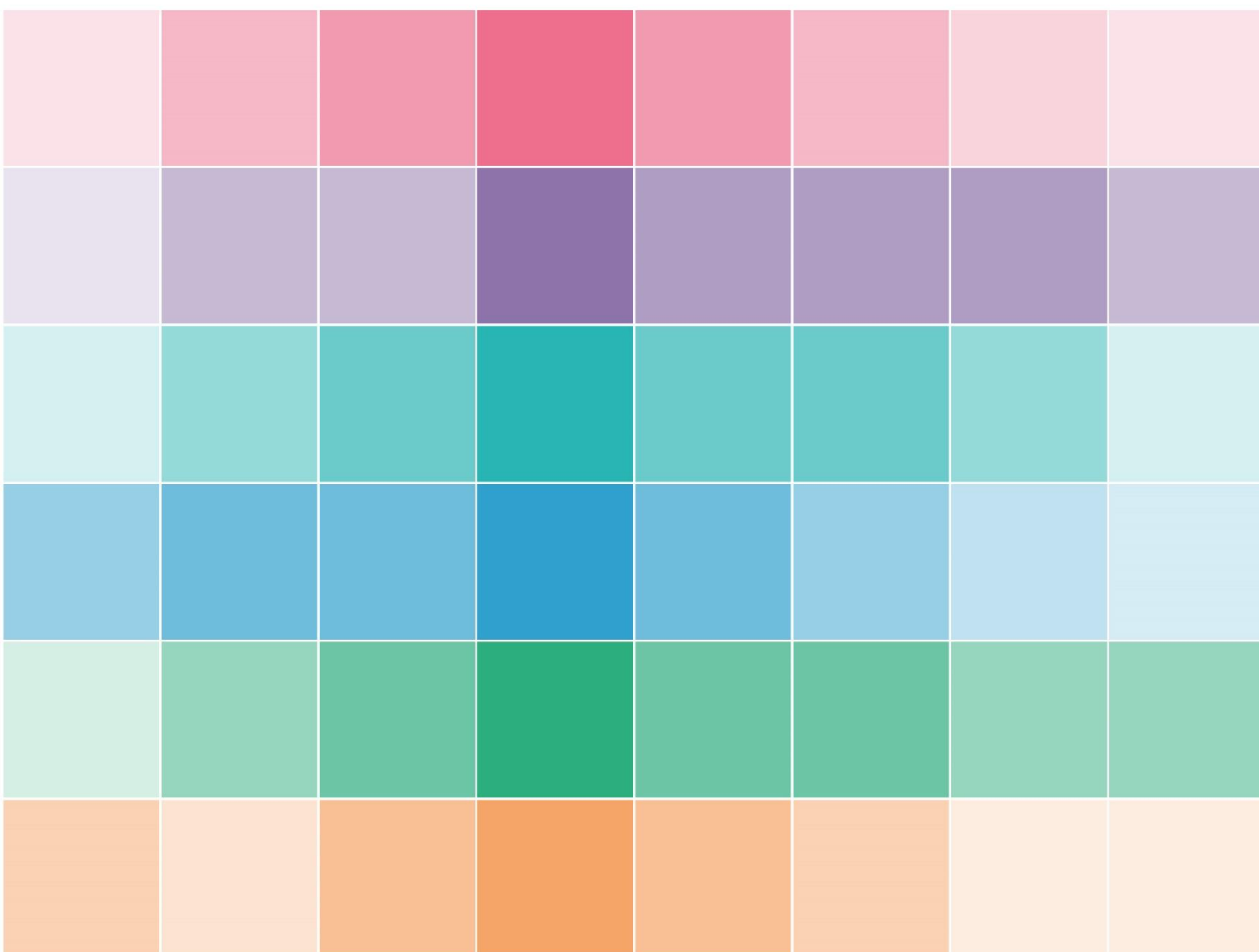


Spanish Framework for the Digital Competence of Teachers

January 2022



The Autonomous Communities of Spain and the Spanish Ministry of Education and Vocational Training considered it necessary to update the Spanish Framework for the Digital Competence of Teachers (SFDCT) agreed on 14th May 2020 and to adapt it to the new educational context, based on a different approach in relation to professional teaching tasks. In order to achieve this, a commission was set up under the Spanish Learning Technologies Working Group (GTTA) with representatives from the Autonomous Communities and Autonomous Cities of Spain, the Spanish National Institute of Educational Technology and Teacher Training.

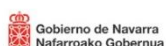
The present framework is addressed to all teachers of education regulated by the Spanish Organic Law on Education, facilitating convergence with the European Framework for Digitally-Competent Educational Organisations (DigCompOrg) and the Digital Competence Framework for Citizens with new examples of knowledge, skills and attitudes (DigComp 2.2) developed by the Joint Research Centre of the European Commission. Furthermore, based on the Digital Competence Framework for Educators (DigCompEdu), an adaptation has been made to the Spanish educational context. The criteria for establishing the levels of the European framework has been modified in order to adjust them to the stages of professional development of teachers, from their initial teacher training and access to the teaching profession, to an expert, reflective, creative and critical teaching practice in which digital technologies are not an end but a means for all pupils to improve their learning.

The SFDCT was agreed at the Spanish Sectoral Conference on Education on 30th March, 2022 and published as the Resolution of 4th May, 2022 by the Spanish Directorate General of Evaluation and Territorial Cooperation.

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Spanish Ministry of Education and Vocational Training and the Educational Administrations of the Autonomous Communities of Spain



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Introduction

Digital technologies are currently essential in many contexts: professional, social, economic, sport, artistic, cultural, scientific and academic. They have become part of our lives and continue to transform them. In an educational context, their presence must be seen from a twin perspective. On the one hand, as an object of learning itself. Together with literacy and numeracy, they are part of the basic literacy of all citizens in compulsory and adult education stages. They are also an essential element of academic and professional upskilling and re-skilling in post-compulsory education. On the other hand, teachers and pupils must use digital technologies as a means or tool to develop other types of learning. This twin perspective is established in Article 2 of the Spanish Organic Law 2/2006 of 3 May on Education (LOE), modified by the Spanish Organic Law 3/2020 of 29 December¹, which sets out the aims of the Spanish education system. It also includes specific articles corresponding to the different types of education in Spain in relation to pedagogic principles and curricular development. Furthermore, it deals with teacher training and school management in Article 102, Information and Communication Technologies in Article 111 bis and, the school's management plan in Article 121.

The present framework specifically responds to the provisions included in section 6 of Article 111 bis of the Spanish Organic Law 3/2020 of 29 December and represents the updating and revision of the framework agreed at the Spanish Sectoral Conference on Education on 14th May, 2020 and published by Resolution of 2 July by the Directorate General of Evaluation and Territorial Cooperation in the Official Spanish State Gazette (BOE) of 13th July, 2020². However, despite its recent publication, the rapid change experienced by digital technologies and the acceleration in the extension of their use as a result of the pandemic generated by SARS-CoV-2 have made a thorough revision necessary. This revision has been carried out by a commission under the Spanish Learning Technologies Working Group (GTTA), coordinated by the Spanish National Institute of Educational Technologies and Teacher Training (INTEF). This commission is made up of representatives from the Ministry of Education and Vocational Training and the regional governments and departments responsible for education in all the Autonomous Communities. The commission, on an ongoing basis, has also developed numerous programmes and initiatives for the integration of digital technologies in education.

In this review, the Framework has been aligned with regional, national and European proposals on digital competences with the aim of incorporating the knowledge and experience acquired and facilitating convergence in the creation of a European Education Area by 2025³. Regarding digital development, the general context is outlined in the European Commission's COM(2021)118 – *Communication 2030 Digital Compass: the European way for the Digital Decade*⁴,

¹ Spanish Organic Law 2/2006 of 3 May on Education. Consolidated legislation <https://boe.es/buscar/act.php?id=BOE-A-2006-7899> (2022, January 13).

² Resolution of 2 July 2020, of the Directorate General of Evaluation and Territorial Cooperation, which publishes the Agreement of the Spanish Sectoral Conference on Education on the Spanish framework for digital competence of teachers (BOE no. 191, of 13 July 2020) https://www.boe.es/diario_boe/txt.php?id=BOE-A-2020-7775 (2022, January 13).

³ European Commission (n.d.) *European Education Area: Quality education and training for all* <https://education.ec.europa.eu/about/eea-explained>. Council Resolution on a strategic framework for European cooperation in education and training towards the European Education Area and beyond (2021-2030) (2021/C 66/01) published on 2021-02-26 in the Official Journal of the European Union <https://www.boe.es/buscar/doc.php?id=DOUE-Z-2021-70017> (2022, January 13).

⁴ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions 2030 *Digital Compass: the European way for the Digital Decade* (COM(2021)118 final/2) (09/03/2021) <https://eur-lex.europa.eu/legal-content/es/TXT/?uri=CELEX%3A52021DC0118> (2022, January 13). More information on this initiative can be found on the European Commission's website *Europe's Digital Decade: digital targets for 2030* https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en (2022, January 13).

which develops the actions of the strategy *Shaping Europe's Digital Future* (COM/2020/67 final)⁵, presented by the European Commission in February 2020. This strategy is linked to the Next Generation EU Recovery Plan⁶, whose objectives include the development of digital skills through three programmes: the *European Skills Agenda*⁷, the *Digital Education Action Plan (DEAP)* and the *Digital Skills and Jobs Coalition*⁸. Among them, the *DEAP (2021-2027)*⁹ is of particular importance for the educational sector. The DEAP builds on the first Digital Education Action Plan 2018-2020¹⁰ and sets out two priorities: fostering the development of a high-performing digital education ecosystem and enhancing digital skills and competences for digital transformation. This requires, among other conditions, having teachers and trainers who are confident and competent in the use of digital technologies in teaching and learning processes and in the implementation of pedagogic strategies. At national level, general guidelines are set out in the strategy *Digital Spain 2026 [The original document makes reference to the previous version Digital Spain 2025]*¹¹ and in the *Spanish National Plan for Digital Skills*¹², published by the Ministry of Economic Affairs and Digital Transformation¹³. One of the seven lines of the *Spanish National Plan for Digital Skills* (line 3) aims to ensure that the education system guarantees that all students acquire the digital skills that will allow them to fully integrate in society and develop professionally.

Furthermore, decisions have been taken to facilitate the articulation of the plan, with the following aspects of legislation and education policy highlighted:

1. Correspondence with the functions attributed to teachers in Article 91 of the Spanish Organic Law on Education.
2. Integration of a common digital strategy in the school's management plan which is developed through a specific digital plan.
3. Update of the description of the digital competence of pupils in the new curricula.
4. Compliance with Article 83 on the right to digital education established in the Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and digital rights guarantee¹³, amended by the final provision 4 of the Spanish Organic Law 3/2020, of 29 December.
5. Foreseeable insertion of this framework into a general framework of professional teaching competence.

⁵ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - *Shaping Europe's Digital Future* (COM/2020/67 Final) (19/02/2020) <https://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52020DC0067&from=ES> (2022, January, 13)

⁶ European Commission (n.d.). *Recovery plan for Europe* (2022, January 13) https://ec.europa.eu/info/strategy/recovery-plan-europe_en (2022, January, 13)

⁷ European Commission (01/07/2020). *European Skills Agenda*. <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en> (2022, January, 13)

⁸ European Commission (17/09/2018). *Digital skills and jobs coalition*. <https://digital-strategy.ec.europa.eu/en/policies/digital-skills-coalition> (2022, January, 13)

⁹ European Commission (n.d.). *European Education Area - Quality education and training for all. Digital Education Action Plan (2021-2027)*. <https://education.ec.europa.eu/focus-topics/digital-education/action-plan> (2022, January, 13)

¹⁰ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. *Digital Education Action Plan 2021-2017* (COM/2018/22 Final). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0624&from=EN> (2022, January 13)

¹¹ Ministry of Economic Affairs and Digital Transformation (08/07/2022). *Digital Spain 2026*. <https://espanadigital.gob.es/en> (2022, August 22) [The original document makes reference to the previous version *Digital Spain 2025*] Updated information on the digital actions in Spain can be found on the website Red.es - a public business entity dependent from the Secretary of State for Digitalisation and Artificial Intelligence of the Ministry of Economic Affairs and Digital Transformation- <https://agendadigital.gob.es/> (2022, January, 13)

¹² Ministry of Economic Affairs and Digital Transformation (27/01/2021). *Spanish National Digital Skills Plan*. https://portal.mineco.gob.es/RecursosArticulo/mineco/ministerio/ficheros/210127_plan_nacional_de_competencias_digital.pdf (2022, January, 13)

¹³ Spanish Organic Law 3/2018 of 5 Decembe, on Personal Data Protection and digital rights guarantee. Consolidated Legislation. <https://boe.es/buscar/act.php?id=BOE-A-2018-16673&b=107&tn=1&p=20201230#a8-5> (2022, January, 13)

6. Continuity, in terms of teaching performance, throughout the different educational stages.

For all the reasons above, we have opted for an adaptation of the *Digital Competence Framework for Educators (DigCompEdu)*¹⁴ (2017), developed by the *Joint Research Centre (JRC)* and published by the European Commission. The advantages of adopting this professional framework for teaching include the following:

- Being part of a consistent ecosystem alongside two other frameworks - the European Framework for Digitally-Competent Educational Organisations (DigCompOrg)¹⁵ and the Digital Competence Framework for Citizens – With new examples of knowledge, skills and attitudes (DigComp 2.2) [The original document makes reference to the previous version DigComp 2.1].¹⁶ Including these frameworks as reference points enables greater coherence and cohesion between school digital plans, curricula and teacher training programmes, which are mutually reinforced by their interdependence.
- Making use of research and self-reflection tools on digital competence - such as *SELFIE*¹⁷ and *SELFIE for teachers (S4T)*¹⁸ - developed by the European Commission. Also taking into account experiences in other EU countries.
- Facilitating convergence with other European countries in this field and the mutual recognition of qualifications and collaboration in the different initiatives that may be developed in the European Education Area by sharing common principles.

Regarding DigCompOrg and DigComp, it should be noted that although their structure is sound, they do not reflect the latest digital developments and the pedagogical and ethical considerations that should be applied in relation to digital technologies. This is due to the relentless process of innovation in this field. The JRC itself published three reports between 2018 and 2020 on the Digital Education Action Plan 2018-2020¹⁹, in addition to previous publications such as *Research Evidence on the Use of*

¹⁴ Punie, Y., editor(s), Redecker, C., *European Framework for the Digital Competence of Educators: DigCompEdu*, EUR 28775 EN, Publications Office of the European Union, Luxembourg, 2017, ISBN 978-92-79-73718-3 (print), 978-92-79-73494-6 (pdf), doi:10.2760/178382 (print), 10.2760/159770 (online), JRC107466. <https://publications.jrc.ec.europa.eu/repository/handle/JRC107466>. Spanish translation by the Ministry of Education and Vocational Training and the Universia Foundation available in the MEFP publications catalogue: <https://sede.educacion.gob.es/publiventa/marco-europeo-para-la-competencia-digital-de-los-educadores-digcompedu/competencia-digital/24685>. Related actions can be followed on the European Commission's JRC website EU Science Hub *DigCompEdu: The European Framework for the Digital Competence of Educators*: <https://ec.europa.eu/jrc/en/digcompedu>. (2022, January 13)

¹⁵ Kampylis, P., Punie, Y. and Devine, J., *Promoting Effective Digital-Age Learning: A European Framework for Digitally-Competent Educational Organisations*, EUR 27599 EN, Publications Office of the European Union, Luxembourg, 2015, ISBN 978-92-79-54005-9, doi:10.2791/54070, JRC98209 <https://publications.jrc.ec.europa.eu/repository/handle/JRC98209>. Spanish translation by the Ministry of Education and Vocational Training available in the MEFP publications catalogue: <https://sede.educacion.gob.es/publiventa/promocion-de-un-aprendizaje-eficaz-en-la-era-digital-un-marco-europeo-para-organizaciones-educativas-digitalmente-competentes/ensenanza-recursos-digitales/21199>. Related actions can be followed on the European Commission's JRC website EU Science Hub *DigCompOrg: Digitally Competent Educational Organisations*: <https://ec.europa.eu/jrc/en/digcomporg>. (2022, January 13).

¹⁶ Vuorikari, R., Kluzer, S. and Punie, Y., *DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes*, EUR 31006 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-48882-8 (online), 978-92-76-48883-5 (print), doi:10.2760/115376 (online), 10.2760/490274 (print), JRC128415. (2022, August 23). [The original document makes reference to the previous version DigComp 2.1]

¹⁷ European Commission. *European Education Area: Quality education and training for all. SELFIE*. <https://education.ec.europa.eu/selfie/about-selfie> (2022, January, 13)

¹⁸ European Commission. *EU Science HUB. DigCompEdu: The European Framework for the Digital Competence of Educators. What is SELFIE for Teachers?*. <https://ec.europa.eu/jrc/en/digcompedu/selfieforteachers/what-selfieforteachers>. The areas and items of the questionnaire can be found at https://ec.europa.eu/jrc/sites/default/files/selfreflectionitems_en.pdf. (2022, January, 13)

¹⁹ These reports are part of the JRC's contribution to the Digital Education Action Plan (2018-2020): *Emerging technologies and the teaching profession* (2020) <https://op.europa.eu/en/publication-detail/-/publication/c72792a7-084f-11eb-a511-01aa75ed71a1/language-en/format-PDF/source-183167756> ; *Makerspaces for Education and Training* (2019), <https://op.europa.eu/en/publication-detail/-/publication/0e1e6a42-ef05-11e9-a32c-01aa75ed71a1/language-en/format-PDF/source-183167756>

Learning Analytics: Implications for Education Policy (2016)²⁰, which deals with the impact of emerging technologies. Similarly, one of the actions²¹ envisaged in Action 10 of the Digital Education Action Plan for the period 2021-2027 is the update of the 2016 JRC report *Developing Computational Thinking in Compulsory Education- Implications for Policy and Practice*²². Similarly, the temporary suspension of face-to-face learning due to the pandemic has led to the widespread use of virtual learning environments. Action 2²³ of the Digital Education Action Plan 2021-2027 promotes its standardisation through the European Commission's proposal for a *Council Recommendation on blended learning for high quality and inclusive primary and secondary education* (COM/2021/455 Final)²⁴. Finally, the *Council Recommendation of 22 May 2018 on key competences for lifelong learning*²⁵ already includes issues concerning safety in its description of digital competence, such as the understanding of the functioning and principles underlying technological developments, programming and interaction with artificial intelligence and robots that were not present in neither the 2006 recommendation on key competences nor in version 2.1 of DigComp. For this reason, the JRC is currently undertaking an update of DigComp, such a document has been already published as Digital Competence Framework for Citizens – with new examples of knowledge, skills and attitudes (DigComp 2.2)²⁶ and, with the development of the self-reflection tools *SELFIE* and *SELFIE for teachers (S4T)*, has incorporated new aspects that are not reflected in the corresponding frameworks.

As stated in DigCompEdu itself, it is broadly conceived as intended to serve as a guide for all educators, both formal and non-formal, working in organisations of all kinds in any of the EU countries. For this reason, its specific purpose is to serve as a basis for further adaptation to specific contexts by providing a common framework that facilitates dialogue, collaboration and exchange between the different stakeholders. Furthermore, the criteria used to establish the levels of progression are not specific to the teaching profession, but rather taken from roles associated with 'gamification' practices and the Bloom taxonomy in order to adapt them to the six levels of the Common European Framework of Reference for Languages (CEFR). The nomenclature of this Framework has been coupled with CEFR levels to label the different proficiency levels. Finally, it should be noted that DigCompEdu also aims to encourage educators to reflect on their own digital competence by means of statements which

[PDF/source-248439874](https://source-248439874) ; *The Impact of Artificial Intelligence on Learning, Teaching, and Education* (2018), <https://op.europa.eu/en/publication-detail/-/publication/5cb8eee3-e888-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-248440009>. (2022, January 13)

²⁰ Ferguson, R., Brasher, A., Clow, D., Cooper, A., Hillaire, G., Mittelmeier, J., Rienties, B., Ullmann, T., Vuorikari, R. (2016). *Research Evidence on the Use of Learning Analytics - Implications for Education Policy*. R. Vuorikari, J. Castaño Muñoz (Eds.). Joint Research Centre Science for Policy Report; EUR 28294 EN; doi:10.2791/955210. <https://op.europa.eu/en/publication-detail/-/publication/06ea34f1-d701-11e6-ad7c-01aa75ed71a1/language-en> (2022, January 14)

²¹ European Commission. *European Education Area-Quality Education and training for all. Digital Education Action Plan-Action 10*. <https://education.ec.europa.eu/es/focus-topics/digital-education/digital-education-action-plan/action-10> (2022, January 14)

²² Kampylis, P. and Punie, Y., editor(s), Bocconi, S., Chiocciariello, A., Dettori, G., Ferrari, A. and Engelhardt, K., *Developing Computational Thinking in Compulsory Education - Implications for policy and practice*, EUR 28295 EN, Publications Office of the European Union, Luxembourg, 2016, ISBN 978-92-79-64442-9 (online), 978-92-79-74186-9 (ePub), doi:10.2791/792158 (online), 10.2791/715431 (ePub), JRC104188. <https://publications.jrc.ec.europa.eu/repository/handle/JRC104188> (2022, January 14)

²³ European Commission. *European Education Area-Quality education and training for all. Digital Education Action Plan-Action 2*. <https://education.ec.europa.eu/es/plan-de-accion-de-educacion-digital-accion-2> (2022, January 14)

²⁴ European Commission (05/08/2021). *Proposal for a Council Recommendation on blended learning for inclusive and high quality primary and secondary education* (COM/2021 455 Final). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0455&from=EN> (2022, January 14)

²⁵ *Council Recommendation of 22 May 2018 on key competences for lifelong learning* (Text with EEA relevance) (2018/C 189/01). [https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:32018H0604\(01\)](https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX:32018H0604(01)) (2022, January 14)

²⁶ European Commission. *EU Science HUB. Digital Competence Framework for citizens (DigComp)*. <https://ec.europa.eu/jrc/en/digcomp> (2022, January 12). For more information on the validation survey on knowledge, skills and attitudes in each competence included under dimension 4 in version 2.2. of DigComp, please visit the INTEF blog article of 23/11/2021 "Participating in the validation survey of DigComp 2.2. at <https://intef.es/Noticias/participa-en-la-encuesta-de-validacion-de-digcomp-2-2/>

express indicators of performance or frequency of use, but which do not sufficiently describe the performance associated at each stage.

