, awareness of institutional policy received a high level of endorsement at 96%, followed closely by a 93% agreement for both attitude towards the adoption of digital technologies and digital identity and reputation management. Furthermore, digital work-life balance and well-being garnered substantial support with an agreement level of 97%. While managing educational relationships with ICT achieved an 88% agreement, diverse and flexible facilitation strategies and earned 89% approval from the participating teachers. It can be also observed that all dimensions were evaluated positively and that neutrality or disagreement were rare.

Moreover, the feedback from 30 experts indicated that the proposed competences possessed clear and understandable definitions, aligned with the Qualifications Framework and the DigCompEdu model and were deemed relevant for the incorporation into the European framework. The analysis outlines the perceived relevance of these dimensions as potential additions to DigCompEdu, expressed in terms of a percentage of general agreement among experts. Notably, across various dimensions, there is a consistent 80% agreement, with slightly higher endorsement observed for diverse and flexible facilitation strategies at 83%. These findings indicate a notable level of consensus among experts regarding the potential integration of these dimensions into DigCompEdu, emphasizing their significance within the digital education landscape. The

open-ended responses primarily revolved around the structure and content of the proposed update, the distinction with what already exists in DigCompEdu and definitions' wording.

2. THE DIGCOMPEDU'S OVERVIEW AND A PROPOSAL FOR ITS UPDATING

○ 2.1 European Digital Competence Framework for Teachers

The European Digital Competence Framework for Teachers, commonly known as DigCompEdu¹, was developed by the Joint Research Centre (JRC) to promote the development of teachers' digital competences and foster innovation in European education. By analysing and connecting numerous resources to describe the facets of digital competence for educators, the DigCompEdu is a scientifically sound framework. The DigCompEdu outlines 22 educator-specific digital competencies organised into six dimensions across three main areas.

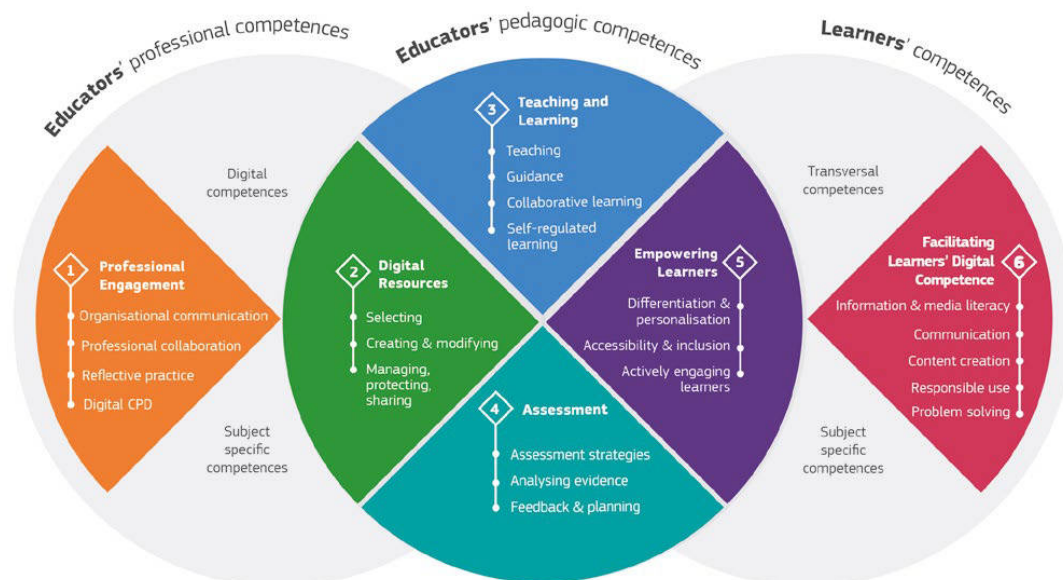


Figure 1. The original DigCompEdu framework (Source: Redecker, 2017).

DigCompEdu's focus on the pedagogical dimension makes it applicable across all subjects, despite the continuously changing technological landscape, by explicitly describing effective ways to integrate digital technologies into teaching and learning, enhance strategies, guide implementation, and innovate education.

○ 2.2 Additional competences for DigCompEdu

The literature review identified areas where DigCompEdu may need to be integrated or expanded better to address the social-emotional challenges of digital teaching and learning. Following feedback from the consultations, the final version of the D-Paideia Framework was developed.

¹ https://joint-research-centre.ec.europa.eu/digcompedu_en

Our proposal is to integrate three new elements in the professional engagement dimension, to add a new section in the area of teachers' pedagogical competences and finally to align learners' competences with the latest version of the Digital Competence Framework for Citizens (DigComp 2.2²).