Following the invitation to adapt and modify the framework to specific national context and purposes contained in the executive summary of DigCompEdu, an adaptation of DigCompEdu has been made to contextualise it in the Spanish education system and address it to teachers of education regulated by the Spanish Organic Law on Education. The Spanish Framework for the Digital Competence of Teachers also expands aspects dealt with in less depth in DigCompEdu as it has a broader scope, as explained before. The changes introduced in this adaptation are as follows:

1. Adaptation of DigCompEdu to Spanish legislation, specifically, to the Spanish Organic Law 2/2006 of 3 May on Education - modified by the Spanish Organic Law 3/2020, of 29 December -, the Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and digital rights guarantee and to the General Data Protection Regulation²⁷ and, the Spanish Organic Law 8/2021 of 4 June on comprehensive protection of children and adolescents against violence²⁸.
2. Revision of labels and descriptors to adapt them to the Spanish educational context and to make their conceptualisation more precise. As a result of this revision, a new competence has been created in Area 1: Professional engagement related to personal data protection, privacy, safety and digital well-being. Consequently, the Spanish Framework for the Digital Competence of Teachers presented here has 23 competences instead of 22.
3. A linguistic revision has been carried out in order to adapt the terms and expressions used to regular terms used in Spanish schools and other educational contexts.
4. New criteria have been established in accordance with the professional development of teachers and the characteristics of each of the stages. The levels of progression in the development of each competence have also been established, maintaining the number and label given in DigCompEdu in order to facilitate its correspondence.
5. Indicators of achievement have been defined at all levels of each competence in order to clarify the degree of development to be reached.

The result of this work is presented below as the new Spanish Framework for the Digital Competence of Teachers (hereafter referred to as SFDCT).

²⁷ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data and repealing Directive 95/46/EC (General Data Protection Regulation) (OJEU No. 119 of 4 May 2016). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016R0679&from=EN> (2022, August 23)

²⁸ Spanish Organic law 8/2021 of 4 June, on the integral protection of children and adolescents against violence (Official Spanish State Gazette 134, of 5 June 2021) https://www.boe.es/diario_boe/txt.php?id=BOE-A-2021-9347 (2022, August 23)

Description of the Spanish Framework for the Digital Competence of Teachers

The purpose of this framework is to describe the digital competences of any teacher teaching in the types of education regulated by the Spanish Organic Law on Education throughout the different stages of their professional development, regardless of the subject area, level of education or type of teaching. It is therefore of a broad nature and is structured around the tasks that all teachers must carry out. These are set out in Article 91 of the Spanish Organic Law on Education as follows:

- a) Planning and teaching of the subject areas, fields, modules or curricular aspects assigned to them.*
- b) Assessment of the pupils' learning process as well as the evaluation of the teaching processes.*
- c) Tutoring pupils, directing and guiding their learning and supporting their learning process in collaboration with their families.*
- d) Educational, academic and vocational guidance of pupils in collaboration with specialised services or departments where appropriate.*
- e) Taking care of the intellectual, emotional, psychomotor, social and moral development of pupils.*
- f) Promotion, organisation and participation in complementary activities, inside or outside the school grounds, organised by schools.*
- g) Ensuring that school activities take place in an environment of respect, tolerance, participation and freedom in order to foster pupils' values of democratic citizenship and a culture of peace.*
- h) Regular information to families about the learning process of their children, as well as guidance on how to contribute to it.*
- i) Coordination of the teaching, management and leadership activities assigned.*
- j) Participation in regular school activity.*
- k) Applying the assessment processes determined by the educational administration or schools themselves.*
- l) Researching, experimenting, and continuously improving teaching processes.*

As indicated in the Introduction, this Framework constitutes an adaptation of DigCompEdu in terms of structure and the competences included having been adapted to the Spanish formal education system. Consequently, a new competence in Area 1 - Professional engagement - has been created. This new competence relates to the protection of personal data, digital rights and safety in the use of digital technologies, particularly those that involve the use of profiling and artificial intelligence, and taking of biometric data or using services that host data in the cloud. Due to their importance, these issues are also included in other competences related to assessment and the use of learning analytics or personalisation tools, some of which involve artificial intelligence developments, and are specifically mentioned in the descriptions of such competences.

Finally, one of the most interesting aspects of DigCompEdu is the teaching model it promotes. This model focuses on all students achieving meaningful, motivating and relevant learning adapted to their personal needs and differences. This model enables pupils to acquire and develop their competences in a progressive and autonomous way while working in teams with their peers. This teaching and learning model also imply a type of teaching performance based on collaboration, coordinating actions in school, and enhancing the participation of the whole school community.

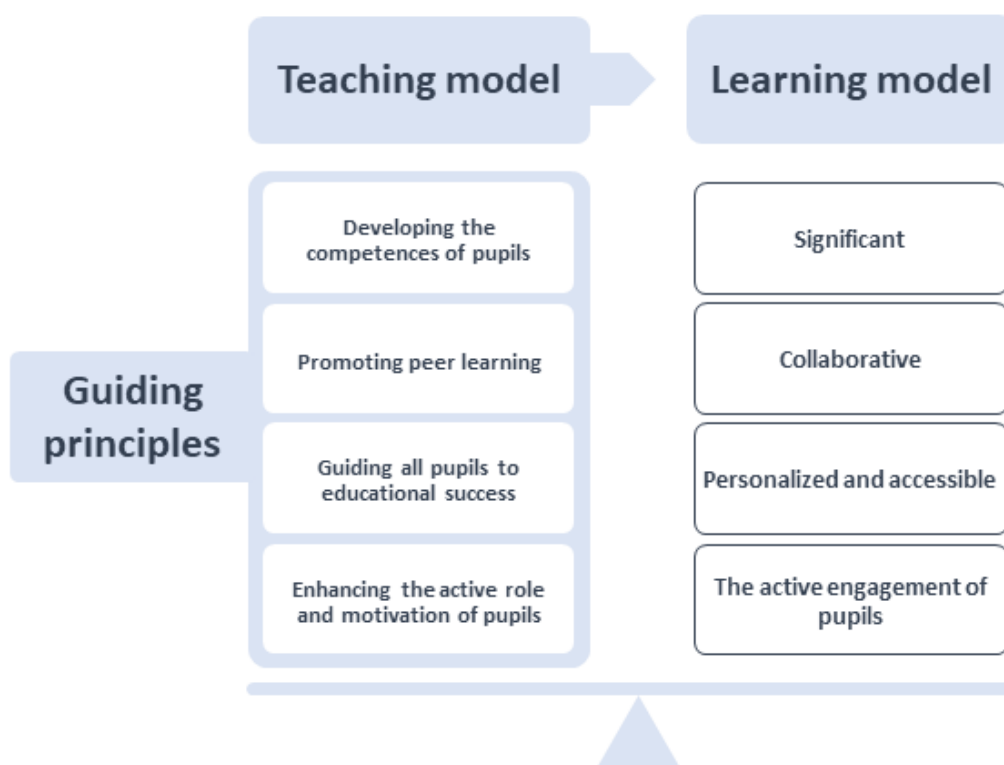


Illustration 1. Teaching and learning model. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. CC BY-SA 4.0

Structure

The Spanish Framework for the Digital Competence of Teachers (SFDCT) maintains the structure of DigCompEdu in six areas. Each area represents a category into which the digital competences of teachers are organised within the framework. Each area focuses on different aspects of professional teaching:

- Area 1: Professional engagement: Use of digital technologies for communication; coordination, participation and collaboration within the school and with external professionals; performance improvement based on the reflection of own practice; professional development and protection of personal data, privacy, safety and the digital well-being of pupils in the carrying out of responsibilities.
- Area 2: Digital content: Searching, modifying, creating and sharing of digital educational content.
- Area 3: Teaching and learning: Management and organisation of the use of digital technologies in teaching and learning.
- Area 4: Assessment and feedback: Use of digital technologies and strategies to improve assessment, both for learners and of the teaching-learning process itself.
- Area 5: Empowering learners: Use of digital technologies to enhance inclusion, attention to individual differences and active engagement of pupils in their own learning.
- Area 6: Developing the digital competence of learners: Enabling pupils to use digital technologies creatively and responsibly for information, communication, safe participation in the digital society, content creation, well-being, privacy, problem solving and the development of personal projects.

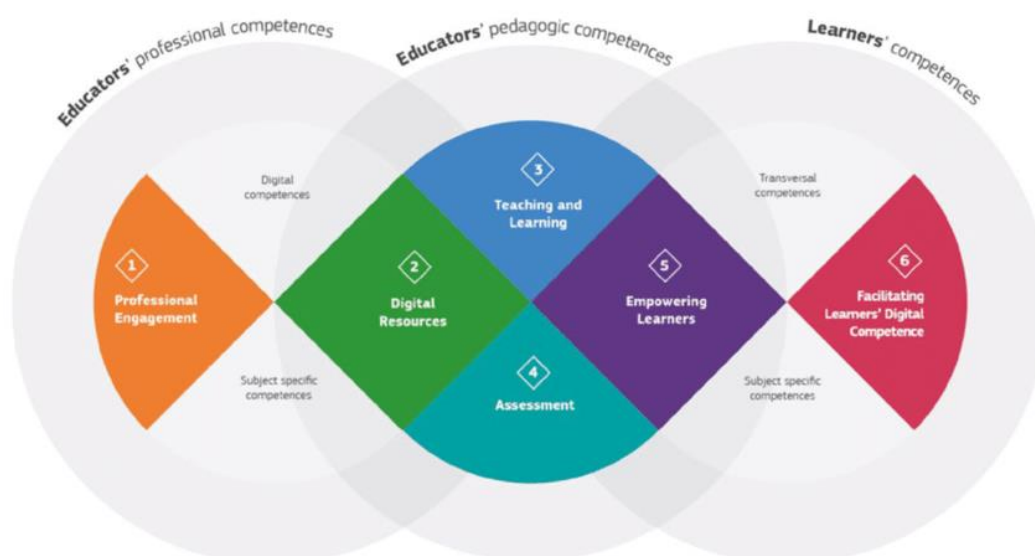


Illustration 2. DigCompEdu Areas and Scope ©European Union (2017)

As with DigCompEdu, these six areas are, in turn, organised into three blocks:

- The professional competences of teachers: These competences are complementary to the specific competences of the teaching profession and are indispensable for its practice.
- The pedagogic competences of teachers: These are specifically focused on teaching and learning processes and, therefore, on the defining and differentiating aspects of the teaching profession.
- The necessary competences of teachers necessary for the development of the digital competence of pupils. These are the pedagogic competences of teachers applied into practice. Specifically, to the achievement of learning objectives related to the development of the digital competence of pupils.

These blocks go beyond the digital aspect of competences and could be applied within the school management plan, with a feasible framework of the professional competences of teachers and the curriculum.

The core of the DigCompEdu framework is defined by areas 2-5: the pedagogic competences, i.e. the competences teachers need to integrate digital technologies into efficient, inclusive and innovative teaching and learning strategies. Areas 2, 3 and 4 are linked to tasks and stages involved in any educational process, whether or not it is supported by digital technologies: how to make efficient and innovative use of digital technologies to create appropriate digital resources available for pupils (area 2), to integrate them into the syllabus and implement them in the classroom (area 3), and to assess teaching and learning (area 4). Area 5 recognises the potential of digital technologies to empower pupils in teaching and learning processes, to make them more accessible, and to support individual differences and needs. This core is transversal to areas 2, 3, and 4 in the sense that it contains a set of guiding principles to be taken into account applying specific competences to these areas.

For the analysis of the competences in these areas, the TPACK model by Punya Mishra and Matthew J. Koehler (2006)²⁹ has been used as a theoretical framework for its development, transferring the grounds of the PCK model proposed by Shulman³⁰ (1986) to the integration of digital technologies in teaching and learning processes. Just as Shulman (1986) rejected the dichotomy between pedagogical and content knowledge, Mishra and Koehler (2006) maintain the need for a true integration and interaction of the three types of knowledge - technological, pedagogical and subject-related. In addition, they claim that particular educational contexts in which the framework is applied should be taken into account for effective teaching.

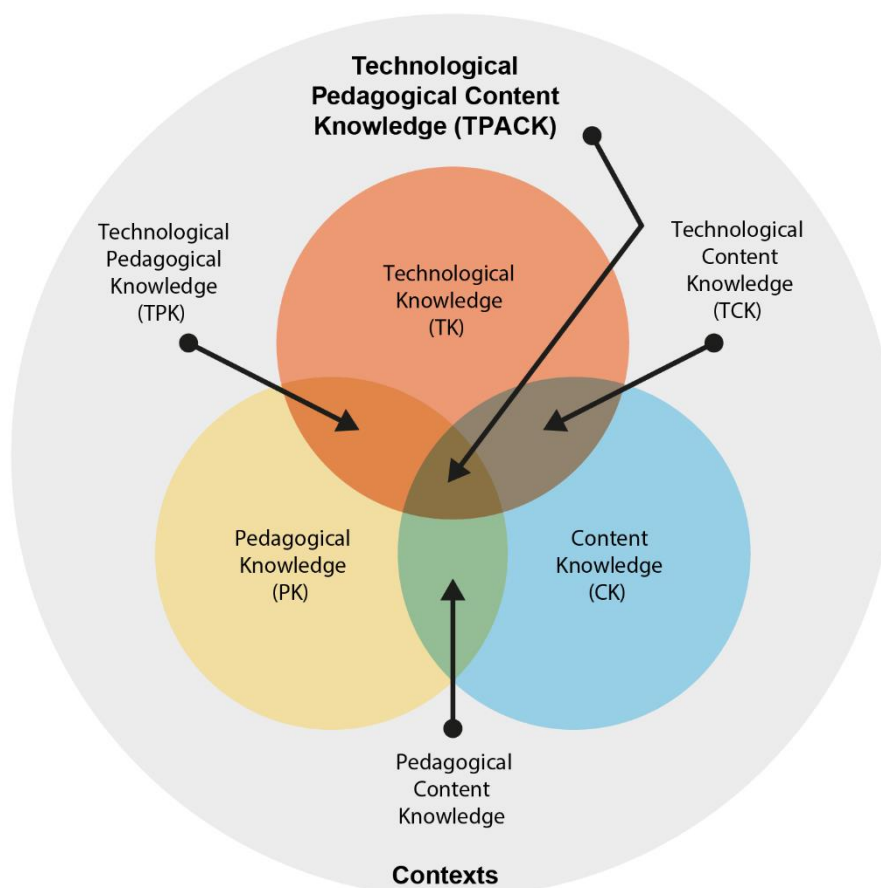


Illustration 3. The TPACK Framework © 2012 by tpack.org

The concept of the digital competence of teachers used in this framework can be defined as the integration of knowledge, skills, abilities, and attitudes that have to be simultaneously used to perform their role as teachers implementing digital technologies to solve problems and unknown situations that may arise in a specific context as educational professionals. Together with the description of each competence, a **contextualisation** is included which explains the general situation in which a given

²⁹ Mishra, P; Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record*, Columbia University. Vol. 108, No. 6, pp. 1017-1054. <https://www.punyamishra.com/wp-content/uploads/2008/01/mishra-koehler-tcr2006.pdf> (2022, January 17)

³⁰ Shulman, L. S. (1986). Those Who Understand: Knowledge Growth in Teaching. *Educational Researcher*, Vol. 15, No. 2 (February 1986), pp. 4-14. <https://doi.org/10.2307/1175860>. (2022, January 17) https://depts.washington.edu/comgrnd/ccli/papers/shulman_ThoseWhoUnderstandKnowledgeGrowthTeaching_1986-iv.pdf. Spanish translation by Antonio Bolívar: Shulman, L. (2019). Those Who Understand: Knowledge Development in Teaching. *Profesorado, Revista De Currículum Y Formación Del Profesorado*, 23(3), 269-295. <https://doi.org/10.30827/profesorado.v23i3.11230> <https://revistaseug.ugr.es/index.php/profesorado/article/view/11230/9309>. (2022, January 17)

competence is exercised, its delimitation and interrelation with other competences, the **contents** that comprise it, and some **actions**. These actions exemplify the putting into practice of competences, without being an exhaustive list, but rather illustrating the central core and scope of the competence.

In order to ensure that the SFDCT covers all relevant aspects of both the DigCompEdu (2017) competences and the items of the Selfie for Teachers (S4T) self-reflection tool (October 2021) based on DigCompEdu, a comparative analysis has been carried out. The conclusions and decisions taken regarding the competences in the six areas are explained next. It should be noted that while DigCompEdu includes 22 competences, S4T includes 32 items based on DigCompEdu competences. The following tables include items of S4T which were not explicitly present in DigCompEdu or which have been significantly modified.

AREA 1: Professional engagement. This is the area with the most significant changes in the S4T tool compared to DigCompEdu and could therefore bring the most differences to the SFDCT.

- Item 1.2 Managing online learning environments of S4T 2021, which was not present in DigCompEdu, has been included in a transversal way in the SFDCT within the DigCompEdu competences.
- Item 1.3 Professional collaboration in S4T 2021 develops the competence 1.2 Professional collaboration in DigCompEdu. This competence is labelled in the SFDCT as, Professional participation, coordination and collaboration. The reason for this change is to strengthen aspects related to participation in schools (school leaders and coordinators).
- Item 1.4 Digital technologies and school infrastructure in S4T 2021 was not explicitly included in DigCompEdu. It was not considered necessary to be included in SFDCT either, as the context of teaching performance in schools and the structure of the proficiency levels through the different stages of professional development means that the reference to digital technologies and school infrastructure is constant and transversal, as these are the available tools that teachers have to carry out their work.
- Item 1.6 Digital life in S4T 2021 was not included in SFDCT, because, as indicated in DigCompEdu, it is assumed that teachers have a basic level of digital citizenship competence (DigComp). Therefore, it is not necessary to include a new specific competence which, in any case, would correspond to the digital competence of teachers as citizens. Nevertheless, the knowledge associated to this item is included in the development of competence 6.2 Communication, collaboration and digital citizenship.
- Items 1.7 Professional learning through digital technologies and 1.8 Professional learning about digital technologies of S4T 2021 show two aspects of the competence 1.4 Digital Continuous Digital Professional Development (CPD) of the SFDCT. It is simply a natural development of the initial version of this competence formulated in DigCompEdu. This splitting has not been considered necessary and both items have been integrated into a single competence.
- Item 1.9 Computational thinking of S4T 2021, which was not explicitly used in DigCompEdu, has not been included either in SFDCT. It is considered to be a set of thinking strategies linked to computing and programming, but not a teaching task, which are, in short, the categories used to structure the framework. Therefore, it is dealt with in a cross-cutting manner in the different areas.
- A new competence has been created: 1.5. Personal data protection, privacy, safety and digital well-being, which was not present in neither DigCompEdu 2017 nor S4T 2021. This new competence comes from a separate development of competence 2.3 of DigCompEdu 2017, which addressed both issues related to the protection of intellectual property rights and aspects related to data protection, privacy and digital rights. It should be noted that, although this issue is primarily a matter for education authorities and private school leaders, it is important that teachers are aware of the risks, apply the school's protocols responsibly, and

know which criteria should be used to determine whether or not a resource or digital technology may or may not be used. This competence also includes the first part of competence 6.4 Responsible use of DigCompEdu related to taking measures to ensure the physical, psychological and social well-being of pupils when using digital technologies.

Area 1 would be as follows:

AREA 1. PROFESSIONAL ENGAGEMENT		
DigCompEdu 2017	S4T 2021	SFDCT 2022 REVISION
1.1. Organisational communication	1.1. Organisational communication	1.1. Organisational communication
	1.2. Managing online learning environments	** Transversal
1.2. Professional collaboration	1.3. Professional collaboration	1.2. Professional participation, collaboration and coordination
	1.4. Digital technologies and school level infrastructure	** Transversal
1.3. Reflective practice	1.5. Reflective practice	1.3. Reflective practice
	1.6. Digital life	** Digital Citizenship Competence of teachers (corresponds to DigComp)
1.4. Digital Continuous Professional Development (CPD)	1.7. Professional learning through digital technologies	1.4. Continuous Digital Professional Development (CPD) <i>integrating both aspects</i>
	1.8. Professional learning about digital technologies	
	1.9. Computational thinking	** Transversal
		1.5. Personal data protection, privacy, safety and digital well-being

AREA 2: Digital content. The name of the area changes due to a linguistic issue and is renamed in Spanish as **Digital Content**.

- Items included in Area 2 of S4T 2021 do not bring significant changes to DigCompEdu, but in the SFDCT it has been considered necessary to give separate treatment to two of the aspects covered in competence 2.3. Managing, protecting and sharing of digital content, namely respect for copyright and intellectual property rules and the protection of personal data and privacy. Privacy has been transferred, as indicated above, to a new competence in Area 1: 1.5 Personal data protection, privacy, safety and digital well-being.

Area 2 would be as follows:

AREA 2. DIGITAL CONTENT		
DigCompEdu 2017	S4T 2021	SFDCT 2022 REVISION
2.1. Selecting	2.1. Searching and selecting	2.1. Searching and selecting digital content
2.2. Creating and modifying	2.2. Creating	2.2. Creating and modifying digital content
	2.3. Modifying	
2.3. Managing, protecting, sharing	2.4. Managing and protecting	2.3. Protecting, managing and sharing digital content
	2.5. Sharing	

AREA 3: Teaching and learning. There are no significant changes in this area.

- DigCompEdu competence 3.3 Collaborative learning is renamed as Peer learning to avoid its identification with the approach known as "collaborative learning". In this way, all learning strategies that promote collaboration, cooperation and teamwork among pupils for the acquisition of knowledge are included in this competence.
- It has been decided to not include item 3.5 Emerging technologies in S4T 2021. It is thought that it is not necessary to create a specific competence for the wide range of emerging technologies (augmented and virtual reality, artificial intelligence...) and the only common denominator that unites them is their novelty. Moreover, the inclusion of this competence would not meet the criteria established for defining competences in the rest of the framework as they do not represent tasks performed by all teachers. It has therefore been decided to subsume these emerging technologies with other resources and technologies present in other areas of the framework.

After modifications, Area 3 would be as follows:

AREA 3. TEACHING AND LEARNING		
S4T 2021	S4T 2021	REVISIÓN MRCDD 2022
3.1. Teaching	3.1. Teaching	3.1. Teaching
3.2. Guidance	3.2. Guidance	3.2. Guidance and learning support
3.3. Collaborative learning	3.3. Collaborative learning	3.3. Peer learning
3.4. Self-regulated learning	3.4. Self-regulated learning	3.4. Self-regulated learning
	3.5. Emerging technologies	** Transversal

AREA 4: Assessment and feedback. No changes have been made to this area.

AREA 4. ASSESSMENT		
DigCompEdu 2017	DigCompEdu 2017	REVISIÓN MCRDD 2022
4.1. Assessment strategies	4.1. Assessment strategies	4.1. Assessment strategies
4.2. Analysing evidence	4.2. Analysing evidence	4.2. Learning analytics and analysing evidence
4.3. Feedback and planning	4.3. Feedback and planning	4.3. Feedback and decision making

AREA 5: Empowering learners. There are no significant changes made to this area.

- The name of competence 5.2 Differentiation and Personalisation of DigCompEdu has been modified in SFDCT to adapt it to the Spanish pedagogic and legislative context. Attention to the learning differences of all pupils must be carried out from an inclusive perspective to ensures the educational success of all pupils. 5.2. is now called Supporting the individual learning needs of pupils in SFDCT.
- Item 5.4 Blended learning of S4T 2021, not included in DigCompEdu, has a transversal approach in SFDCT.

AREA 5. EMPOWERING LEARNERS		
DigCompEdu 2017	DigCompEdu 2017	REVISIÓN MRCDD 2022
5.1. Accessibility and inclusion	5.1. Accessibility and inclusion	5.1. Accessibility and inclusion
5.2. Differentiation and personalisation	5.2. Differentiation and personalisation	5.2. Addressing personal differences in learning
5.3. Actively engaging learners	5.3. Actively engaging learners	5.3. Actively engaging learners in their own learning

	5.4. Distance and blended learning	** Transversal
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AREA 6: Developing the digital competence of learners. In order to revise the competences in this area, a detailed analysis of the draft DigComp V2.2. submitted for public consultation by the JRC has been carried out. This develops DigComp dimension 4, i.e. the knowledge, skills and attitudes that integrate the different digital competences of citizens, and takes into account new emerging technological developments, including the use of AI, big data analytics, IoT (Internet of Things) applications and portable technologies.

- Competence 6.1 is known as Information and media literacy, which differs in name from S4T where it is known as Information and data literacy. In order to include the three elements in the name of the competence - "Media, information and data literacy", has been the name chosen in SFDCT. Thus, it includes the explicit formulation of the three aspects that a teacher must deal with in order for pupils to develop this competence, facilitating the communication of its purpose.
- Items 6.4 Safety and wellbeing and 6.5 Responsible use of S4T 2021 break down competence 6.4 Responsible use of DigCompEdu. SFDCT leaves only the knowledge of the pedagogic competence for the development of the competence of pupils. It transfers all aspects related to teaching aimed at ensuring the physical, psychological and social well-being of pupils when using digital technologies at school to competence 1.5 Personal data protection, privacy, safety and digital well-being.

After modifications, Area 6 would be as follows:

AREA 6. DEVELOPING THE DIGITAL COMPETENCE OF LEARNERS		
DigCompEdu 2017	S4T 2021	SFDCT 2022 REVISION
6.1. Information and Media Literacy	6.1. Information and data literacy	6.1. Media, information and data literacy
6.2. Communication	6.2. Communication and collaboration	6.2. Communication, collaboration and digital citizenship
6.3. Content creation	6.3. Content creation	6.3. Digital content creation
6.4. Responsible use	6.4. Safety and wellbeing	6.4. Responsible use and digital wellbeing
	6.5. Responsible use	
6.5. Problem solving	6.6. Problem solving	6.5. Problem solving

Progression model

In order to establish the progression model, an analysis of different models of technological integration and other digital competence frameworks for teachers was carried out.

MRCDD 2017 ³¹	DigCompEdu ³²	UNESCO ³³	DTPF ³⁴	SAMR ³⁵	TIM ³⁶	Bloom's Taxonomy ³⁷	ACOT ³⁸
A1 Beginner	A1 Newcomer	Knowledge acquisition	<i>Exploring</i>		Entry	Remember	Entry
A2 Beginner	A2 Explorer					Understand	
B1 Intermediate	B1 Integrator	Knowledge deepening	<i>Adopting</i>	Substitution	Adoption	Apply	Adoption
B2 Intermediate	B2 Expert			Augmentation	Adaptation	Analyse	Adaptation
C1 Advanced	C1 Leader	Knowledge creation	<i>Leading</i>	Modification	Infusion	Evaluate	Appropriation
C2 Advanced	C2 Pioneer			Redefinition	Transformation	Create	Invention

After consideration of the different alternatives, a model that reflects the **professional career of any teacher** was chosen. It starts from the level of digital competence required to access the teaching profession and works towards the highest level in which the teacher's research and innovation would be considered a reference point for the whole profession. In this respect, it should be highlighted that teaching is a regulated profession in Spain, and therefore basic standards are required prior to teaching.

We understand that these are not levels of progression in terms of general knowledge and use of technologies. The development of a teacher's digital competence inevitably requires the combination of digital competence and professional practice. Thus, the levels of progression are not based on the levels of specific technical knowledge that a teacher might have, nor on the levels of progression of the digital competence for citizens. Rather, they are levels linked to the professional development of teachers and the use they can make of digital technologies in the teaching practice following the TPACK model and the interrelation between technological, pedagogical and content knowledge.

³¹ Resolution of 2 July 2020, of the Directorate General of Evaluation and Territorial Cooperation publishing the Agreement of the Spanish Sectoral Conference on Education on the original Spanish reference framework for the digital competence of teachers (Official Spanish State Gazette of 13th July 2020). https://www.boe.es/diario_boe/txt.php?id=BOE-A-2020-7775. (2022, January 25)

³² Redecker, C. (2020) *European Framework for Educators' Digital Competence: DigCompEdu* (Trad. Fundación Universia and Spanish Ministry of Education and Vocational Training). Secretaría General Técnica del Ministerio de Educación y Formación Profesional de España (Original published in 2017). <https://sede.educacion.gob.es/publimenta/marco-europeo-para-la-competencia-digital-de-los-educadores-digcompedu/competencia-digital/24685>. (2022, January 25)

³³ United Nations Educational, Scientific and Cultural Organization (2018). *UNESCO ICT Competency Framework for Teachers. Version 3*. Trad. and Ed. UNESCO (Original published 2013). <https://unesdoc.unesco.org/ark:/48223/pf0000265721> (2022, January 25)

³⁴ Education and Training Foundation (ETF) (n.d.). *Digital Teaching Professional Framework*. Enhance Digital Teaching Platform. <https://enhance.etfoundation.co.uk/dtpf/>. (2022, January 25)

³⁵ Puentedura, R. (2003). A Matrix Model for Designing and Assessing Network-Enhanced Courses. *Ruben R. Puentedura's Weblog*. <http://hippasus.com/resources/matrixmodel/index.html>. (2022, January 25)

³⁶ Florida Center for Instructional Technology. College of Education, University of South Florida (2005-2021). *The Technology Integration Matrix*. <https://fcit.usf.edu/matrix/matrix/>. (2022, January 25)

³⁷ Anderson, L. W.; Krathwohl, D. R.; Airasian, P. W.; Cruikshank, K. A.; Mayer, R. E.; Pintrich, P. R.; Rath, J.; Wittrock, M. C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives*. Pearson Ed.

³⁸ Apple (n.d.). *Apple Classrooms of Tomorrow*. <https://www.appleclassrooms.com/apple-classrooms-of-tomorrow/> (2022, January 26)

Stages of progression and proficiency levels

The model of this framework is structured in three stages, each of which comprises two levels. The alphanumeric nomenclature, taken from the Common European Framework of Reference for Languages, allows each stage to be identified by a letter (A, B and C) and each of the levels of competence development by a number (1 and 2), where A and 1 determine the first level.

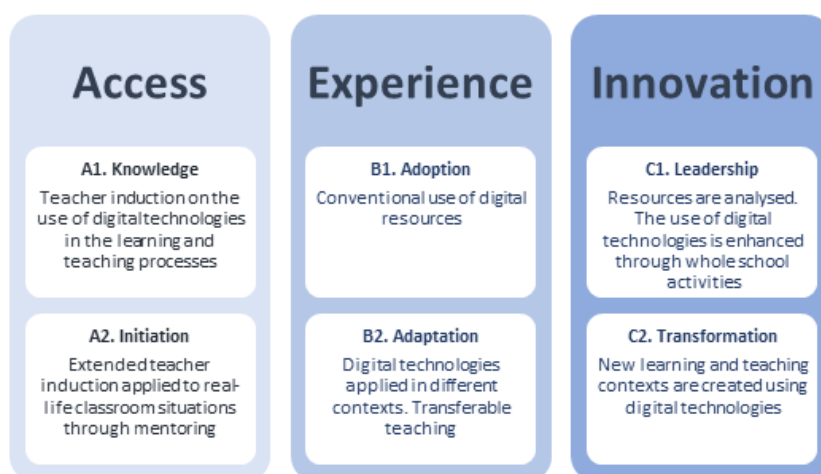


Illustration 4. Stages of progression and proficiency levels of the SFDCT. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

The stages of progression of the digital competence of the development of teachers are:

- **Stage 1 (A).** This stage corresponds to **access**, both to the teaching profession and to the use of digital technologies (hereinafter DT) in teaching. It therefore applies to two different profiles of teacher:
 - Teachers who have not yet started teaching and therefore do not have the necessary experience to work in the classroom. Even though they are considered to have at least an intermediate level in the development of digital competence for citizens (DigComp).
 - Teachers with professional experience, but who have not acquired an adequate level of digital professional competence to apply it in the classroom.

Progressively, a higher level of digital competence will be achieved in initial teacher education so that the second profile will disappear.

This is a stage in which there is theoretical knowledge about the use of digital technologies in education, but no experience in their practical application or, there is not a sufficient level of digital competence for teaching although there is an extensive teaching experience. The focus is on the acquisition of knowledge, procedures and attitudes that are applied in real situations with the help of a mentor.

- **Stage 2 (B).** This is the stage of acquiring **experience** through the application of knowledge, processes, and attitudes in the use of DT in teaching practice. Once the practice has been consolidated, knowledge, experiences and strategies are transferred to new situations that will improve teaching practice.

Teachers at this stage have a high degree of autonomy using digital technologies in their teaching practice. They do not generally require support or advice from other professionals and occasionally they can even provide assistance to other teachers.

- **Stage 3 (C).** The characterisation of this stage is **innovation** based on assessment and research to develop new practices. The perspective is broadened as the teacher carries out analyses, assessments, and proposals that affect the whole school or, at the highest level, the whole teaching profession or educational sector in general whilst becoming a role model. Teachers at this stage are able to create knowledge and innovate in the use of DT improving teaching practices and the design, monitoring and assessment of the school digital plan.

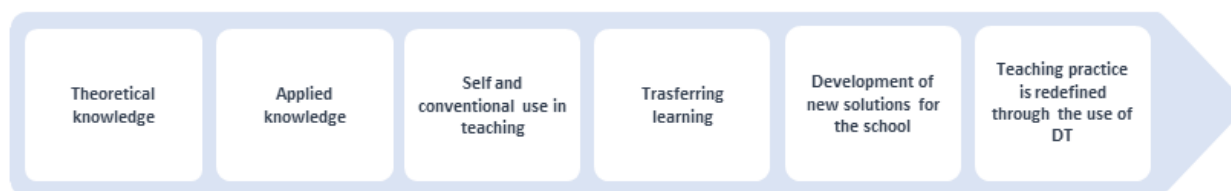


Illustration 5. Cumulative nature of the SFDCT. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

Each of the following stages is comprised of two **levels** as indicated above:

- At the **entry** stage for teaching, there are two levels:
 - **A1.** Teachers at this level have either theoretical knowledge of the use of digital technologies in teaching or practical teaching experience, but not both. In either case, the development of their digital competence as teachers is at an early stage. As mentioned before, this level would coincide with the digital competence development associated with the completion of university studies in Early Childhood, Primary or Secondary education, Vocational Training or Modern Foreign Languages. We would also include at this stage a teacher with professional experience but who needs training in the development of their digital competence and its application in the classroom.
 - **A2.** This is an **initiation** level, in which teachers start to put their digital competences into practice in real learning and teaching situations. It involves a practical application with the support of a mentor who offers guidance with both the classroom work and the use of digital technologies. A typical teacher at this stage has just started teaching and must acquire specific knowledge through teaching practice in the school. On the other hand, those teachers at this level with little development of their digital competence should acquire a minimum level of digital competence and be able to respond to more complex processes in their professional practice with the support and advice from other teachers. At this level, we can also find teachers with professional experience who regularly use digital technologies for personal use but do not apply them in the classroom.
- The second stage is characterised by the acquisition and development of self-**experience**. Two levels are distinguished at this stage:
 - **B1.** This is the time when teachers **adopt** digital technologies in their teaching practice. Digital technologies are integrated into different work contexts, although in a conventional way. This integration brings improvement in the teaching practice by using technologies and procedures autonomously. Teachers are able to select the digital content necessary to achieve the learning objectives of their pupils, use digital technologies established by the educational administration or the school leaders, comply with safety and data protection protocols and apply teaching-learning strategies acquired through training processes.
 - **B2.** Teachers at this level develop the experience of **adapting** the use of DT to new situations or for solving everyday classroom issues. They have a wide range of resources and strategies which they use in a flexible and selective way. They can

analyse the experiences of other teachers and modify relevant aspects in order to transfer the use of DT from one context to another.

- The last stage is characterised by the pedagogic integration of DT in the school and by research and **innovation** in the use of DT at two levels:
 - **C1.** For teachers at this first advanced level, innovation is achieved through processes of action research, assessment and reflective practice aimed at enhancing the enriching character and the creative and critical use of DT in teaching practice and in the life of the school. Teachers at this level can perform or already have a relevant role in their schools, coordinating tasks both in the design and in the implementation and assessment of the school's digital plan. They are teachers who carry out and promote training and mentoring tasks for the teaching staff at their school.
 - **C2.** The last level of digital competence development includes teachers who are able to develop processes of **research** and **transformation** in education through the use of DT. They generate knowledge by defining new technological functions with applications in the field of education and by solving and anticipating unprecedented problems through educational research or designing innovative teaching and learning practices based on the use of previously unknown digital technologies. The role of these teachers as role models goes beyond the school environment into a wider professional context.



Illustration 6. Stages of progression. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

Characterisation of the levels in each competence

In order to describe the development of each digital competence in more detail and to make it easier for teachers to identify their level of competence in this framework, specific descriptors of stages and levels are provided. These are complemented by indicators of achievement, performance statements and examples that illustrate in more detail how they are applied. A definition of these terms is given below:

- **Stages of progression:** stages in which the knowledge, skills and attitudes of each of the competences is cumulatively developed according to general set criteria.
- **Proficiency levels:** degree of development of teaching digital competence achieved in each of the stages by applying the general criteria set for their description.
- **Indicators of achievement:** a statement (utterance) that identifies a behaviour expressing the level of proficiency attained in a competence, representing the knowledge, skills and attitudes

which, in an integrated manner, make it possible to describe in an observable way the typical performances for a given level and competence.

- **Performance statements:** sentences formulated in first person singular that show in a general way typical activities at each proficiency level by integrating the different indicators of achievement at that level. Since the progression of proficiency levels is cumulative, a competent teacher at an advanced level should be able to perform the activities at that level and all lower levels.
- **Examples:** specification of the statements on performance in activities that are common in the teaching profession.



Area 1. Professional engagement

The professional engagement of teachers is expressed through the development of the intellectual, physical and psychological development of pupils, their participation in the school, their collaboration with families, and their own professional development. Therefore, digital competence in teaching should not only refer to the ability to use digital technologies to enhance teaching and learning, but it should also refer to the proper performance of all tasks related to professional practice.

As stated in Title III, Chapter I, Article 91 of the Spanish Organic Law 2/2006 of 3 May 2006 on Education (LOE) (consolidated legislation):

1. The responsibilities of teachers includes the following, among others:

[...]

c) Tutoring pupils, directing and guiding their learning and supporting their learning process in collaboration with their families.

d) Educational, academic and vocational guidance of pupils in collaboration with specialised services or departments where appropriate.

[...]

e) Taking care of the intellectual, emotional, psychomotor, social and moral development of pupils.

f) Promotion, organisation and participation in complementary activities, inside or outside the school grounds, organised by the school.

g) Ensuring that school activities take place in an environment of respect, tolerance, participation and freedom in order to foster pupils' values of democratic citizenship and a culture of peace.

h) Regular information to families about the learning progress of their children, as well as guidance on how to contribute to it.

i) Coordination of the teaching, management and leadership activities assigned.

j) Participation in regular school activities.

k) Applying the assessment processes determined by the educational administrations or schools themselves.

l) Researching, experimenting, and continuously improving teaching processes.

2. Teachers shall carry out the responsibilities expressed in the previous section under the principle of collaboration and teamwork.

Furthermore, another important aspect set up in the provisions of Article 111 *bis* and the twenty-third additional provision of the above-mentioned legislation LOE (consolidated legislation), as well as in Article 83 of the Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and digital rights guarantee, it is the responsibility of teachers to guarantee the safety and protection of the digital rights of pupils and the rest of the members of the school community. The digital competence of teachers must be inescapably linked to the responsible, safe, and critical use of digital technologies in all aspects of professional practice. Notably, digital technologies that make use of personal data or profiling involving developments of Artificial Intelligence and automated decision-making require a risk and impact assessment prior to their use. In this regard, it is understood that the digital resources used will be those established by the Education Administrations - hereinafter referred to as EA- or by the school leaders in the case of private schools, except for justified and authorised exceptions.

1.1. Organisational communication

Competence description

To use the digital technologies established by the EA or by the school leaders where appropriate; to apply the organisational communication strategies among the members of the school community and between them and third parties contributing to the improvement of these communication strategies and to the projection of the institutional image of the school.

Contextualising competence 1.1 in teaching

This competence is developed in organisational communication contexts, not in teaching and learning situations. Teachers use this competence in the context of communication and the use of digital communication tools to participate in teaching coordination roles and managerial positions in schools. This competence is also used in interactions with the different members of the school community, especially pupils and families, institutions and other organisations supporting the school. It is specifically applied in situations where there are communications in the context of non-teaching professional work.

The key elements of this competence include:

- Using digital technologies to improve organisational communication with pupils, parents and third parties.
- Promoting respect and rules of behaviour when using different digital communication tools (digital etiquette) and the implementation of the acceptable use policy of such tools established by the school management.
- Contributing to the development and improvement, through collaboration, of organisational communication strategies.

Actions that demonstrate this competence include:

- Using corporate digital technologies, platforms or established communication services to communicate with the school community and gather information individually or collectively (organisational aspects, academic management, form class, etc.).
- Using digital technologies to provide additional learning resources and information to pupils and families through appropriate digital communication tools.
- Publishing and disseminating content through the digital communication channels established by the EA, the school leaders, or those connected to the image of the school. This includes the school website, virtual learning environments, and Social Networks (hereinafter SN), amongst others.
- Contributing collaboratively to the development and improvement of organisational communication strategies included in the school digital plan.