1. 2.2.1 Educators' professional competences

Three elements can be added to the **Professional engagement (1)** dimension:

- 1.5 Awareness of institutional policy
- 1.6 Attitude towards the adoption of digital technologies
- 1.7 Digital work-life balance and wellbeing.

2. Awareness of institutional policy (1.5)

To organise and manage the school environment and educational resources in a responsible and sustainable way, having the best interests of learners in mind.

To be aware of the implications of national, European and international policies in relation to teaching with technology.

The dimension is integrated into DigCompEdu in Area 1 *Professional engagement* since it directly relates to how teachers interact with their professional environment and adapt to policy changes. It ensures that educators are not only experts in pedagogical practices appropriate and feasible in their own context but are also knowledgeable about the broader policy landscape affecting education. While there are some connections with *Reflective practice* (1.3) in terms of self-assessment and awareness, dimension 1.5 is distinct in that it specifically focuses on understanding and navigating the complex web of policies that impact the use of technology in education. This dimension equips teachers with the ability to adapt to a rapidly changing policy environment and make informed decisions in the best interests of their students and the school community.

Example:

A school can use a Learning Management System such as Moodle, which is an open source platform available for free and enabling collaborative learning.

3. Attitude towards the adoption of digital technologies (1.6)

To be open to exploring, adopting and experimenting with digital technologies.

To critically evaluate currently used digital practices and make informed decisions about their educational benefits and constraints.

The dimension is integrated into DigCompEdu in Area 1 *Professional engagement*, because it focuses on developing the mindset of teachers to adopt and successfully use digital technologies in education,

² <https://op.europa.eu/en/publication-detail/-/publication/50c53c01-abe1-11ec-83e1-01aa75ed71a1>

contributing significantly to their professional competence and lifelong learning. While there may be some overlaps with Area 2 *Teaching and Learning*, particularly in terms of searching for and using digital tools, dimension 1.6 is distinct because it emphasizes the intrinsic motivation and attitude of educators towards technology adoption and assessment. It focuses on the willingness and openness of teachers to explore, experiment, critically evaluate and make informed decisions about innovations, which are pivotal aspects of their professional development.

Example:

A teacher training program can seamlessly integrate theories on ICT in education with practical applications of utilizing ICT in educational settings. This approach aims to demonstrate the advantages of educational technologies and assist teachers in overcoming initial obstacles associated with the adoption of new practices.

4. Digital work-life balance and wellbeing (1.7)

To access and use digital resources consciously and responsibly without compromising the mental and physical health or safety.

To promote a sustainable approach to the management of digital work to ensure an appropriate balance between personal and job life.

The dimension is included into DigCompEdu in Area 1 *Professional engagement* since it pertains to the overall balance and safety in the use of technology in the workplace. While there are some connections with *Responsible use* (6.4), dimension 1.7 refers specifically to teachers as professionals exposed to the risks of digital overload and not to the facilitation of students' skills. These concepts are becoming increasingly important in the digital age where we are constantly connected and may be subjected to excessive pressures.

Example:

Teachers can exercise the right to disconnect to effectively manage their online time in a balanced manner and adopt secure lifestyles while utilizing ICT technology.

5. 2.2.2 Educators' pedagogical competences

In addition to the four dimensions within the **teachers' pedagogical competences** area, there is a proposal to introduce a fifth section, **Socio-emotional and relational skills (7)**, defined as *the promotion of educational relationships and the enhancement of communication through the mediation of digital technologies*.

The new area includes three elements:

- 7.1 Managing educational relationships with ICT
- 7.2 Diverse and flexible facilitation strategies
- 7.3 Digital identity and reputation management.

6. Managing educational relationships with ICT (7.1)

To interact either online or in hybrid mode effectively and respectfully with colleagues, students and families.

To manage the relational dynamics of the classroom through the use of ICT, especially for SEND students and those with low socio-economic backgrounds.

The dimension is integrated into DigCompEdu in Area 7 *Socio-emotional and relational skills* since it emphasizes educators' competence in fostering positive relationships in the digital learning environment. While there are connections with other areas, such as Area 5 *Empowering learners*, in particular with *Differentiation & personalization* (5.2) and *Actively engage students* (5.3), dimension 7.1 is distinct in its focus on developing an inclusive and well-being-oriented group climate inside and outside the classroom. There are some connections even with *Organizational communication* (1.1) and *Students' communication skills* (6.2), but its primary focus lies in communication as a tool for fostering educational relationships with all stakeholders, including the families and their expectations, rather than the organisation of school information and the communication skills of the students themselves. The emphasis in this dimension goes beyond individual student empowerment and engagement: it aims to build a supportive and inclusive learning community that strengthens the sense of belonging and well-being for all individuals involved, including students, educators and families.