- Using the rules of digital etiquette when communicating via digital tools and respecting the acceptable use policies established by the EA and/or the school.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

1.1. Organisational communication			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and application in controlled environments of digital technologies proposed by the EA or school leaders to improve communication and the projection of the institutional image of the school.	A1. General knowledge of the most commonly used communication technologies in educational contexts and understanding of their purpose.	<p>1.1.A1.1. Communicates using the basic rules of digital etiquette by means of digital technologies: e-mail, forums, chat, videoconferencing, etc.</p> <p>1.1.A1.2. Uses each of the tools correctly, adapting them to the communicative context.</p> <p>1.1.A1.3. Knows the characteristics, functionalities, accessibility options and limitations of communication tools, as well as the regulations applied to their use in the educational field.</p>	<p>I use digital technologies for communication in a context-specific way.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the functionalities of videoconferencing systems in synchronous communication activities with other people. • I use basic etiquette rules in digital communication (use of capital letters, emoticons, etc.). • I select synchronous or asynchronous tools depending on the communicative purpose and the time availability of my speakers.
	A2. Initiation in the use of digital technologies determined by the EA or school leaders in organisational communication situations.	<p>1.1.A2.1. Knows and applies, under supervision, acceptable use policies of organisational communication tools established by the EA or school leaders.</p> <p>1.1.A2.2. Uses the digital technologies established by the EA or school leaders in a real-life educational communication context with the advice of other teachers and ensuring accessibility.</p>	<p>I use, with guidance, the communication tools established by the EA or school leaders following acceptable use policies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the corporate email account. • I send messages to families through the school communication platform with the help of other teachers. • I use the videoconferencing programmes set up by the EA or the school leaders to communicate with other members of the school community.
B. Integration of digital technologies for communication established by the EA	B1. Adoption of the organisational communication strategies	1.1.B1.1. Communicates autonomously and conventionally with members of the school community using, as appropriate, the	<p>I use the communication tools established by the EA or the school leaders autonomously, selectively and correctly.</p> <p>Examples:</p>

or by the school leaders in professional performance.	of the school through digital technologies.	most suitable digital tool among those established by the EA or the school leaders for such purpose. 1.1.B1.2. Applies the acceptable use policies of the organisational communication tools established by the EA or school members.	<ul style="list-style-type: none"> • I use the channels established by the EA or the school leaders to communicate with families, pupils, etc. • I participate in the creation of content in a blog, school website, SN, etc., applying the rules of style and the acceptable use policies established by the school.
	B2. Adapting the use of digital technologies to improve organisational communication.	1.1.B2.1. Identifies and implements complementary uses of organisational communication tools, respecting the acceptable use policies established in the school. 1.1.B2.2. Collaborates in the development or improvement of the school communication plan. 1.1.B2.3. Supports other teachers informally in the correct use of digital technologies for communication in the school.	I apply and disseminate (in the school) the use of digital technologies for communication in new contexts. Examples: <ul style="list-style-type: none"> • I create discussion threads on the digital footprint, cyberbullying and other relevant topics in the school forum. • I participate in the working committee for the creation of a corporate style manual for publications in the school website. • I help other teachers in my school to use communication tools, e.g., publishing content on the web.
C. Research, evaluation and design of new strategies for organisational communication in educational contexts.	C1. Evaluation of the digital technologies for communication used in the school and coordination of the organisational communication plan.	1.1.C1.1. Assesses the functionalities, performance, accessibility and limitations of the organisational communication tools used by the school in order to improve their efficiency. 1.1.C1.2. Coordinates the development of the school digital communication plan ensuring that it is in line with current regulations and includes aspects related to acceptable use policies, digital etiquette and workflow. 1.1.C1.3. Trains other members of the school community in	I evaluate digital technologies and their use in the school in order to make suggestions for improving organisational communication. I train other members of the school community on the appropriate use of digital communication technologies at the school. Examples: <ul style="list-style-type: none"> • I design training materials for internal use and for other teachers in order to promote the reflective and creative use of digital technologies for the organisational communication in my school. • I coordinate the design of communication guidelines establishing the appropriate channels, people in charge, style manuals, and templates. • I identify, analyse and evaluate the key elements that a digital tool must have for its use in school communications (privacy, licence, technical characteristics, accessibility, etc.). • I have designed, following the actions established in the school digital plan, my own restricted social network installed in the school servers of the EA which can

		institutionalised activities on the use of digital technologies for communication.	<p>only be accessed by members of the school community to promote internal communication.</p> <ul style="list-style-type: none"> • I participate in professional networks on the use of digital technologies to improve the effectiveness of organisational communication in schools.
	C2. Design of organisational communication strategies for schools	<p>1.1.C2.1. Participates in research projects and the design of organisational communication tools adapted to schools.</p> <p>1.1.C2.2. Publishes information or leads training on new organisational communication strategies in schools.</p>	<p>I make innovative contributions to the improvement of organisational communication in schools according to criteria of quality, efficiency, accessibility, technical requirements and in compliance with current regulations.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I advise other schools on the design of communication plans using digital technologies. • I identify new functionalities that digital tools should have in order to cover the organisational communication needs of the schools adequately. • I have a <i>blog</i>, awarded and/or recognised with a quality seal, in which I analyse different aspects of organisational communication in schools.

1.2. Professional participation, collaboration and coordination

Competence description

This competence refers to the use of digital technologies by the school management team and coordinating actions with the members of the teaching staff, school counsellors and the educational support department. Competence 1.2 also includes collaboration with teachers, educators and other members of other institutions in the development of specific plans and projects led by the school.

Contextualising competence 1.2 in teaching

This competence will be employed in situations in which teachers are required to actively and proactively participate in teaching coordination and management bodies and when teachers are required to carry out teaching tasks of an administrative nature using digital channels within the school.

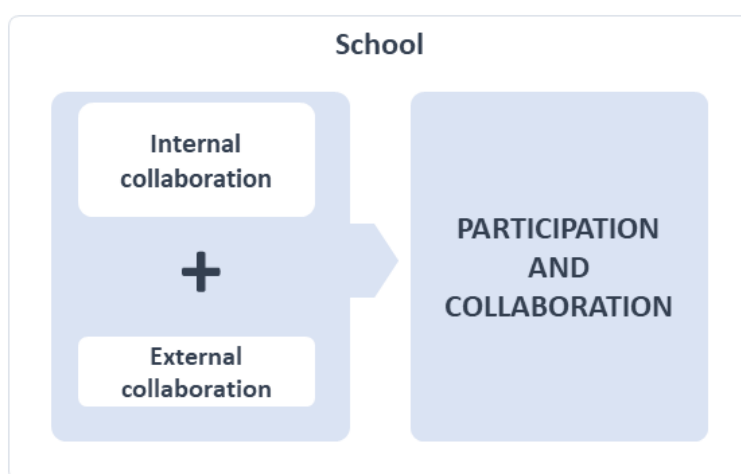


Illustration 7. Collaboration in the school. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

It involves, among other things, the use of the necessary applications and software to carry out administrative teaching tasks, the use of platforms for collaboration and pedagogic coordination in the school, the implementation of safety rules and guidelines for the use of the school digital resources and the adaptation of the use of technologies to ensure the personal well-being of the school members and environmental sustainability.

It will also be applied in situations of corporate collaboration with teachers from other schools or with external professionals, whether from social services, cultural institutions, research centres, associations, or companies in the surrounding area for the development of specific projects or tasks. This refers to the competence for the use of digital technologies in collaborative processes in order to carry out specific actions - excluding reflection, research, etc. related to the use of digital technologies in education - aspects which are included in the following competences related to reflective practice and professional development.

The key elements of this competence include:

- Knowledge and application of the guidelines and use of digital tools for participation, collaboration and coordination offered by the EA or school leaders.
- Methodological strategies for teacher participation, professional coordination and collaboration in digital environments.

Actions that demonstrate this competence include:

- Using digital technologies to collaborate with other teachers on a specific project or task.

- Using digital technologies to collaborate in decision-making, participation in meetings and in the implementation of duties by the school management team and coordination committees.
- Collaborating in the design, implementation and evaluation of the school digital strategy with regard to participation mechanisms in the school management team and coordination committees.
- Coordinating the use of digital technologies for the development, evaluation, monitoring and revision of the school management and digital plans.
- Collaborating, through digital environments, in the precise implementation of the different curricular levels of the digital competence of pupils.
- Coordinating actions in the school and in the classroom with local social services by using digital technologies.
- Using digital technologies to collaborate with teachers from other European countries in an international educational project.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

1.2. Professional participation, collaboration, and coordination			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application of digital technologies for participation in the school management and coordination bodies.	A1. Theoretical/practical knowledge of the use of collaborative technologies.	<p>1.2.A1.1. Identifies the functionalities, safety conditions, data protection and privacy, technical characteristics (accessibility and interoperability) of different collaborative platforms in order to select one that is suitable for the purpose for which it is being used.</p> <p>1.2.A1.2. Uses different collaborative platforms with professional application for personal use.</p>	<p>I know the possibilities and limitations of collaborative platforms used in educational contexts and I use them in personal projects.</p> <p>Examples:</p> <ul style="list-style-type: none"> I use collaborative work tools in the cloud to carry out group work. I check the privacy terms and conditions and get information about the functional features of collaborative platforms before using them.
	A2. Formal participation in the coordination committees of the school using the digital technologies established by the EA or the school leaders with guidance.	1.2.A2.1. Uses the different platforms for the participation and coordination of teachers established by the EA or the school leaders with guidance.	<p>I participate in the school coordination and management bodies using digital technologies with guidance.</p> <p>Examples:</p> <ul style="list-style-type: none"> I participate, with initial assistance, in whole staff or department meetings through videoconferencing tools offered by the EA or school leaders. I use the coordination tools for teacher groups with the help of manuals to monitor pupils' progress, making use of the applications offered by the EA or the school leaders.
B. Use of the school's digital technologies for teacher participation as well as the coordination and transfer of collaborative strategies for the	B1. Conventional and autonomous use of digital technologies established by the EA or school leaders for teacher participation and collaboration.	1.2.B1.1. Uses digital technologies autonomously and applies the guidance established by school leaders to carry out administrative tasks linked to teaching duties to participate in the school management and coordination bodies as well as with external institutional services.	<p>I use digital technologies established by the EA or by the school leaders following the official guidelines and strategies to carry out administrative tasks and to participate in the school management and coordination bodies.</p> <p>Examples:</p> <ul style="list-style-type: none"> I use the digital tools provided by the EA or school leaders to produce assessment reports and to issue these reports following the established guidelines as part of my duties as a form teacher. I use institutional platforms for collaboration with local social services.

development of institutional projects.		1.2.B1.2. Adopts strategies for collaboration through digital technologies proposed by the school in the different processes of internal coordination and participation.	
	B2. Transfer and adaptation of professional collaboration strategies and dynamics to digital platforms and such environments for the development of institutional projects.	<p>1.2.B2.1. Participates in the development of institutional projects, both within the school and with external agents, using collaborative digital platforms.</p> <p>1.2.B2.2. Adapts collaboration strategies and dynamics to the functionalities of the digital platform used and to the specific purpose of the project or task.</p> <p>1.2.B2.3. Informally advises other teachers on the use of digital technologies for teaching collaboration.</p>	<p>I adapt professional collaboration strategies to institutional projects or specific tasks in which I participate and to the characteristics of the digital platforms used following the guidelines set out in the school digital plan.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I help other teachers in my school using participation and collaboration tools, e.g. embedding tools in videoconferencing software. • I use the school collaboration platform to coordinate the actions of the teaching team in the development of an interdisciplinary project with my pupils. • I collaborate with teachers from other European schools to implement joint educational activities with our pupils through the eTwinning platform. • I collaborate with researchers at the Institute of Astrophysics of the Canary Islands in Spain (IAC) to involve my students in an educational project with Robotic Telescopes (PETeR). • I collaborate with the primary school form teachers of incoming first year pupils to develop activities that ease the transition of my students from one educational stage to another.
C. Innovation of professional teaching practices of participation, coordination and collaboration through digital technologies.	C1. Evaluation of the digital tools for participation, coordination and professional collaboration used in the school and coordination of the tasks associated with their use.	<p>1.2.C1.1. Designs and leads the implementation of the guidelines for participation, coordination and collaboration through the school digital technologies and coordinates their revision and improvement.</p> <p>1.2.C1.2. Offers assistance, advice and institutional support to school teaching staff on dynamics to facilitate participation, collaboration and coordination using digital technologies.</p>	<p>I coordinate the guidelines on the use and actions included in the school digital plan to channel participation, coordination and professional collaboration using the tools provided by the EA or school leaders using the appropriate strategies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I research new tools for participation and collaboration, taking into account privacy and respect for the guarantee of digital rights. • I coordinate or collaborate in a meaningful way in the evaluation of the collaboration and participation tools used in the school in order to determine whether there are safer and more effective alternatives. • I coordinate the evaluation process of the school digital plan using collaborative and participatory digital technologies.

		<p>1.2.C1.3. Participates in research projects on the use of digital platforms for teaching collaboration.</p>	<ul style="list-style-type: none"> • I advise teachers in my school on the most appropriate digital technologies available to collaborate on a specific project. • I teach courses in my school on the use of digital technologies for participation and collaboration in which a creative and critical use of digital technologies is enhanced. • I design teaching innovation projects with other schools using digital collaboration tools.
	<p>C2. Research on new models of professional collaboration through digital platforms.</p>	<p>1.2.C2.1. Identifies new functionalities that would make it possible to implement more effective collaboration strategies in the educational sector through digital technologies.</p> <p>1.2.C2.2. Researches the impact of digital technologies on the organisational aspects of schools and on professional participation, coordination and collaboration.</p> <p>1.2.C2.3. Designs new models of participation, coordination and professional collaboration through digital technologies in the education sector.</p> <p>1.2.C2.4. Publishes or offers training on new models of professional participation, coordination and collaboration through digital technologies in the field of education.</p>	<p>I design new models of collaboration, coordination and professional participation using digital technologies based on research into their impact and suitability for educational tasks and projects.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I participate in the evaluation of projects that promote the use of new collaborative tools. • I coordinate a virtual learning community in a professional network to exchange experiences and opinions on new models of teaching collaboration in digital environments. • I contribute to the functional analysis that the collaboration tools used by schools would require in order to manage the development of interdisciplinary educational projects more efficiently and smoothly. • I have publications (articles, reports, books, ...) on the development of distributed leadership in schools enriched with the use of digital technologies.

1.3. Reflective practice

Competence description

To reflect, individually and collectively, on the digital pedagogical practice developed in the classroom and the school with the aim of applying the improvements identified through this process.

Contextualización de la competencia en el desempeño docente

This competence refers to research and reflection on the use of digital technologies in personal (individual) teaching practice and its impact on the development of the digital competence of other people. It does not require, in itself, the use of digital means and devices, although it aims at improving its use in education.

This competence refers to the training and use of reflective practice as part of the professional performance of the teacher in which digital technologies are integrated, especially with regards to pedagogical and curricular performance. Reflective practice goes beyond intuitive and spontaneous reflection and is oriented towards action-research following a circular process that could be represented as follows, integrating the contributions of various authors:

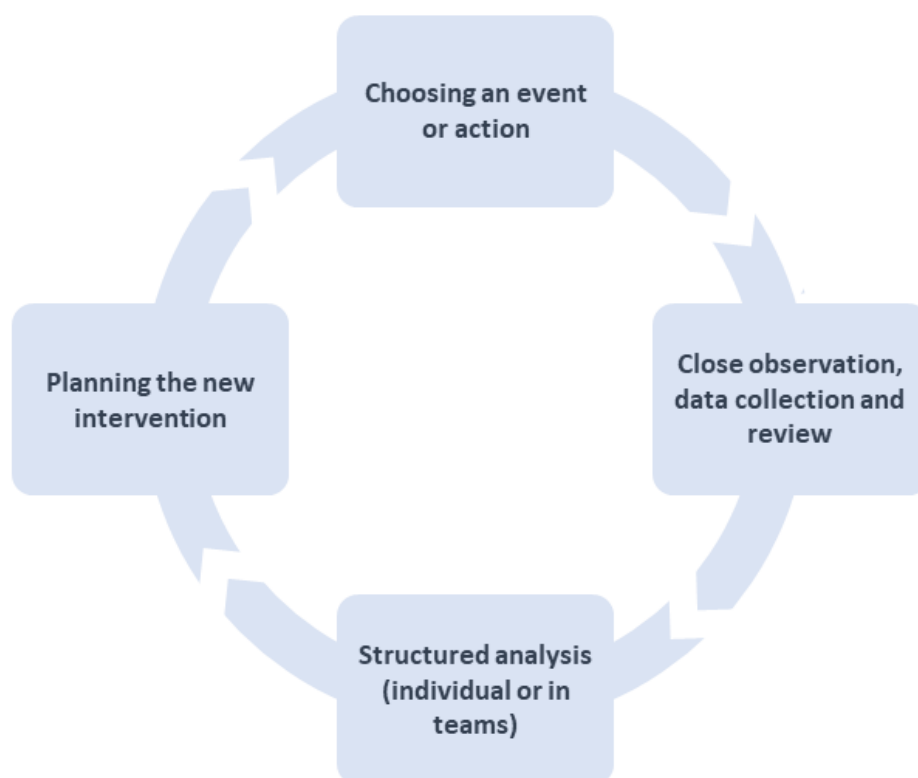


Figure 8. Reflective practice. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

An essential aspect of this model lies in the need to start with a specific real-life situation so that learning is fully contextualised. This model focuses holistically on the person, evolving from the analysis of technical or methodological elements to others that are more related to the principles, perceptions and beliefs of the teacher. Reflection on pedagogic and teaching practice can be greatly enriched by the contributions of other professionals in a discussion group under equal conditions and in an environment of trust, which allows individual perceptions to be contrasted with others. Likewise, controlled observation, both individual and peer observation, directly or through recordings, provides additional, more easily objectifiable information for qualitative analysis.

The process requires the identification of the theoretical knowledge, implicit personal beliefs and experiential knowledge or knowledge in action of the teacher. It also requires the review of such

reflections during and after the action of the teacher while dealing with an unforeseen situation. Reflection on the action and a later meta-reflection on all the factors when having to make an immediate decision and course of action in the classroom should lead to the questioning of some of these aspects, especially in cases where the intervention has not yielded the expected results. This will also include the discussion of alternative actions for similar situations in the future. This would involve, among other things, examining the characteristics of the situation or action, reviewing the subjective interpretation made, considering the procedure followed in the diagnosis and definition of the problem, identifying the factors that have determined the decision taken, moving forward in the search for new knowledge and theoretical references, engaging in the review of subjective interpretations and schemes of thought and, finally, arriving at the construction of a rational, reflective and conscious praxis that is less reactive, intuitive and routine.

The key elements of this competence include:

- Types of educational research. Reflective practice and action research.
- Methodological strategies for the integration of digital technologies in teaching and learning processes.

Actions that demonstrate this competence include:

- Reflecting critically on teacher's own digital and pedagogical practice.
- Participating in the evaluation and revision of the school digital strategy.
- Actively contributing to the development of practices, policies and approaches in the use of digital technologies in educational contexts.
- Participating in research events and demonstrating the creative and innovative use of digital technologies in educational contexts.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

1.3. Reflective practice			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided implementation of models of analysis, reflection and evaluation, both individually and collectively, of the use of technologies in the teaching practice.	A1. Knowledge of tools and models to carry out a reflective analysis of the use of digital technologies in teaching practice.	1.3.A1.1. Distinguishes different models of digital pedagogic practices and theoretically analyses their advantages and disadvantages. 1.3.A1.2. Is knowledgeable of support instruments to critically reflect on teaching practice, both individually and collectively.	I identify digital pedagogic practices and position myself with regards to their application in the classroom. Examples: <ul style="list-style-type: none"> I use reflection guidelines to help me create a model of what a competent teacher is. I identify my beliefs and relate them to different theoretical frameworks when planning the use of different digital pedagogic practices.
	A2. Guided reflective practice	1.3.A2.1. Reflects individually or collectively while being advised by colleagues or by external experts on specific technical or methodological relevant aspects of digital teaching practice.	I analyse, with the advice of another teacher or training advisor, some relevant technical or methodological aspects of digital pedagogic practices with guidance that I have carried out, taking into account both the process developed and the results obtained. Examples: <ul style="list-style-type: none"> I revise my use of the interactive screen and identify positive and negative effects on the learning of the students. I analyse, with the help of other teachers, how the implementation of the flipped classroom model has improved the process of solving questions when carrying out class activities.
B. Analysis and implementation of digital pedagogic practices in the classroom	B1. Individual analysis and reflection on the personal implementation of digital technologies and methodologies.	1.3.B1.1. Identifies problems in teaching practice with digital technologies and solves them by adopting standardised solutions provided by other teachers. 1.3.B1.2. Examines the implementation of the methods of integration of digital technologies carried out in teaching practice, analysing the process developed, the results obtained and the way in	I identify the problems I face and analyse my response to unforeseen situations in order to reconsider my digital pedagogical practice using solutions provided by other teachers or gathered from the Internet. Examples: <ul style="list-style-type: none"> I use the pedagogic practices I learn in a course and test their results in my classes to solve concrete problems. I learn about models of the integration of technologies to develop collaborative learning by directly transferring experiences developed in other schools. I consult a colleague about the process I should follow to carry out an augmented reality experience in the classroom in order to avoid disruptive behaviours that

		which they reacted to unforeseen situations.	were generated in a previous class while we were installing the software on the mobile phones.
	B2. Systematic application of reflective practice in using digital technologies as a method for improving professional performance.	<p>1.3.B2.1. Analyses, within a teaching team, his/her own digital pedagogical practices using data obtained through the use of observation tools.</p> <p>1.3.B2.2. Modifies his/her specific interventions in the classroom in a planned and reflective way on the basis of the conclusions drawn from the analysis of his/her own practice.</p> <p>1.3.B2.3. Ponders the educational and ethical consequences of their decisions and questions their own pedagogical beliefs about the use of digital technologies in the teaching practice.</p> <p>1.3.B2.4. Devises strategies for managing uncertainty in planning transformative practices outlined after analysis.</p>	<p>I systematically analyse my digital practices to identify the underlying pedagogical model (collaborative, competitive, individual, group) in order to redefine them.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use different tools (diary, anecdotal records, checklists, scales) to analyse my digital pedagogical practice and the conceptions that underpin it. • I participate in experiences of joint analysis and reflection based on mutual observation of teaching performance with digital technologies. • I modify my regular use of digital technologies, based on a systematic process of data and information collection, in order to design new solutions aimed at improving my digital pedagogical practice. • I collaborate in the design of a procedure for the evaluation of digital pedagogic practice to determine its validity and make suggestions for improvement to be included in the yearlong lesson plan report.
C. Research and evaluation on digital pedagogic practices	C1. Analysis of own and digital pedagogic practices and that of others	<p>1.3.C1.1. Coordinates processes of continuous improvement of teaching performance using digital technologies through reflective practice.</p> <p>1.3.C1.2. Analyses the results of his/her digital pedagogic practice, formulates hypotheses, collects data to contrast them and plans and develops future actions.</p> <p>1.3.C1.3. Supports other teachers at their institution in improving their</p>	<p>I collaboratively evaluate, reflect on, and discuss policy, pedagogical and organisational practices regarding the use of digital technologies in my school.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I coordinate educational innovation projects to improve digital pedagogic practices in my school (for example, future classroom lab) based on performance observation and shared reflective practice. • I coordinate the integration of technologies in my school by applying processes of analysis, evaluation and joint reflection for the improvement of the school digital plan. • When I detect a problem in class when using digital technologies, I analyse the situation and the data I have, hypothesise the possible cause of the problem, design

		professional digital practice through critical analysis and joint reflection.	<p>a solution and put it into practice by setting up a system that allows me to test the validity of the hypothesis formulated.</p> <ul style="list-style-type: none"> • I adapt instruments (checklists, rating scales, rubrics) for data collection based on systematic observation to support the processes of reflection on digital pedagogical practice in my school.
	C2. Research and leadership in the development of reflective practice processes	<p>1.3.C2.1. Investigates the impact of reflective practice on improving teaching performance using digital technologies.</p> <p>1.3.C2.2. Advises other teachers to autonomously develop action-research processes through reflective practice.</p>	<p>I contribute to the development of reflection processes and research on their impact on improving digital practices, methods and policies in education.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I have created and lead a professional community to analyse and contrast the digital pedagogic practices of its members applying shared and critically examined parameters. • I develop digital pedagogical methods and models applicable to different educational contexts in a process of continuous action-research on my own practice. • I design tools (checklists, rating scales, rubrics, etc.) for the collection of data from systematic observation to support processes of reflection on digital pedagogic practice in the context of research.