Example:

Teachers can utilize ICT to encourage collaboration and engagement among students (online discussions, group projects and virtual collaborations), fostering a sense of community and active participation.

7. Diverse and flexible facilitation strategies (7.2)

To value and accommodate relational dynamics of socio-relational effect of ICT to each teaching modality, including face-to-face, hybrid, blended and fully online environments.

To consider the peculiarities of computer-mediated communication and adapt the communication style to the students' educational and relational needs for promoting their positive attitudes towards the learning experience.

The dimension is integrated into DigCompEdu in Area 7 *Socio-emotional and relational skills*, as it places a strong emphasis on educators' competence in adapting the facilitation strategies to different learning modalities while considering the affective and communicative aspects that are crucial to the success of these strategies. While there may be some overlaps with Area 3 *Teaching and learning*, dimension 7.2 stands apart because it involves critical reflection on the chosen digital facilitation strategies' effectiveness and suitability, enabling educators to make agile adjustments to their methods and approaches with particular attention to computer-mediated communication. It addresses not only the pedagogical aspects but also the relational and socio-emotional dimensions that contribute to successful teaching and learning experiences in a variety of settings.

Example:

When engaging with students, a teacher should be attentive to the phatic aspects of communication. For instance, in written messages via web forums or email, they should conclude the message by offering encouragement to students or include emojis to address the emotional aspects of communication.

8. Digital identity and reputation management (7.3)

To distinguish and manage the consequences of digital identity in terms of social interactions and educational relationships.

To participate in virtual educational environments and curate their own digital reputation through providing and sharing professional and educational resources.

The dimension is integrated into DigCompEdu in Area 7 *Socio-emotional and relational skills* as it revolves around the comprehension of how to use and share personal and professional information while being mindful of the potential implications that digital actions may have on professional and educational relationships. While there are some connections with *Managing, protecting, sharing* (2.3) and *Organisational communication* (1.1), dimension 7.3 places a distinct emphasis on professional interactions within contexts like online communities and interactions with students and the broader educational community. It encompasses a teacher's responsibility to maintain ethical boundaries within their digital identity, strike a balance between their digital and professional personas, and ensure online privacy and security.

Example:

Creating an avatar or using a nickname can serve as an opportunity for individuals to reflect on the concept of digital identity and address the challenges that arise in online environments.