1.4. Continuous Digital Professional Development (CPD)

Competence description

Continuously develop professional teaching competences through digital means to keep teaching digital competence up to date.

Contextualising competence 1.4 in teaching

This competence will be applied in situations where the main objective is the digital Continuous Professional Development of teachers through digital means, i.e. the improvement of the teacher's own teaching competences, either through individual or collaborative work or with the help of others. Digital CPD specifically includes the development of professional digital competence through face-to-face or blended learning or through digital technologies in virtual environments.

As this competence develops, continuous digital professional development affects all elements of the TPACK model through digital media and technological literacy and its link to pedagogical and content knowledge areas in face-to-face, blended and virtual learning situations.

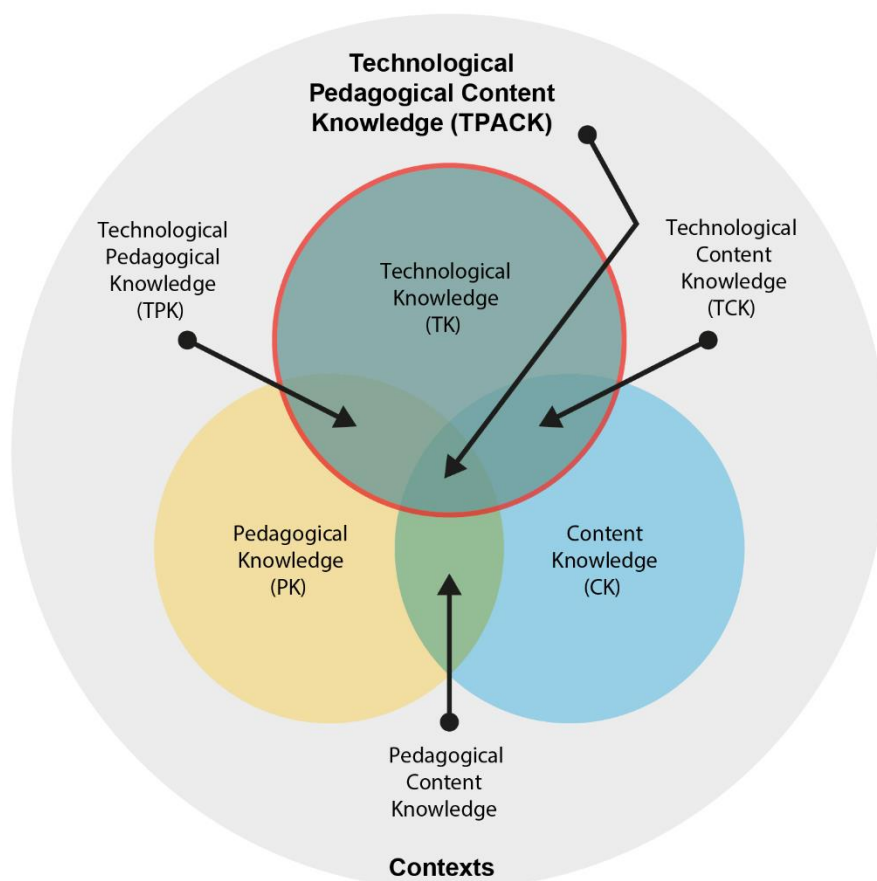


Illustration 9. Technological knowledge from TPACK Framework © 2012 by tpack.org

CPD is represented in a cycle of actions linked to training, self-training and individual and joint reflection on the practical application of new knowledge and its integration within the existing competence structure.

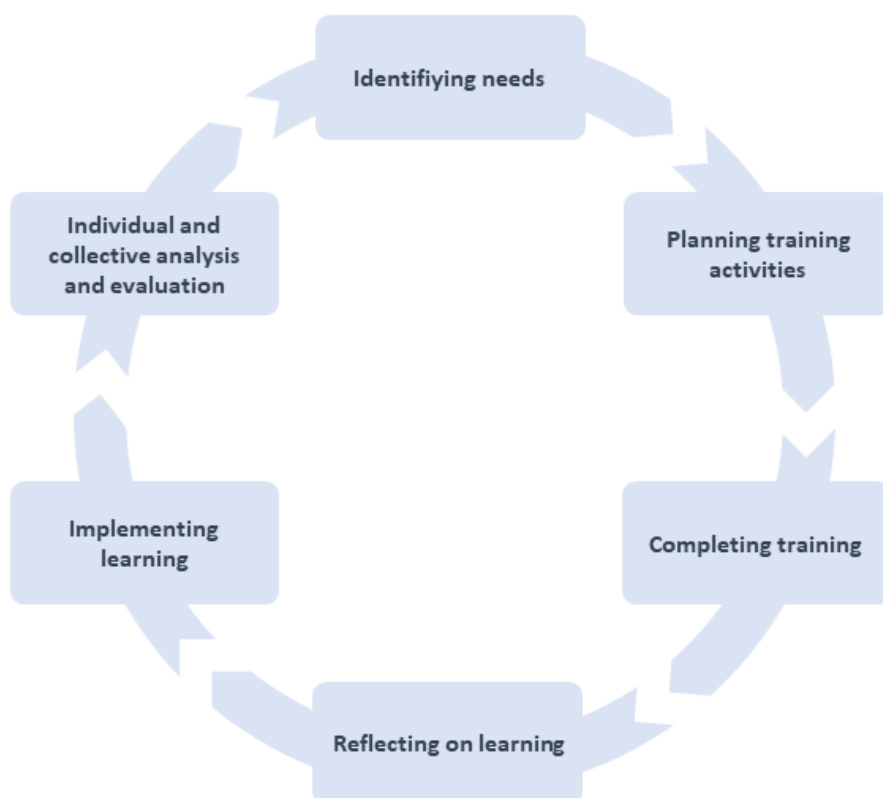


Illustration 10. Continuous Digital Professional Development. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

We understand that the search for training activities, collaboration with other teachers for professional development or reflection on learning are included in this competence as long as they refer to actions linked to professional development. These actions could be found in competences 2.1 Searching and selecting digital content, 1.2 Professional participation, collaboration and coordination and 1.3 Reflective practice, although the context of application is exclusively the support for professional development through training, reflection within this type of training processes and research focused on the development of new competences or their improvement. Therefore, this competence focuses fundamentally on the development of training activities in digital or hybrid environments and the development of digital teaching competence in face-to-face, blended or online environments, and search, reflection and collaboration refer solely and exclusively to actions related to training activities.

The key elements of this competence include:

- Use of digital training platforms.
- Types of training and learning

Actions that demonstrate this competence include:

- Identifying needs and areas for improvement of professional digital competence.
- Searching for, identifying and using digital sources and resources that contribute to professional development (pedagogical strategies, specific competences of the subject area, and technical problem solving).
- Collaborating in the exchange of good practices in order to enhance teacher professional development through peer-to-peer training in virtual environments or on the educational use of digital technologies.
- Participating in training activities on digital resources, both face-to-face and online, for continuous professional development.
- Contributing to the development of the digital pedagogical competence of other teachers.

- Researching new types of training for the professional development of teachers in virtual environments.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

1.4. Continuous Digital Professional Development (CPD)			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Participation in training activities for the practical application of theoretical models of professional development on and/or through digital technologies.	A1. Construction of reference teaching models and identification of training needs for their implementation in practice.	1.4.A1.1. Identifies professional development needs in order to apply theoretical training in practice using digital technologies.	<p>I use digital technologies to identify and reflect, in a theoretical way, on the pedagogic skills that makes a good teacher, especially regarding their digital competence, in order to have it as a reference in CPD.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I understand how a particular pedagogic use of technology can help define my teaching practice model based on innovation. • I am familiar with different strategies for analysing in-class teacher observation in order to identify my training needs in the pedagogical use of digital technologies. • I analyse theoretically and in the context of a training activity the pedagogic model associated with the use of technologies in education, e.g. the procedure for administering positive reinforcement and define the professional model capable of applying them. • I compare strategies that generate competitiveness with those that promote collaboration in the different application models of gamification using digital technologies.
	A2. Participation in training activities linked to initial and contextualised practice in the school and in teachers' own professional performance on and/or through digital technologies.	1.4.A2.1. Takes advantage of learning opportunities at school and those through networks for professional development.	<p>I identify, with the help of other colleagues and/or experts, my training needs for the development of my professional practice on and through digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I participate in webinars to respond to training needs related to the school's management plan. • I use digital technologies (video recordings, CCTV, etc.) to analyse the teaching practice of my colleagues and myself in order to assess my professional development needs.
B. Selection and participation in professional	B1. Update and professional development through	1.4.B1.1. Participates in expert-led, online or face-to-face teacher professional development training	<p>I participate in expert-led or expert-designed training activities linked to my areas of improvement on digital competence and/or through digital means.</p> <p>Examples:</p>

development activities tailored to their needs on and/or through digital technologies.	digital technologies or their educational purpose using resources developed by experts.	activities, using digital resources for their development. 1.4.B1.2. Participates in courses aimed for the development of digital competence in teaching. 1.4.B1.3. Uses Internet resources for self-determined learning in the professional field.	<ul style="list-style-type: none"> I am taking part in a face-to-face course to improve my digital competence as a teacher. I use Internet resources for my continuing professional development (digital competence development courses, scientific and teaching refresher courses). I participate in MOOCs and NOOCs on topics of my interest related to teaching practice and professional development through digital technologies.
	B2. Participation in training activities aimed at professional teams that require the active intervention of their members in instructional design and the use of digital technologies.	1.4.B2.1. Adapts knowledge and experiences, exchanged in professional online communities and/or face-to-face training activities on the use of digital technologies and evaluates their implementation.	<p>I adapt new knowledge by integrating it into my teaching practice and evaluate the process and its results.</p> <p>Examples:</p> <ul style="list-style-type: none"> I apply the knowledge acquired in online training processes or in professional networks. I evaluate and adapt them to the context of my school and classroom to improve my teaching practice. I have a PLE (personal learning environment) which I keep up to date. I participate in collaborative activities (seminars and working groups) related to the development of my professional practice on the integration of digital technologies.
C. Collaborative creation of new training activities and models for continuous professional development	C1. Coordination and design of training activities and materials for the improvement of digital pedagogical practice and/or through digital environments.	<p>1.4.C1.1. Coordinates online or face-to-face training activities on digital competence in teaching at the school itself.</p> <p>1.4.C1.2. Tutors, acts as trainer, or is an active part of training activities for the professional development of teachers on digital pedagogical practice or through digital environments.</p>	<p>I assess, reflect and discuss individual and collective training needs for teacher professional development in my school. I act as a trainer in various activities on digital pedagogical practice and/or through digital environments.</p> <p>Examples:</p> <ul style="list-style-type: none"> I have acted as a tutor in different online courses related to the integration of technologies in the classroom. I publish content that may be of interest for the professional development of other teachers (use of digital tools, creation of resources, and integration of digital technologies in the classroom). I debate on teacher professional development in professional networks and learning communities. I have created the welcome materials for new teachers joining my school. I collaboratively design my school's training plan to facilitate my own and my colleagues' professional development.

	<p>C2. Design of new research programmes applied to education for the professional development of teachers through digital technologies.</p>	<p>1.4.C2.1. Uses digital technologies to advise colleagues on innovative teaching practices.</p> <p>1.4.C2.2. Designs and applies educational research programmes for the professional development of teachers on or through digital technologies.</p> <p>1.4.C2.3. Creates and implements new models of CPD on or through digital technologies.</p>	<p>I design, through research processes, and apply new models of teacher professional development with colleagues using digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I develop online training courses (open, tutored, or others) adapted to new instructional design models for teacher professional development. • I am carrying out a research project on the impact of improving the teaching performance of teachers who participate in virtual professional communities.
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1.5. Personal data protection, privacy, safety and well-being

Competence description

This competence refers to the protection of personal data, the communications and the access to devices within the educational environment in order to avoid risks and threats that might affect the digital rights of all members of the school community, as provided for in current regulations. The key is to be able to use digital technologies in a responsible, safe and healthy way to avoid work, personal and environmental risks and to guarantee the physical, psychological and social well-being of students when using digital technologies.

Contextualising competence 1.5 in teaching

The school digital plan should include a set of measures that guarantee the well-being of the school community. This competence is aimed at developing teacher commitment to this objective and is exercised through four axes:

- protection of personal data, privacy and digital rights
- safety of access to devices, systems and networks
- responsible and sustainable use of digital resources from an environmental and social point-of-view
- measures to ensure physical and mental health

A fundamental element for the development of this competence is personal data protection, as it is an obligation that all teachers have in the performance of their responsibilities, and its exercise is subject to the duty of confidentiality and must be completed from the outset so that its application cannot be adjusted under any circumstances.

Data protection is applied in all teaching activities in which personal data is processed - both those of teachers and third parties (pupils, families, and others) - of an administrative nature, for organisational communication and for the development of complementary activities to teaching or learning. It is specified in the application of safety measures and guidelines in the school that this must develop those established by current legislation. Depending on the EA or the private or subsidised school where the teacher works, these guidelines may change, although they will always require the implementation of certain common elements.

The development of this competence in the processing of personal data of an administrative nature is complemented by the responsible exercise of data processing in the teaching, learning and assessment processes that correspond to areas 2, 3, 4 and 5. It should be noted that measures aimed at training students in this area would not be included since they are already included in area 6.

The key elements of this competence include:

- Legislation on personal data protection, privacy and digital rights and guarantees in the field of education.
- Safety of access, storage and retrieval of information.
- Digital well-being and responsible, healthy and sustainable use of digital resources.

Actions that demonstrate this competence include:

- Using active safety measures (installation of safety software, use of strong passwords, data encryption, and digital certificates).
- Using passive security measures (backups, cloud storage, uninterruptible power supplies, etc.) to protect personal data, in compliance with current legislation.
- Applying identity and digital fingerprint protection measures, both your own and that of others in Internet publications in compliance with the regulations in force.

- Applying and guaranteeing respect for the basic rules of safety, privacy and protection of personal data in professional communications and in the interactions of students in digital environments established by the EA or the school leaders.
- Participating in the development and implementation of the safety policies set out in the school digital plan.
- Guiding the school community with regards to safety, personal data protection and digital privacy, both in terms of prevention and identification of potential risks and threats, as well as knowledge of safety measures and ways to act when digital rights are violated.
- Avoiding health risks and threats to physical and psychological well-being in the use of digital technologies.
- Applying environmentally friendly measures in the management of technological waste.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

1.5. Personal data protection, privacy, safety and digital well-being			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge of measures on data protection, privacy, safety, digital rights and digital wellbeing applied in education	A1. General knowledge of measures to protect personal data, privacy, safety, digital rights and well-being when using digital technologies in educational contexts.	<p>1.5.A1.1. Recognises the risks and threats of digital activity and uses general measures to protect personal data and access to devices in the professional field.</p> <p>1.5.A1.2. Is familiar with general measures to guarantee data protection and safety of pupils and minors in digital environments.</p> <p>1.5.A1.3. Applies measures to ensure physical and psychological well-being and care for the environment in the use of digital technologies.</p>	<p>I am aware of measures to protect personal data, privacy, safety, digital rights and wellbeing when using digital technologies in educational contexts, especially with minors, and the basic rules for the protection of physical and psychological health and the environment.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I check the permissions requested by an application when I install it on my mobile phone and consider whether and how it could be used with minors. • I take regular breaks when using digital devices. • I am aware of the ergonomic measures to be applied with minors when using digital technologies (for example, computer, tablet, or mobile phone). • I review the privacy policy of educational digital resources to decide on their use and set them up.
	A2. Knowledge and implementation with guidance of measures for the protection of personal data and privacy, as well as for the safety and safeguarding of digital rights and well-being when using digital technologies in real-life educational contexts.	<p>1.5.A2.1. Contextualises and complies with the measures established by the EA or school leaders for the protection of personal data, privacy and the guarantee of digital rights of the whole educational community with the advice of other teachers at the school.</p> <p>1.5.A2.2. Recognises the risks and threats of digital activity and complies with the safety and prevention measures established by the school, in its digital plan with the support of the management team.</p> <p>1.5.A2.3. Identifies the risks and threats to the physical and</p>	<p>I know of and apply the measures established by the EA or the school leaders with the advice of other teachers for the protection of personal data, privacy and the guarantee of digital rights of the whole school community, as well as the measures included in the school digital plan to ensure digital well-being.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use a digital certificate to sign official documents. • I apply the safety rules set out in the school digital plan (access and locking of devices, access and exit of applications, confidentiality of messages) with help. • I apply the measures for the protection of personal data in the use of digital technologies provided by the EA or the school leaders when sharing information with other teachers or families following the school handbook. • I am aware of the risks associated with the use of digital technologies by minors (cyberbullying, sexting, impersonation, etc.) and I am aware of the measures to prevent and identify these situations set out in the school behaviour policy and the guidelines for action established by the EA. • I identify those responsible for data processing at my school.

		psychological health of pupils associated with the use of digital technologies and complies with the guidelines established by the school for the creation of a healthy environment.	
B. Adoption and evaluation of measures on data protection, privacy, safety, digital rights and digital well-being implemented in the school	B1. Systematic and autonomous use of the measures in place to protect personal data and privacy, as well as safety measures and safeguards for digital rights and well-being when using digital technologies at school.	<p>1.5.B1.1. Autonomously applies the measures established by the EA or school leaders to protect their own and other people's personal data.</p> <p>1.5.B1.2. Applies preventive measures and identifies situations in which personal and digital rights may have been violated or in which the physical and psychological safety of any member of the school community has been endangered as a result of the use of digital technologies and responds to them by applying school guidelines.</p> <p>1.5.B1.3. Makes a rational use of digital technologies aimed at reducing the impact on the environment by applying the acceptable use policies established in the school.</p>	<p>I comply with measures to protect personal data and privacy, as well as safety measures and safeguards for digital rights and well-being when using digital technologies in my teaching autonomously and systematically.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I apply the safety rules established in the school digital plan (access and locking of devices, access and exit of applications, confidentiality in messages, etc.) in an autonomous and systematic way. • I collaborate with the management team to inform and request informed consent for the recording and dissemination of images or videos related to events that are not of an educational nature. • I control energy consumption in the use of the projectors in order to optimise their use and increase their durability. • I autonomously set up two different profiles on my computer, one professional and one personal, and apply safety policies so that they cannot share information.
	B2. Collaboration in the evaluation of school plans and guidelines related to personal data protection, privacy, safety, digital rights and well-being when using digital technologies.	<p>1.5.B2.1. Collaborates in the design and evaluation of the guidelines for the application of the measures established by the EA or school leaders on personal data protection and digital rights guarantees in accordance with current regulations.</p> <p>1.5.B2.2. Contributes to the design of the behaviour policy with regards to</p>	<p>I collaborate with the management team in the design and evaluation of any initiatives related to safety, data protection, guaranteeing of digital rights, the physical and psychological well-being of students and environmental sustainability related to the use of digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • For those services or functionalities not offered by the EA or the school leaders:

		<p>the use of digital technologies and their impact on the physical and psychological well-being of pupils.</p> <p>1.5.B2.3. Collaborates in actions that promote environmental sustainability in the use of digital resources and their subsequent monitoring in the school digital plan.</p> <p>1.5.B2.4. Informally assists other colleagues in the school with the implementation of measures on personal data protection.</p>	<ul style="list-style-type: none"> a) I select digital technologies on the basis of privacy and personal data protection criteria, ensuring that these resources do not collect any personal data. b) I request prior authorisation if such applications collect any personal data. • I provide ideas for integrating the inclusion and monitoring of actions that promote environmental sustainability (such as, optimisation of energy consumption, control of printing costs, and criteria for the replacement of devices) in the school's management plan. • I help other colleagues to identify the risk for the protection of personal data or the digital rights and guarantees of pupils which may arise from the use of a web application or service. • I use the encryption of text documents containing personal data as long as they must be in my possession within the workflow established by the EA or the school leaders.
<p>C. Design and implementation of measures for the protection of personal data, privacy, safety, digital rights and the digital well-being of the school community.</p>	<p>C1. Identification of risks and specification of measures for data protection, privacy and digital rights and safety in the school and collaboration in the design of actions to achieve positive coexistence in relation to the use of digital technologies.</p>	<p>1.5.C1.1. Specifies for the school in collaboration with the data protection officer and following the indications of its chief, the measures to guarantee the safety of personal data, services, networks and devices.</p> <p>1.5.C1.2. Analyses the risks that may arise from the use of emerging digital technologies for safety, data protection, privacy, digital rights and well-being.</p> <p>1.5.C1.3. Articulates measures to guarantee coherence between the behaviour policies and the school digital plan related to prevention, detection and action in relation with the risks of the use of digital technologies and offers advice.</p> <p>1.5.C1.4. Advises and trains teachers at the school on the application of the</p>	<p>I coordinate the measures included in the school digital plan and in the behaviour policy on digital safety and well-being, analysing its coherence and updating as required. I advise in line with the instructions of the school in collaboration with the data protection officer and following the indications of its chief.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I make ergonomic proposals related to physical health (such as, the height of screens, how to use tablets, design of spaces and furniture in my school). • I coordinate teachers training activities on safety in my school, analysing in details aspects such as the configuration of the access to devices, data encryption, configuration of user profiles, and content filtering. • I suggest new efficient measures to be incorporated into the school safety guidelines, for example, systems to "pseudonymise" pupils' data in certain applications, control access to private content. • I design and establish the criteria for the application of filtering of access to inappropriate, illegal or harmful content in my school.

		data protection and digital well-being measures established by the EA or school leaders.	
	<p>C2. A recognised leader in the design and application of safety guidelines or measures, personal data protection, privacy, digital rights and welfare related to the use of digital technologies in the educational environment.</p>	<p>1.5.C2.1. Identifies aspects for improvement in personal data protection protocols and privacy when using digital technologies in schools based on a deep and contextualised knowledge of data protection regulations and makes proposals for their updating.</p> <p>1.5.C2.2. Investigates the impact of digital technologies, applied to the educational environment, on the physical and psychological well-being of both pupils and teachers.</p> <p>1.5.C2.3. Designs safety and environmental sustainability guidelines for the use of digital technologies in education.</p>	<p>I advise on the design of safety guidelines and on measures to protect the physical and psychological wellbeing of pupils and the environment in education. I carry out research on these issues.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I develop evaluation guidelines, applicable in any school, to select applications aimed at the protection of personal data, content control or safety of access to devices, such as parental control tools, and data encryption. • I advise school leaders on the design of safety measures included in the school digital plan and in the awareness-raising plan for the school community. • I design comprehensive action plans for prevention and intervention in situations arising from the inappropriate use of digital technologies in children and adolescents, linking the behaviour policy, the school digital plan and management plan.