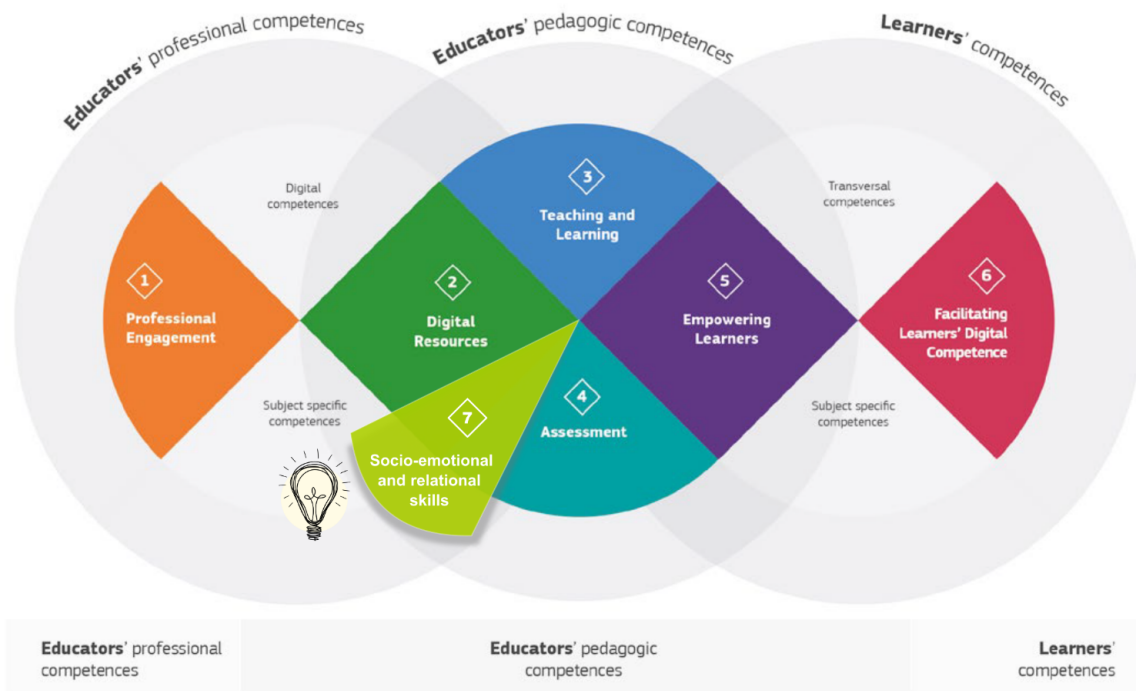
9. 2.2.3 Learners' competences

Compared to the current DigCompEdu, the **facilitation of students' digital competences** dimension includes the elements with reference to the Digital Competence Framework for Citizens (DigComp). However, in the last release of DigComp 2.2 the **Safety (6.4)** category replaces the *Responsible use* and it now includes distance and hybrid working and the new opportunities and issues of personal well-being and safety in digital environments. It is therefore proposed to update the terminology to include this change.

○ 2.3 Visual representation of the D-Paideia Framework

Introducing the figure that outlines the additions to DigCompEdu and the final framework of D-Paideia, we showcase the comprehensive enhancements made to the digital competence framework. This picture serves as a concise and clear representation of the nuanced dimensions and specific considerations embedded in the D-Paideia Framework, offering a more attentive approach to the affective and relational dynamics driven by digital education. Figure 2 highlights the additions to DigCompEdu on a yellow background. The additions are designed to enrich the existing DigCompEdu Framework, providing educators with a more robust and adaptable tool for navigating the complexities of digital teaching and learning. In Figure 3, you will find a detailed illustration of the additional components proposed by D-Paideia for DigCompEdu.

For more information, please visit our website at www.d-paideia.eu.



Educators' professional competences **Educators' pedagogic competences** **Learners' competences**

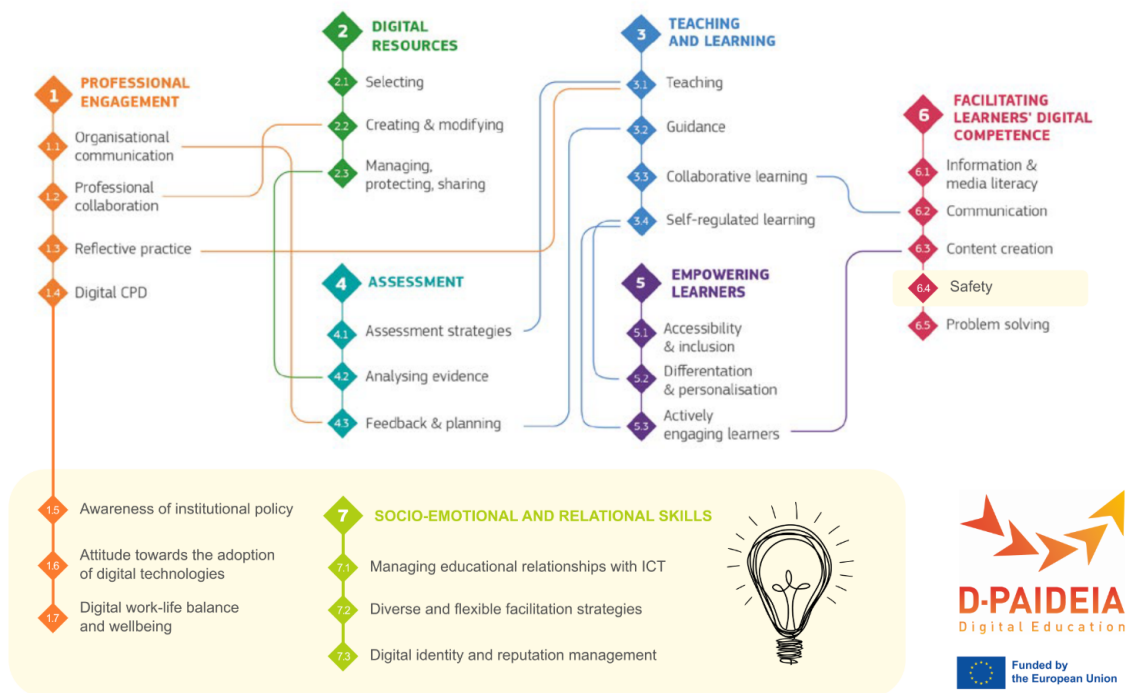


Figure 2. D-Paideia Pedagogical Digital Competencies Qualifications Framework.



Figure 3. Detail of components added to DigCompEdu.