Area 2. Digital Content

Teachers enjoy a wide range of digital content for teaching. One of the key competences that teachers need to develop, therefore, is the ability to manage content and effectively identify the content that best fits the learning objectives, their pupils and their teaching style. Teachers should be able to structure digital educational content, modify it, and add new content as part of their teaching practice.

It is important to keep in mind the conceptual difference between digital content, which are files with content that can be used for educational purposes even if they were originally created for another purpose, and digital educational content, which are standardised packages of content which have been identified and catalogued to be used for educational purposes.

At the same time, it is important to know how to use digital content responsibly, that is to say, respecting copyright and intellectual property rules when using, modifying and sharing such content.

This area includes three competences related to searching, reusing, and the creation and sharing of digital educational content with regards to respecting copyright and taking into account that it will be used in a specific educational context to meet the needs of all pupils. The three competences that make up this area share common elements developed in detail in competence 2.3, although these elements hold a unique weight and require unique development depending on the educational context. These elements are:

- intellectual property and copyright
- use of standards
- systems of cataloguing and use of metadata

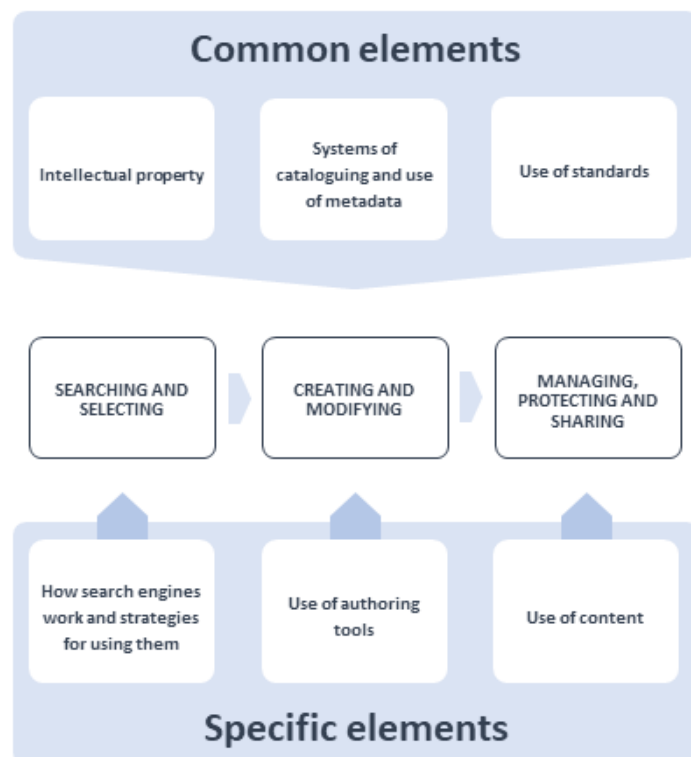


Illustration 11. Content creation. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

These elements are specified in each of the competences where, in addition, other aspects are integrated.

- 2.1. Searching and selecting digital content.
 - Using search strategies based on knowledge of the workings of search engines and use of Internet content cataloguing and metadata systems, being aware that the results obtained may be conditioned by the algorithms used by these engines and acting accordingly.
 - Applying criteria for the selection of quality digital educational content adjusted to the various needs linked to its use in the classroom.
 - Being aware of the types of licences and the copyright associated with each license in order to tailor the search for digital educational content to the purposes assigned to them once selected.
- 2.2. Creating and modifying digital content.
 - Using authoring tools for the modification, design and creation of new or derived digital educational content with increasing levels of aggregation.
 - Application of quality criteria for digital educational content in order to adapt it to the pupils with whom they are working and to the aims pursued.
 - Respect for copyright and intellectual property limitations applied to the educational field for the reuse and creation of content, as well as the exceptions for general use and for illustration for educational or scientific research purposes.
- 2.3. Protecting, managing and sharing digital content.
 - Secure use of digital content sharing platforms, protection of information and use of formats and standards to facilitate re-use.
 - Cataloguing of digital educational content to facilitate its identification and selection in exchange and collaboration platforms.
 - Knowledge of moral and economic copyright and its relation to intellectual property for the allocation of the most appropriate licences when sharing and publishing digital educational content.

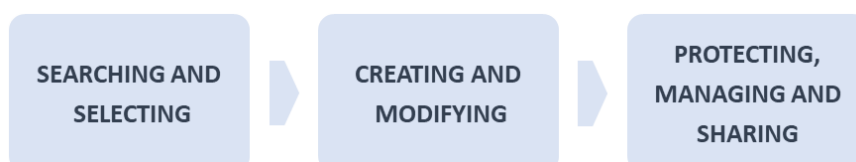


Illustration 12. Content creation process. Spanish Learning Technologies Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

2.1. Searching and selecting digital content

Competence description

Locating, evaluating and selecting quality digital content to support and enhance teaching and learning. Specifically consider the learning objective, context, pedagogical approach, licence type and technical aspects to ensure universal accessibility, usability, and interoperability.

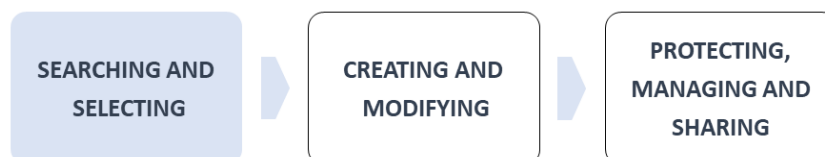


Illustration 13. Content creation process: searching and selecting. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

Contextualising competence 2.1 in teaching

This competence is demonstrated in situations where the teacher has to deal with the search for digital content for educational use.

When searching for, evaluating and selecting content, not only should pedagogical or didactic aspects and their suitability for the characteristics of their students be taken into account, but also those of a technical nature (such as accessibility and/or usability), safety and guaranteeing the digital rights of all students, e.g. the need for registration or the transfer of data for their use. In this competence, the teacher does not edit the content, but simply searches and selects it for later use, so that the selection will also be made taking into account the different types of existing licences and adapting the search to its specific use.

Competence 2.1 focuses on the search for and selection of digital content for use with a given group of pupils in a classroom context, while competence 3.1 Teaching enables the integration of this content into teaching practice.

The key elements of this competence include:

- Knowledge and application of technical, didactic and scientific quality criteria when selecting digital educational content for application in specific learning situations.
- Use of search engines (configuration, strategies, operators, use of metadata) reducing possible biases and critically analysing the results obtained. Use of catalogues and content repositories.
- Knowledge of the types of licences and their ethical use in the search for and selection of digital educational content that is suitable for its purpose.

Actions that demonstrate this competence include:

- Applying appropriate search strategies to locate digital content for teaching and learning.
- Evaluating digital content in order to select the most appropriate content to address the learning objective and the competences to be developed by pupils. Also, taking into account their interests and prior knowledge, the characteristics of the particular group of pupils, the pedagogical approach chosen and its accessibility.
- Being aware of the conditions of use of all types of digital content before using it with students, assessing aspects such as the inclusion of advertising, the collection of personal information and data and the additional applications that are installed as a complement to this content.
- Critically assessing the appropriateness and reliability of sources and content.
- Considering the licence, terms of use and possible restrictions on the use of digital content.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

2.1. Searching and selecting digital content			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and implementation, with guidance, of quality criteria for selecting appropriate and safe digital content and use of efficient search and organisation strategies.	A1. Theoretical knowledge of the criteria for the selection of digital content and practical application of search and organisation strategies.	<p>2.1.A1.1. Knows the didactic, technical (licences, accessibility, suitability for the age of the pupils and the achievement of the objectives) and scientific (reliability of sources, rigour) criteria for the selection of quality content.</p> <p>2.1.A1.2. Uses search engines that facilitate the neutrality of the results obtained, applies efficient search strategies and knows the role of metadata in content retrieval.</p> <p>2.1.A1.3. Uses some form of resource organisation system (applications, browser extensions).</p>	<p>I am knowledgeable about the quality criteria and requirements for quality digital content and apply them in a practical way for searching and selecting. I organise and structure the results of my searches using different types of tools.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use appropriate strategies (search by file type, words, application of filters, logical operators) when locating digital content. • I use extensions (website translation, accessibility features, notifications, tagging) in my browser to improve my search for and selection of content. • I use web accessibility assessment tools to analyse the quality of digital content. • I use the advanced search options to access content according to its licence. • I use privacy-friendly engines and configure them to minimise the conditioning of previous searches on subsequent results when trying to locate educational digital content.
	A2. Identification, with guidance, of the relevant criteria for the search and selection of digital content adjusted to a real educational context.	<p>2.1.A2.1. Identifies, with advice, the requirements that digital content must meet to fit a specific learning situation and applies the corresponding criteria for its search and selection, including compatibility with the virtual platforms established by the EA or school leaders.</p> <p>2.1.A2.2. Knows how the institutional content repositories</p>	<p>I establish, with support and advice, the requirements that digital content must meet for use in a specific learning context and apply effective search and location strategies both on the Internet and in repositories determined by the school or the EA.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I establish, with the help of another teacher and using the results of the diagnostic tests, the requirements that digital content must meet in order to fit the real-life context of my students and I apply these criteria to their search and selection in a repository or on the Internet.

		used by the educational centre work and uses them.	<ul style="list-style-type: none"> • I identify with the help of another teacher the different types of digital content that I can use to achieve the same learning objective in a heterogeneous group of pupils. • I use search filters that allow me to select content that is technically compatible with the virtual environment used in my school. • I search and select content from the repositories offered by my EA or school leader.
B. Search and selection of digital educational content for use in the teaching and learning process based on quality criteria and a rigorous analysis of the specific context in which it is going to be used.	B1. Conventional and autonomous use of search engines, content repositories and databases for educational use in a specific context (educational stage, subject area, competence, topic) and learning situation (reinforcement, extension or deeper learning).	2.1.B1.1. Autonomously applies didactic, technical and scientific criteria in the search and selection of digital educational content to suit a specific learning situation (e.g. reinforcement, extension or deeper learning). 2.1.B1.2. Uses searches to locate different content formats (audio, video, images, web) selecting those which boost motivation, involvement, and participation of all pupils in the same activity. 2.1.B1.3. Systematically uses a system for organising and cataloguing selected digital educational content for own use or use within a group of teachers.	I adopt, in an autonomous way, strategies for searching and selecting digital educational content in order to have those which are best suited to the specific context in which they are going to be used through an organised catalogue (personal or the school one). Examples: <ul style="list-style-type: none"> • I autonomously identify the preferences, interests and prior knowledge of my pupils before establishing the criteria for the search and selection of digital educational content to be used in a specific learning situation. • I have organised digital educational content in local databases, folders in my computer, favourites folders in my browser, spaces in the cloud or content cataloguing applications, so that I can quickly access the content I need according to different criteria (subject area, educational stage, degree of difficulty or others).
	B2. Refinement of search strategies for the inclusion of metadata and new criteria for technical quality, veracity and relevance of content.	2.1.B2.1. Uses an evaluation and relational cataloguing tool for digital educational content and takes it into account in search strategies. 2.1.B2.2. Informally advises other colleagues on the use of search strategies on the Internet.	I have guidelines for evaluating and organising digital educational content from the use of which I draw conclusions that allow me to improve search strategies and selection criteria and advise other teachers. I keep up to date with digital educational content repositories. Examples: <ul style="list-style-type: none"> • I have an orderly selection of quality digital materials, including licences for their use, their previous application in different learning contexts, accessibility criteria.

		2.1.B2.3. Maintains a proactive attitude towards the location of new digital content repositories.	<ul style="list-style-type: none"> • I use double-entry tables (Bloom's taxonomy categories) to identify, catalogue and select digital educational content. • I organise and relate digital educational content to facilitate different approaches to the knowledge, procedures and values to be worked on (examples, different authors, different approaches to different problems or contrasting opinions amongst others).
C. Research for optimising the search and selection of digital content and transforming educational practices by improving the definition of quality criteria.	C1. Evaluation and coordination of actions for a more efficient search for and selection of digital content based on the analysis of quality criteria and new technological developments.	2.1.C1.1. Coordinates the definition of the techno-pedagogical criteria for the selection of digital content, taking quality standards as a reference from a global perspective of the school. 2.1.C1.2. Evaluation of search strategies through quality analysis of the results obtained. 2.1.C1.3. Researches and evaluates new trends in the organisation of Internet content in order to adapt to its evolution (semantic web, big data, faceted searches).	<p>I evaluate the search and selection strategies for digital content. I keep up to date with new developments in this field and coordinate actions carried out in my school in order to establish common quality criteria.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I develop quality material (video tutorials, educational pills, blogs or wikis) to help the whole school community to select content. • I coordinate the inclusion of guidelines in the school digital plan to check that the digital content selected complies with the accessibility, personal data protection and safety requirements established by current regulations and to facilitate the evaluation of its pedagogical suitability. • I lead an innovation project at the school to use digitised open collections (National Library of Spain, State and European Archives) as sources of digital content for educational use in the classroom.
	C2. Transforming the practices of searching for and selecting of digital educational content	2.1.C2.1. Investigates the functioning of search engines, algorithms and the use of metadata for information retrieval and applies them in the design of new search and cataloguing strategies. 2.1.C2.2. Evaluates the quality models for the assessment of digital educational content and suggests new models or	<p>I provide new search models and quality criteria for the selection of digital content in the educational field.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I lead professional groups related to the evaluation of digital content and the definition of new quality standards. • I contribute to professional forums to solve problems related to the selection of digital content based on various criteria. • I coordinate the use of different standards (Spanish accessibility requirements UNE 71362:2020, WCAG 2.1) as a reference for selecting quality digital educational content in professional communities.

		improvements to existing ones for a better use fitted to the educational context.	<ul style="list-style-type: none">• I research emerging technologies linked to information search and retrieval for use in educational practice.
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2.2. Creating and modifying digital content

Competence description

Modifying and adapting digital educational content while respecting the conditions of use (derivative works and limitations contained in intellectual property rights) established by each licence. Creating new digital educational content individually or in collaboration with other professionals within safe environments. Specifically considering the learning objective, context, pedagogical approach and target audiences when designing and creating or modifying digital content. Selecting authoring digital tools for the creation and modification of content, taking into account technical and accessibility features and terms of use and privacy policy.

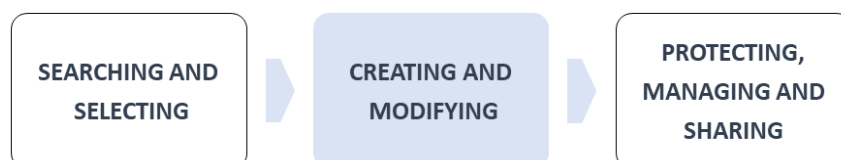


Illustration 14. Content creation process. Creating and modifying. Spanish Learning Technologies Working Group (GTTA). Creative Commons BY-SA 4.0

Contextualising competence 2.2 in teaching

This competence is demonstrated when designing, creating and modifying digital content to adapt it to the characteristics and needs of all pupils and to the learning objectives. Digital content for educational use must meet didactic, disciplinary and technical quality criteria, and it is essential to take into account accessibility and usability options. For editing and the creation of new content, teachers must be able to use authoring tools that generate accessible content that is compatible with different standards and formats.

It is possible to start from the searching for and selecting of digital content (competence 2.1) to modify it, create new original content, or undertake a process that integrates both types of sources in the same didactic structure.

The creation or editing of content must at all times respect intellectual property and copyright specifically related to the acknowledgement and/or creation of derivative works.

This competence is closely related to competences 1.3 Reflective practice and 3.1 Teaching. We have decided to cover all aspects related to the integration of digital educational content in the curriculum, as well as its use in the teaching and learning process or the assessment of its use in learning outcomes in competence 3.1 in order to maintain the focus of competence 2.2 on the process of designing, modifying and creating.

The key elements of this competence include:

- Use of authoring tools to modify or create digital educational content and enter metadata for cataloguing.
- Knowledge and application of technical, didactic, disciplinary and competence development quality criteria when modifying or creating digital educational content.
- Knowledge of the types of licences and their ethical use in the development of derivative works. Application of standardised citation and referencing systems.

Actions that demonstrate this competence include:

- Creating and adapting digital content to suit the learning objectives, context, pedagogical approach and target audience while ensuring universal accessibility.

- Using authoring tools to create and modify digital educational content in which technical characteristics, terms of use and privacy policies are respectful of personal data protection.
- Modifying and editing existing digital content where permitted.
- Combining and merging existing digital content or parts thereof under the terms set out in the licences for use.
- Creating digital educational content together with others in safe collaborative environments.
- Using a variety of authoring tools, selecting the most appropriate to the format of the digital educational content to be created.
- Respecting the limitations set out in copyright law for integrating excerpts, for illustrative purposes, into materials for educational use.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

2.2. Creating and modifying digital content			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and implementation, with guidance and in controlled environments, of the didactic, disciplinary and technical criteria for the modification and creation of digital content in compliance with intellectual property regulations.	A1. Knowledge, understanding and theoretical use of didactic, disciplinary and technical criteria and the use of authoring tools for the edition and creation of quality digital content, respecting the current regulations on intellectual property.	<p>2.2.A1.1. Knows the didactic, disciplinary and technical criteria (adaptation to the age of the pupils and to the achievement of the objectives, and accessibility) and applies them in a generic way in the edition and creation of digital contents.</p> <p>2.2.A1.2. Knows and understands the types of existing licences and the terms included in each one of them for the edition and creation of digital content, respecting copyright (transformation) and intellectual property rights, and uses some international standard for citations and references.</p> <p>2.2.A1.3. Uses general authoring tools for the creation and editing of digital content (office automation, audio, image, or video editor) and those specific to the subjects taught (equation editor, scores, or text editor for different alphabets).</p>	<p>I know, understand and apply in a general way the didactic, disciplinary and technical criteria for the modification and creation of quality digital content, using different authoring tools. I respect the regulations on intellectual property.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I apply intellectual property rules for the modification of digital content according to its licence type for educational use. • I use specific authoring tools to modify digital content, for example, an image editing tool to make a background transparent. • I use APA style for citations and references in any kind of digital content. • I create accessible documents using word processor styles. • I add subtitles to a video.
	A2. Implementation in controlled environments, or with guidance, of didactic,	2.2.A2.1. Applies, with guidance, the didactic criteria (adaptation to the age of the pupils and the achievement of the objectives,	I apply, with advice or guidance, the didactic, disciplinary and technical criteria for the modification and creation of digital resources for use with a specific group of pupils, using the authoring tools provided by the EA or school leaders and respecting the regulations on intellectual property.

	disciplinary and technical criteria in the editing and creation of quality digital content for use with a specific group of pupils.	accessibility), disciplinary and technical criteria for the edition and creation of digital content aimed at a specific group of pupils. 2.2.A2.2. Uses a referencing system including the functionalities available in the authoring tools provided by the school or by the EA. 2.2.A2.3. Uses, with guidance, the authoring tools provided by the EA or the school leaders for the creation of digital content, or those that generate compatible formats with the authorised platforms in the school.	Examples: <ul style="list-style-type: none"> • I adapt the templates of different types of digital content using video tutorials or manuals in line with the institutional image of my school. • I modify, with guidance, the general elements of a digital content (appearance of questionnaires, content distribution, access, navigation) to adapt them to the characteristics of my pupils. • I modify a text document downloaded from the Internet to make it accessible using the authoring tool provided by the school or the EA. • I use the applications and services provided by my EA or school leaders to create a questionnaire or survey. • I edit, using a manual or a tutorial, educational content developed with a dynamic mathematics application to adapt it to the level of my pupils.
B. Modification of existing digital educational content and integration of content from a variety of sources - including some self-created elements - into structured units of work and learning sequences.	B1. Adoption of didactic, disciplinary and technical criteria for the modification of elements integrated in existing structured digital educational content in order to adapt them to a specific learning situation and pupil.	2.2.B1.1. Analyses the suitability of existing digital educational content, independently applying didactic, disciplinary and technical criteria in order to adapt it to a specific learning situation. 2.2.B1.2. Includes a licence compatible with the original work licence when modifying digital educational content authoring derivative works. 2.2.B1.3. Uses authoring tools for editing digital educational content by substituting or modifying some of its elements, including its metadata.	<p>I can modify existing digital educational content autonomously, if permitted, in order to adapt it to the characteristics of my pupils according to didactic, disciplinary and technical criteria while respecting copyright. I can use the functionalities of authoring tools that allow the inclusion of metadata in digital educational content.</p> Examples: <ul style="list-style-type: none"> • I modify an open digital educational content by substituting some elements and adding others (graphics, presentation, concept map) to adapt it to my classroom context. • I add the licence to all my derivative works respecting intellectual property and copyright. • I use the selection and modification options offered by publishers in books and digital educational content to create personalised itineraries and adapt them to the characteristics of my students. • I use various technological resources (extensions, applications, audio files) in the process of creating digital educational content to facilitate its use according to the needs of the pupils (linguistic, accessibility, hearing or visual limitations).

	<p>B2. Integration and modification of digital content in different formats and from different sources, including self-created elements, to generate new structured and coherent units of work and learning sequences, adapted to a particular learning situation and pupils.</p>	<p>2.2.B2.1. Creates, individually or in collaboration with others, new units of work and learning sequences from the integration of diverse digital contents, introducing the necessary modifications while elaborating, if necessary, some elements to structure them coherently and adapt them to the specific learning context in which they are to be used.</p> <p>2.2.B2.2. Uses safety measures to prevent the loss of information in situations of shared editing of digital educational content.</p> <p>2.2.B2.3. Applies technical criteria in the integration and modification of digital content so that it can be packaged, exported and used in an accessible way on the school platforms.</p> <p>2.2.B2.4. Has a systematic procedure for evaluating digital content for its integration into teaching units of work and learning sequences and for its adaptation to a given educational context.</p>	<p>I evaluate, integrate, modify, combine and create some elements to generate digital educational content structured in units of work and learning sequences, both individually and in teams, and package them for integration into the school's platforms.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use collaborative digital tools in the creation of open educational resources in working groups. • I design structured educational content integrating varied and quality digital elements in an orderly and logical sequence (infographics, online games, editable materials, 3D designs, virtual reality) respecting intellectual property and copyright. • I use an educational content authoring tool to integrate in a structured way digital content from different sources in a unit of work, incorporating elements of my own creation that allow the adaptation to the different levels of competence development of my pupils. • I create digital educational content, catalogue them and export them in standardised formats (SCORM, IMS, etc.).
<p>C. Research on the creation of digital educational content models that are adapted to a given</p>	<p>C1. Analysis of authoring standards and tools and coordination of the collaborative creation of original</p>	<p>2.2.C1.1. Creates, individually or in collaboration with other professionals, original educational content structured in</p>	<p>I create original structured digital educational content (units of work or learning sequences) individually or in collaboration with others and coordinate the actions of the school or a professional group on this type of resources (authoring tools and content) incorporating the results of research on standards and authoring tools.</p> <p>Examples:</p>

<p>pedagogical approach, as well as on the necessary technical aspects and quality standards, and the creation of original digital educational content.</p>	<p>learning units and learning sequences that respond to specific pedagogical approaches.</p>	<p>learning units or learning sequences. 2.2.C1.2. Analyses the functionalities of authoring tools and packaging standards, export-import systems, extensions and accessibility of the different formats of digital educational content. 2.2.C1.3. Coordinates the actions of the school or of one of the teaching coordination bodies related to the creation of digital educational content that responds to the pedagogical model set out in the educational project. 2.2.C1.4. Collaborates with professional groups in the design and creation of digital educational content.</p>	<ul style="list-style-type: none"> • I design checklists for managing the level of accessibility, safety and use of licences of the digital educational content created in the school. • I advise and coordinate the teaching team in charge of establishing common (technical and didactic) criteria for the creation of digital educational content. • I evaluate the authoring tools available to the school in terms of the interoperability of the files they generate and their accessibility when integrating the content into the platforms provided by the EA. I evaluate the authoring tools available to the school in terms of the interoperability of the files they generate and their accessibility when integrating the content into the platforms provided by the EA or the school leaders in order to develop a list of recommendations for the teaching staff. • I coordinate a working group in which I collaborate on the creation of original digital educational content for the development of didactic sequences that respond to the school pedagogical model. • I provide training and design training plans on the development of open educational resources.
	<p>C2. Creation of original digital educational content for a particular level, subject, competence and formal research in this area.</p>	<p>2.2.C2.1. Creates, individually or collaboratively, original structured digital educational content for a level, area or competence. 2.2.C2.2. Experiments with and researches new models and formats of digital educational content that responds to specific pedagogic approaches and didactic strategies. 2.2.C2.3. Leads professional teams working on the design and</p>	<p>I research new models, technologies and formats of digital educational content and lead teaching teams to create structured teaching materials for a given level, area or curricular competence according to a specific pedagogical model.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I lead and promote participation in educational content creation projects that involve a transformation and improvement of the teaching-learning process at the school or in the educational community. • I coordinate an educational innovation project that analyses the use of new formats of digital educational content to provide personalised responses to learning needs. • I have created, in collaboration with my teaching team, the digital contents of the training module we are teaching, including the use of simulators and virtual laboratories.



		creation of new formats, models and digital educational content.	
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2.3. Protecting, managing and sharing digital content

Competence description

Catalogar los contenidos educativos digitales y ponerlos a disposición de la comunidad educativa y del colectivo profesional utilizando entornos seguros. Proteger eficazmente los contenidos digitales. Respetar y aplicar correctamente la normativa sobre propiedad intelectual y derechos de autor en la gestión y compartición de contenidos digitales.

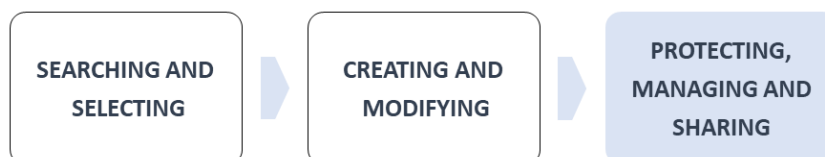


Illustration 15. Content creation process. Protecting, managing and sharing. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

Contextualising competence 2.3 in teaching

This competence refers to the protection of intellectual property and copyright and the application of the different licensing systems in place when publishing and sharing digital content on platforms designed for these purposes with students, families and other teachers. It also requires the use of different classification systems, both standardised cataloguing and free labelling, and of digital technologies for the protection and safe sharing of content (database, content repositories, CMS or Content Management Systems, CLMS).

The exercise of this competence is intrinsically linked to the other competences in this area, as it requires a prior search and selection for the sharing of content already published or the editing of this content for the creation of other derived or completely new content.


The key elements of this competence include:

- Using various systems to catalogue digital educational content for sharing and exploiting the technical possibilities of platforms to collect such metadata.
- Using different types of licences and their ethical use when publishing, transmitting, reproducing, quoting, disseminating, exchanging or sharing one's own digital content - both derivative and original works - and of third parties.
- Publication of digital content and appropriate use of content exchange repositories and collaborative platforms, especially in aspects related to their safety, accessibility and shareability (interoperability and standards).

Knowledge of and respect for intellectual property rights and their application for illustration, educational or scientific research purposes, as well as the use of the different licences, adoption of data protection, privacy and safety measures developed in competence 1.5 are prescriptive from the first level of development of this competence.

Actions that demonstrate this competence are:

- Sharing, in safe environments, all types of digital educational content of their own or of third parties, managing their access and usage rights if the type of licence allows it.
- Respecting intellectual property and copyright restrictions for publishing and sharing digital content.
- Referencing sources appropriately when sharing or publishing open educational resources (OER) subject to intellectual property and copyright.
- Assigning appropriate licences to self-created digital content and deliberately managing copyright.

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- Appropriately cataloguing digital educational content using thesauri for the inclusion of metadata and tags to facilitate location and retrieval.
 - Knowing the compatibilities and limitations of the different digital content formats when publishing them on platforms and repositories for sharing.
 - Managing appropriately and safely the storage of educational content in digital environments.
 - Selecting platforms for sharing digital content that allow searches based on different criteria.
 - Designing and configuring platforms for the sharing and exchanging of digital educational content in a way that allows combined searches using several filters simultaneously.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

2.3. Protecting, managing and sharing of digital content

Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and respect for intellectual property and copyright regulations and use of cataloguing systems and digital content sharing platforms for educational purposes with guidance.	A1. Knowledge and respect for intellectual property and copyright regulations, as well as digital cataloguing procedures and the basic functionalities of platforms for sharing digital content for educational purposes.	<p>2.3.A1.1. Knows and uses safe digital environments for the sharing of content for educational purposes analysing their policies of use.</p> <p>2.3.A1.2. Knows the different types of permissions that can be granted in digital environments when sharing content in educational contexts.</p> <p>2.3.A1.3. Knows and applies the regulations on intellectual property and copyright (reproduction, distribution and public communication), as well as the different types of licences and the conditions associated with each one of them.</p> <p>2.3.A1.4. Knows and applies in a general way the cataloguing systems and the functionalities that authoring tools offer to include metadata in the different file formats.</p>	<p>I know and respect the regulations of intellectual property and copyright, as well as the conditions established in the different types of licences; I know how to use the functionalities of some of the platforms and authoring tools for the publication of digital content and include metadata that identifies it for its cataloguing.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use different safe environments to store and organise files in the cloud (spaces, folders, files) for sharing in educational contexts. • I include the authorship of the original sources of the educational resources I share in controlled environments. • I clearly identify the licence to share a video on a platform. • I selectively grant the default permissions offered to the different roles of the main CLMS and content sharing applications when publishing a document for download or collaborative editing. • I introduce, with the guidance of a thesaurus, the metadata of digital content in educational repositories.
	A2. Implementation of the procedures for publishing, sharing and cataloguing of content with the help of a mentor in the CMS,	2.3.A2.1. Applies in controlled environments or specific contexts the safe sharing, management and exchange of resources using appropriate formats and standards.	<p>I apply the established safety measures, with the help of other teachers, in the sharing, management and exchange of digital educational content, selectively configuring access in controlled environments and identifying the content using the systems established by the EA or school leader for cataloguing and labelling.</p> <p>Examples:</p>

	repositories, databases and CLMS offered by the EA or by the school leaders	<p>2.3.A2.2. Applies, with the help of a mentor, the cataloguing system established by the EA or by the school leader on its platforms and services for indexing digital educational content by entering metadata and using appropriate tags.</p> <p>2.3.A2.3. Selects, with the help of a mentor, the roles and permissions of the school's CMS, repositories, databases and CLMS in order to selectively share digital educational content with the different stakeholders of the school community.</p>	<ul style="list-style-type: none"> • I organise, with the help of another teacher, the educational content that I am going to use with pupils in the school's CLMS so that they can access it safely. • I use the cataloguing systems provided by resource-sharing platforms to identify the digital content I share with other members of the teaching staff. • I assign, with help, roles that allow me to selectively show or hide digital educational content in the school's CMS with the help of another teacher. • I share activities with pupils, following the instructions of a colleague, using SCORM packages.
B. Use of cataloguing systems and digital educational content management, exchange and sharing platforms	B1. Adoption of standards for the publication and cataloguing of digital educational content and autonomous use of CMS, repositories, databases and CLMS.	<p>2.3.B1.1. Adopts the system of cataloguing and metadata insertion established by the EA or by the institution's owner for the identification and indexing of digital educational content.</p> <p>2.3.B1.2. Uses the repositories of digital educational content established by the EA or by the school leader autonomously to share such content safely and selectively with the different stakeholders of the school community.</p> <p>2.3.B1.3. Uses standardised formats for the sharing of digital educational content.</p>	<p>I use digital environments identified in the school's digital plan to share content according to its recipients and purpose, adopting appropriate strategies for the sharing, management and exchange of digital educational content.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I share, in safe educational environments, digital content, managing the appropriate assignment of permissions for viewing or downloading by my students. • I apply the criteria established in the school's digital plan to publish or share each element of content in the environment and location that corresponds to it (classroom blog, collaborative spaces folders). • I use social tagging systems as an additional element to the standard categories in the repository provided by the EA or school leader for the identification of digital educational content. • I share i-MSCP (Internet Multi Server Control Panel) packages with pupils in the school repository so that they can download them and work on the contents they have locally, as not all of them have a good Internet connection. • I apply the permission system defined in my school for viewing, editing or downloading of the unit of work shared by teacher groups.

	<p>B2. Exploiting the functionalities offered by digital platforms and services to improve identification and access to shared content in educational contexts and publication in professional repositories of digital content.</p>	<p>2.3.B2.1. Knows and uses all the cataloguing, access and navigation functionalities provided by CMS, databases, repositories and CLMS of the school and other professional environments to improve identification and access to digital educational content.</p> <p>2.3.B2.2. Informally advises other teachers on the use of licensing, cataloguing and inclusion of metadata in digital educational content.</p>	<p>I employ the functionalities of content management and sharing systems by developing more efficient ways of identifying and accessing shared digital educational content.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the functionalities of the school's CMS to tag the digital educational content that I share with pupils so that they can consult the meaning of the main technical terms that we are working with in class while reading them. • I create in the CLMS a digital bank of questions (following the CLMS cataloguing system) for the elaboration of questionnaires that I share with other members of the teaching team, managing the accesses appropriately so that they cannot be viewed by other stakeholders of the school community. • I publish structured, well-identified and labelled digital educational content in official repositories that guarantee the quality of what is published. • I add as a label the level of accessibility of the digital educational content I share.
<p>C. Applied research on digital repositories and on educational content cataloguing systems</p>	<p>C1. Configuration, administration and evaluation of repositories for the sharing of digital content in the schools.</p>	<p>2.3.C1.1. Analyses and evaluates new models and platforms for sharing, managing and exchanging content in safe environments.</p> <p>2.3.C1.2. Manages the school's content repositories to facilitate their use by other teachers and coordinates actions to define the criteria and procedures to be followed in the publication and sharing of content with the school community.</p> <p>2.3.C1.3. Advises other teachers on the use of licences, cataloguing systems and the use of platforms for sharing digital content.</p>	<p>I evaluate and experiment with new systems for sharing, managing and exchanging resources in safe environments in order to improve access to content for all members of the school community.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I generate new strategies for the management of work in collaborative environments, taking into account the role of the user (permissions for editing, commenting or reading files, configuration of usage profiles). • I administer educational resource storage and management environments, assigning different accesses according to the user's role (educational domain administration console, school website, virtual learning environment). • I actively participate as a member of professional communities for the sharing of content, making suggestions for improvements to their functioning and organisation.

	<p>C2. Identification of new technical functionalities and design of methods and models to improve the sharing of digital content in the educational field or in the creation of new repositories.</p>	<p>2.3.C2.1. Collaborates in professional teams to improve and adapt digital content cataloguing, management and sharing practices in the educational field.</p> <p>2.3.C2.2. Collaborates in the design, development, use and maintenance of a repository of educational content.</p>	<p>I develop or collaborate in the design of new systems for the sharing, management and exchange of educational content in safe environments.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I design, publish and promote new models for cataloguing and sharing quality content, e.g. standardised tagging systems in video repositories, targeting the school community. • I create, individually or collaboratively, a repository of educational content using a CMS, taking care of accessibility criteria and the workflow in the publication process to ensure its quality. • I design and deliver training activities on safe management and sharing of educational content in repositories supported by public or private entities.
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Area 3. Teaching and learning

Digital technologies can strengthen and enhance teaching and learning strategies in different ways. Regardless of whatever pedagogical strategy or approach is chosen, the specific digital competence of the teacher lies in effectively managing the use of digital technologies in different stages and in different settings of the learning process. The core competence in this field, and perhaps of the whole framework, is 3.1: Teaching. This competence refers to the design, planning and implementation of the use of digital technologies at each stage of the learning process.

Competences 3.2, 3.3 and 3.4 complement 3.1 by focusing on the real potential of digital technologies to enhance student learning. It also refers to the way a teacher who integrates digital technologies can use them to support and guide this process while encouraging collaboration and progressive student autonomy. Therefore, these measures should be included in the syllabus, even if they are not explicitly mentioned in its description as it is developed in competence 3.1 Teaching.

In short, digitally competent teachers should be able to design new approaches, thanks to digital technologies, that provide guidance and support to pupils, individually and collectively (3.2), and to accompany, guide and facilitate the development of both self-regulated (3.4) and collaborative (3.3) learning activities. Article 91 of the Spanish Organic Law 2/2006 of 3 May 2006 on Education establishes the tasks that all teachers must carry out through the competences of this area:

- a) Planning and teaching of the subject areas, fields, modules or curricular aspects assigned to them.*
- c) Tutoring pupils, directing and guiding their learning and supporting their learning process in collaboration with their families.*
- d) Educational, academic and vocational guidance of pupils in collaboration with specialised services or departments where appropriate.*
- l) Researching, experimenting, and continuously improving teaching processes.*

3.1. Teaching

Competence description

Integrating the use of digital technologies into the syllabus in a creative, safe, and critical way to improve the effectiveness of teaching practices. Managing and coordinating digital teaching interventions appropriately, ensuring the functioning of devices, resources and services during the implementation of the syllabus. Developing and experimenting with new formats and pedagogical methods for teaching and learning.

Contextualising competence 3.1 in teaching

This competence is a core competence within the SFDCT as it corresponds to the exercise of the essential teaching duties, set out in Article 91, Chapter I of Title III of the Spanish Organic Law on Education: "The planning and teaching of the subject areas, fields, modules or curricular aspects assigned to them".

Teachers demonstrate this competence with the inclusion of digital resources as an integral part of their lesson planning and implementation, in the effective use of digital technologies in the classroom, in solving problems that may arise and in assessing and adjusting them in the process. Given that this framework is of a general nature for all stages, subjects and types of teaching, this competence will be analysed by dealing only with general aspects and therefore without addressing its application in specific subject areas. This analysis would require its own development, including the technological and content knowledge that all teachers should have, which is an issue beyond the scope of this framework. Only a generic mention of such knowledge will be made.

Digital technologies can be given different uses in teaching. For example, Puentedura, in his SAMR model³⁹, describes four models for the use of technologies in teaching practice: substitution, augmentation, modification and redefinition. All pedagogical or didactic uses of digital technologies may be necessary at a given time, but not all of them have the same transformative potential for improving teaching and learning. Substitutive use of some technologies in place of others may sometimes bring no new functionality or enhancement, whereas other times it may extend or augment existing ones. Development and research into new formats and methods should therefore be directed towards the use of technologies to significantly modify and enrich the activities designed by teachers, or to completely redefine them, making learning situations that would be unthinkable without current technology possible.

As this is a professional development framework, having a foundational level of digital competence is envisaged, as teachers are already qualified for teaching. This implies having minimum knowledge that allows them to tackle this work with technical, conceptual and methodological capabilities, although, subsequently, thanks to experience, reflection, evaluation and training, teachers can develop such competences and, therefore, improve the results obtained in classroom work. In any case, a teacher with a great knowledge of technologies, or someone who demonstrates a deep theoretical knowledge of methods to enrich teaching activities with the use of technology, would not necessarily be in the advanced levels of digital competence. It is necessary to combine theoretical, technical and practical knowledge for its development.

The levelling of this competence is complex and therefore, following the TPACK model, three types of theoretical, technical and practical knowledge must be taken into account.

The key elements of this competence include:

1. Digital educational technologies: features, operations, implementation, connectivity, problem solving.
2. Development of teaching innovation processes based on the Pedagogical Knowledge and Technological Knowledge of the TPACK model.
3. The curriculum design through the syllabus.

Added to this is a fourth point that develops this competence further:

4. Application of pedagogical models for the integration of technologies in teaching practice.

³⁹ Puentedura, R. (28 October 2013). SAMR: A Contextualized Introduction. *Ruben R. Puentedura's Blog*. Retrieved on 01/17/2022 from <http://hippasus.com/blog/archives/112>.

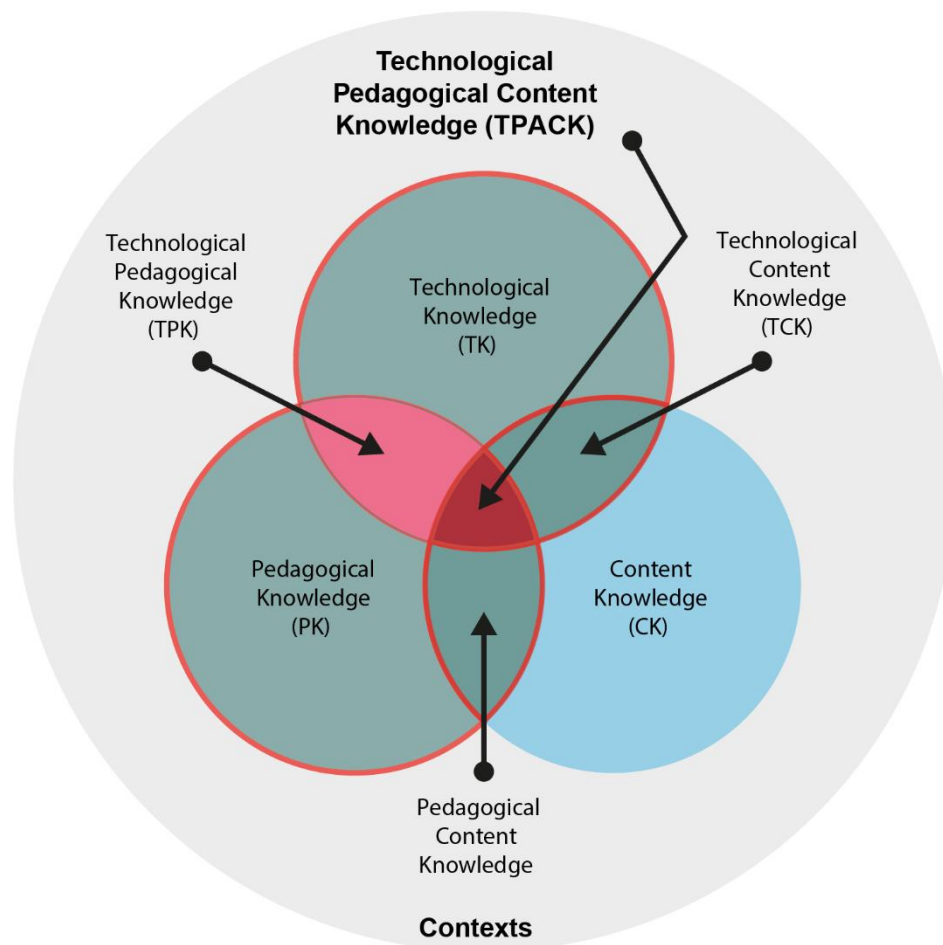


Illustration 16. TPK Knowledge in Area 3. Derived from TPACK Framework © 2012 by tpack.org

This competence is at the core of the TPACK framework and model. A technologically conscious pedagogue who does not have sufficient mastery of the use of technologies in his or her field of study would not meet the requirements. Although specific techno-pedagogical skills cannot be developed in the framework, it is understood that they are included, albeit in a generic way.

The association between these contents and the two teaching profiles that can be found in the first stage of their professional development would be the following:

- Early career teachers. They have a theoretical knowledge of the three types of content, although they have not been able to experience their practical application in the classroom.
- Experienced teachers, but with very limited use of digital technologies in teaching practice. This profile is related to teachers who have digital competence but apply it mainly to the preparation of classes or make a non-professional use of digital technologies. They may also have extensive knowledge and experience in the development of innovation projects, but without the integration of digital technologies.

Teachers with a basic level of digital competence may have knowledge and experience in the development of innovation projects and in the specification of the curriculum through the syllabus and its implementation. However, they lack the necessary knowledge related to the use of digital technologies in all their facets. By receiving specific training on these aspects, they could easily position themselves at this initial stage and make rapid progress by taking advantage of their extensive professional background.

Actions that demonstrate this competence include:

- Using classroom technologies to support teaching.
- Structuring learning sessions so that different digital activities (teacher-led and pupil-led) jointly reinforce the learning objective.
- Setting up learning sessions, activities and interactions in digital environments.
- Structure and manage content, collaboration and interaction in digital environments in compliance with current regulations.
- To analyse how the use of digital technologies in teaching practice, whether in face-to-face or virtual environments, can improve the achievement of learning objectives.
- Reflect on the effectiveness and appropriateness of the chosen digital pedagogical strategies and adjust them in a flexible way.
- Generate learning situations that are feasible only with the use of digital technologies.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

3.1. Teaching			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application for the planned integration of digital resources into teaching practice	A1. Inclusion of digital technologies in the syllabus	<p>3.1.A1.1. Knows different pedagogical models and coherent models of integration of digital technologies in order to carry out teaching tasks.</p> <p>3.1.A1.2. Selectively integrates (appropriate to objectives, content and pupils) digital resources in the design of the syllabus.</p> <p>3.1.A1.3. Knows the basic characteristics of different digital educational resources and their possibilities of use in teaching practice and uses them in simulated face-to-face or online situations.</p>	<p>I know digital resources, I select them according to the learning objectives and the characteristics of the educational context, I integrate them into the syllabus following specific theoretical models and I enable them to be used.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I start up and connect the interactive screen to my computer. • I select digital resources according to the learning objectives, the contents and the characteristics of the students, I integrate them into the syllabus enhancing meaningful learning and I check their functioning before taking them to the classroom in a practical environment. • I associate different methodological strategies and digital resources with types of learning. • I identify the didactic potential of digital technologies and select them for a specific purpose: connection with previous learning, recapitulation, training, etc. • I analyse the privacy and data protection features of the digital resources of the main educational platforms, discarding their use if they do not comply with current legislation. • I organise the use of space and time in the scheduling of my work sessions, using planning software, taking the principle of inclusion with technology use into account.
	A2. Design of the syllabus and implementation in the classroom with guidance, using digital technologies available in the school.	<p>3.1.A2.1. Selectively integrates (suitability to the objectives, learning and pupils) the digital resources available in the school into the syllabus with the guidance of other teachers while following the pedagogical model set out in the school management project.</p> <p>3.1.A2.2. Applies the syllabus in teaching practice, solving, with</p>	<p>I apply the syllabus using the technological resources available in the school with the guidance of other teachers and solve simple problems that may arise during the course of the class.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I help any student to recover the password to access the school virtual environment. • I plan and implement, with guidance, a gamified activity using an extension of the school virtual learning environment. • I create a treasure hunt with the support of other teachers, using QR codes that allow access to the presentation of the tests to be carried out in class in order to

		guidance, those problems that may arise when using digital technologies during their development.	<p>consolidate learning about the ecosystem that surrounds the school and I collect the results through a digital form.</p> <ul style="list-style-type: none"> I use, with the guidance of other teachers teaching the same year groups, a digital tool available at the school for students to create virtual murals.
B. Autonomous management and creative adaptation of learning interventions using digital resources	B1. Autonomous use, in the teaching practice, of digital technologies included in the syllabus.	<p>3.1.B1.1. Selectively integrates the digital resources available at the school into the syllabus following the pedagogical model set out in the school's management plan.</p> <p>3.1.B1.2. Adopts a conventional and autonomous use of the digital resources available at the school, selecting them according to their characteristics and the educational context and the teaching modality (face-to-face, online, distance, hybrid or blended).</p> <p>3.1.B1.3. Assesses, during their use, the suitability of the digital resources commonly used for the achievement of the learning objectives by pupils.</p> <p>3.1.B1.4. Solves the most common problems that may arise in the teaching practice when integrating digital technologies and dealing with unforeseen events with alternative solutions.</p>	<p>I autonomously use, in the development of classes, the school digital resources incorporated in the syllabus, solving the usual problems that may arise and adequately managing unforeseen situations.</p> <p>Examples:</p> <ul style="list-style-type: none"> I plan, integrate and apply in my teaching practice activities that require the use of digital technologies for their development, e.g. designing a trip around the world using a terrestrial mapping application. I solve problems that may arise when installing software in classroom equipment following the guidelines set out in the school digital plan regarding the software to be installed and how to proceed with the installation. I use digital technologies to develop Project Based Learning experiences such as preparing an energy saving plan in the school using a smartphone, connected sensors and data processing software. I structure the contents, activities and forums of the virtual learning environment provided by the EA or by the school leaders according to the syllabus designed for the distance VET module I teach. I use the group selection functionality of my school virtual learning environment to create groups for collaborative learning tasks. I carry out activities aimed at showing my students that they have understood the concept of sequence using small, easily programmable robots.
	B2. Adapting teaching practice supported by digital technologies to new teaching-learning contexts.	3.1.B2.1. Transfers innovative practices in the pedagogical use of digital technologies to educational context, making the necessary adaptations and adapts the use of	<p>I design and implement a syllabus in which I apply digital technologies in a systematic, reflective and critical way, developing functionalities not used until now in my school and analysing their characteristics in order to avoid problems and facilitate their use.</p> <p>Examples:</p>

		<p>digital resources previously used to new learning situations.</p> <p>3.1.B2.2. Integrates digital technologies in the syllabus and teaching practice in such a way that pupils have to make a plural, diversified, selective and responsible use of them to develop the suggested activities in order to achieve the learning objectives.</p> <p>3.1.B2.3. Solves technical and pedagogical problems that may arise in teaching practice thanks to a consolidated theoretical and practical knowledge of technologies, both general and in the subject or field taught.</p> <p>3.1.B2.4. Provides informal support to other teachers in the implementation of digital technologies in the classroom or in the design of the syllabus to integrate them.</p>	<ul style="list-style-type: none"> • I share with my colleagues, in different training activities in schools or in pedagogical coordination meetings, the pros and cons detected when using a certain digital resource in the school. • I design and maintain updated a database to select, include and use digital resources in my syllabus. • I use, in compliance with data protection regulations and security measures, microblogging applications for the creation of collaborative stories by pupils in order to strengthen their written expression or literary language. • I use a midi player to create a basic communication code (invention of language with sound) in order to exercise pupils' computational thinking strategies applied to the understanding of communication processes. • I request the installation of new extensions to my school LMS to extend the functionalities available, e.g. creating work groups, integrating games or adding other synchronous communication systems. • I design activities in which students must digitally present the contents learnt about classical mechanics once they have worked with simulators and games. • I develop an algorithmic procedure to detect and solve connectivity problems that may occur during teaching sessions.
<p>C. Research, experimentation and design of new didactic models based on the integration of digital technologies.</p>	<p>C1. Analysis and flexible adaptation of the use of digital technologies to improve pedagogical strategies in the school.</p>	<p>3.1.C1.1. Researches new strategies for the integration of digital resources in programming and teaching practice, both in the classroom and at school.</p> <p>3.1.C1.2. Coordinates or leads the design of strategies for the integration of digital technologies in the school and their alignment with the educational project and digital plan or strategy, including</p>	<p>Coordinates and leads the inclusion of digital technologies in the school's management plan, in the digital plan and in the school practices based on processes of research, analysis and reflection.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I modify or propose significant modifications to the guidelines established in the school digital plan to integrate technological resources into teaching practices in order to overcome the problems detected and improve their integration in a process of continuous improvement. • I pass on to my colleagues, as a speaker or coordinator of courses or training activities in the school, my experiences in the classroom when integrating digital technologies.

		<p>pedagogical, didactic and technical aspects.</p> <p>3.1.C1.3. Coordinates or collaborates in the configuration and administration of the digital technologies available in the school.</p> <p>3.1.C1.4. Coordinates training activities at the school aimed at analysing the inclusion of digital technologies in the pedagogical models established in the school's management plan.</p>	<ul style="list-style-type: none"> • I contribute to the development of guidelines and measures to be adopted by teachers and students at the school when using digital technologies. • I keep knowledge of new extensions to the virtual learning platform used at the school up to date and advise the management team on the requests addressed to the EA or to the school leader to incorporate these new functionalities. • I analyse, configure and adapt the characteristics of the digital resources of my school (user interface, access system, symbolic execution with existential second-order constraints to facilitate their use and integration into teaching practice. • I coordinate the creation of a catalogue or list of the digital resources available in the school, indicating their main characteristics to facilitate the selection of the most appropriate resources in each case and context, and to have alternative options available in case of any eventuality.
	<p>C2. Research and transformation of teaching-learning practices through the integration of digital technologies in a systematic, safe and critical way.</p>	<p>3.1.C2.1. Creates new models for integrating digital resources into teaching practice, developing new educational experiences that significantly improve learning.</p> <p>3.1.C2.2. Coordinates or develops research projects on the impact of the use of digital technologies in learning.</p>	<p>I design new models of integration of digital resources for inclusion in teaching practices and I research their impact on learning.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I maintain a blog that has been awarded or recognised by institutions or EA in which the central theme is the integration of digital technologies in teaching practice, adapting their use to different methodological strategies and educational contexts. • I identify new functionalities in virtual environments or tools that can be used for the learning of a certain content or subject or in the acquisition and development of a competence and share them in a professional community working on their development. • I am leading an investigation to determine whether there are significant differences in the learning of trigonometric concepts, their calculation and their application using a particular educational software.

3.2. Guidance and learning support

Competence description

Using digital technologies and services, in compliance with safety and data protection measures, to enhance individual and group interaction with pupils, inside and outside learning sessions. Using digital technologies to provide relevant and targeted guidance and assistance. Develop and experiment with new ways and formats to offer guidance and support, respecting the digital rights of all pupils and avoiding any kind of discrimination or bias.

Contextualising competence 3.2 in teaching

This competence is directly linked to the use of digital technologies for interaction and communication during teaching and learning processes, especially in obtaining information, directly or indirectly, on the development of students' learning, both with regards to their objective achievements and difficulties, their subjective perception, and providing feedback through the use of digital technologies.

The implementation of the syllabus, as an organic document, requires continuous adaptations and changes when used in a specific class group. Often, regardless of whether the focus is on teaching or learning, problems arise in relation to the content being taught or when understanding the object of an activity or the process for carrying out a task. These problems, questions or comprehension errors must be taken into account and analysed, and, indeed, must receive a rapid and optimal response. This competence focuses on the use of digital technologies for the detection and resolution of problems that may interfere with the teaching-learning process.

The most efficient way to deal with these interferences in the learning process of our students is to establish measures, through the syllabus, to obtain the necessary information about the processes that are being carried out and to offer effective and agile communication. For example, developing alternative digital content, creating a repertoire of "frequently asked questions", offering communication systems for solving questions when carrying out tasks or analysing content, and modelling responses to recurring difficulties, amongst others.

Thus, the sequence of actions in which this competence is used include:

1. Anticipating the difficulties that may arise in a specific learning process. Such anticipation will allow us to incorporate the use of digital technologies in advance. It will also allow the incorporation of the necessary aids, instructions, content or reinforcement and support activities or help develop ways to establish fluid communication and interaction with pupils, to deal with any unforeseen circumstances.
2. Detecting problems and doubts during the learning process. The inclusion of digital monitoring and communication procedures will facilitate the immediate detection of difficulties that may arise during face-to-face and virtual teaching situations.
3. Providing immediate guidance and support to pupils, both individually and collectively. The configuration of a varied range of communication and interaction channels, some of them already foreseen in the programme, as well as the newer ones that the teacher may incorporate in a flexible way, will make it possible to provide responses in accordance with the raised needs.

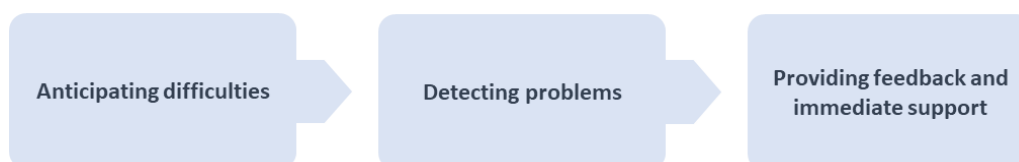


Illustration 17. Learning support process. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

Although some stages of this process can be systematised in an algorithmic way thanks to digital technologies, in this competence it is understood that the interaction is essentially between human beings - teachers and pupils. The preparation for interaction with "machines" in order to develop autonomous learning will be addressed in competence 3.4. Self-regulated learning.

On the other hand, all didactic communication through digital media brings into play different competences from those involved in face-to-face teaching and learning. Non-verbal language, the fact that the speakers may or may not share the same physical space, the "noises" that may appear in the communication, the technical problems that may arise and other factors that appear when it takes place in digital environments require the use of knowledge, procedures and attitudes that are not applied in face-to-face communication. Guidance and support will be more efficient if, from the outset, didactic communication mediated by digital technologies is of high quality.

Finally, it should be taken into account that although this competence has an important implementation in virtual environments, it can also be fully developed in face-to-face teaching, especially with the use of digital systems for monitoring student activity as long as measures are taken to guarantee the privacy and safety of students while respecting the general principle of proportionality.

It is very important to clearly establish the context of this competence as it has a significant relationship with competence 1.1 Organisational communication which is restricted only to this type of communication and is not put into practice when communication is linked to the development of learning and with competence 4.3 Feedback and decision making.

The difference with competence 4.3 is much more subtle. This includes guidance and support for learning aims to redirect learning in situations that are not explicitly linked to assessment, even if learning analysis is being developed and feedback is provided, which could be considered formative assessment. However, competence 4.3 Feedback and decision making is directly linked to assessment processes in terms of data interpretation obtained and the guidance to be offered to pupils and families based on this information. The difference, therefore, lies in the objective of data collection and the communication processes that are established to guide learning and react to the results of the application of the syllabus in competence 3.2 (formative assessment of learning) or to evaluate, interpret the data, make decisions and inform families in competence 4.3.

Data obtained through the use of digital technologies would only be used to monitor student activity during the process of a particular learning process in order to support and redirect it. However, the same data could be used in Assessment Area 4 for statistical analysis to help rethink teaching processes and to provide academic and vocational guidance to students and make decisions about support, reinforcement, further learning or repeating a course, and share these steps with students and their families.

The key elements of this competence include:

- Communication skills and strategies and didactic interaction using digital technologies. Knowledge of technologies and criteria for their selection, communication strategies in

didactic situations (unidirectional, bidirectional and multidirectional). Guidance and support for learning in digital environments.

- Systems for monitoring student participation and progress in virtual environments and face-to-face training.
- Knowledge of the difficulties associated with teaching-learning processes and their solutions.
- Security and protection of personal data and guarantee of digital rights in communication processes and monitoring of learning.

Actions that demonstrate this competence include:

- Using digital communication tools to respond quickly to pupil questions, e.g., communication tools on the learning platform.
- Establishing learning activities in digital environments having foreseen the needs of guidance and attention to pupils.
- Digitally monitor pupil records in class, e.g., number of hits and response time on an electronic quiz, and offer advice where necessary while respecting their digital rights.
- Using digital technologies to remotely monitor pupil progress and intervene where necessary, while allowing for self-regulation.
- Experiment with and develop new ways and formats to offer guidance and support using digital technologies.
- Apply strategies to avoid discrimination, bias or the generation of inappropriate expectations in the configuration of monitoring systems and in the formulation of automated or modelled responses.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

3.2. Guidance and learning support			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and understanding of the use of digital technologies to support and guide pupils in the learning process.	A1. Knowledge of digital technologies for communication and interaction in teaching and learning situations and systems for monitoring student participation in order to support them in this process.	<p>3.2.A1.1. Knows a varied repertoire of digital technologies that allow interaction and communication to offer support and selective feedback to students in their learning process and understands the basic principles of their operation and the pedagogical criteria with which they should be used.</p> <p>3.2.A1.2. Knows some digital monitoring tools and resources that enable the detection of pupils' support needs during the learning process.</p> <p>3.2.A1.3. Identifies, from a theoretical point of view, the most frequent learning problems that can occur when achieving a given learning objective and proposes solutions using digital technologies.</p> <p>3.2.A1.4. Applies the regulations on data protection when selecting communication, interaction and monitoring technologies in didactic contexts.</p>	<p>I am familiar with the usefulness and functioning of various digital technologies (communication, interaction and monitoring) to offer support and guidance to students during their learning, both individually and collectively.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I select the most appropriate digital communication tool depending on the didactic purpose for which it is going to be applied, for example, the forum to open a debate in class, the virtual whiteboard to clarify concepts, annotations in pdf to explain specific elements in a task, etc. • I train communication systems supported by digital technologies following already created formats, e.g. a Pecha Kucha to explain the water cycle. • In a hypothetical situation of learning multiplication, I suggest using an online questionnaire to identify the most common errors and a game that virtually reproduces Cuisenaire's rulers to consolidate addition. • I read the data processing policy of a digital learning monitoring tool and analyse the most relevant aspects for its use: transfer of data, international transfer of data, personal data collected, exercise of the rights of the students who use it, use of the data processing by third parties, etc.

	<p>A2. Use, with guidance, of the digital communication, interaction and monitoring technologies available at the school to guide and redirect student learning processes.</p>	<p>3.2.A2.1. Selects, with guidance, according to the didactic context and uses, the digital communication and interaction technologies provided by the EA or school leaders to support pupils in teaching-learning processes in virtual environments or in face-to-face situations.</p> <p>3.2.A2.2. Configures and uses, with the advice of other teachers, the digital technologies provided by the EA or by the school leader to receive information about student learning during the process.</p> <p>3.2.A2.3. Includes, with the advice and supervision of other teachers, guidance both for the completion of each task and to support aspects that may be more difficult for their students' learning using digital technologies.</p> <p>3.2.A2.4. Applies, with guidance, the protocols related to data protection and digital rights and safeguards established by the EA or school leaders when using digital technologies for communication, interaction or monitoring with pupils.</p>	<p>I use, with the support of other teachers, the digital technologies (communication, interaction and monitoring) provided by the EA or school leaders to offer support and guidance to my pupils during the learning process, both individually and collectively.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use, with support, the polling system on my digital classroom screen to assess immediate understanding of the content presented and I suggest interactive reinforcement materials published in the virtual environment. • I develop, with the advice and supervision of other teachers, detailed guidelines and instructions for carrying out activities requiring the use of digital technologies and explicitly state the objectives of each activity. • I use with the advice of other teachers, the forum tool of the virtual environment of the school to solve general questions that may arise when carrying out a task and the internal messaging or feedback comments for the resolution of individual questions in accordance with the data protection guidelines established in my school.
<p>B. Autonomous use and adaptation to new contexts of</p>	<p>B1. Autonomously integrating of digital technologies to</p>	<p>3.2.B1.1. Interacts with pupils, autonomously and according to their characteristics and the</p>	<p>I integrate into my teaching practice the digital technologies provided by the EA or by the school leaders that allow me to monitor, support and redirect the learning of my</p>

digital technologies to provide support and guidance to pupils during the learning process.	communicate, interact and monitor the learning process in order to provide information, guidance and support.	<p>educational situation in order to offer support and guidance during learning through digital technologies provided by the EA or school leaders.</p> <p>3.2.B1.2. Uses school digital technologies to obtain immediate feedback on student activity and on the difficulties encountered in the learning process in order to intervene when necessary.</p> <p>3.2.B1.3. Has a procedure for including digital technologies, systematically and fitted to the characteristics of its pupils, in order to help overcome any difficulties that may arise during the process of acquiring a specific learning process.</p> <p>3.2.B1.4. Autonomously applies the guidelines related to data protection and digital rights and guarantees established by the EA or school leaders when using digital technologies for communication, interaction or monitoring with pupils.</p>	<p>students during the process, following the protocols on data protection established in the school's digital plan.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the tools of the virtual learning platform to establish a communication channel with the students, thus assisting them in their learning (e.g. through feedback on the virtual platform tasks). • I publish periodically, in my school's classroom blog, the learning objectives that I am going to work on with my students and the guidelines so that families can support the learning process or collaborate in the programmed activities. • I have created quick start manuals for my students in order to incorporate them as support in activities where the use of a certain technology is required, for example, a simple manual for screen sharing in a videoconference. • I include optional digital content on prior learning for those students who need to consult it and reinforcement activities in the virtual learning environment. • I include self-correcting digital activities such as reading comprehension tests in the documents and audiovisual content through interactive videos. • I use the data protection protocols established in my school to recommend to my students the use of a mobile application to work on the most common errors that appear in the learning of chemical formulation.
	B2. Adaptation and transfer of digital monitoring, communication and interaction strategies and technologies to improve support and	3.2.B2.1. Transfers communication and interaction strategies with pupils and configures available digital technologies to respond to new learning situations in order to improve support and guidance.	<p>I adapt strategies and digital technologies or transfer their use to new educational contexts, so that I can provide guidance and support to pupils during their learning processes when they need it.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use audio editing software that displays a graphical representation of sound to analyse the pronunciation of certain phonemes in language teaching situations, emulating phoniatric re-education practices.

	guidance during learning processes.	<p>3.2.B2.2. Adapts strategies to the educational context in which, thanks to digital technologies, immediate information about the learning process of pupils can be obtained in order to improve the support and guidance provided during the learning process.</p> <p>3.2.B2.3. Applies computational thinking strategies to design procedures to detect and categorise specific problems that pupils may have during the process of a given learning process and to model guidance, help, support information and reinforcement activities, using digital technologies.</p> <p>3.2.B2.4. Provides informal support to other teachers in selecting and configuring the most appropriate digital technologies to provide guidance and support to pupils during the learning process.</p>	<ul style="list-style-type: none"> • I use different applications that enhance the message when I teach a class by videoconference, e.g. the virtual whiteboard both to present basic concepts and to gather the class contributions in a common space visible to all. • I apply the restriction system offered by the virtual learning environment, configuring the access to different contents and reinforcement activities according to the activities previously passed. • I design a digital questionnaire that allows me to categorise errors in the comprehension of rhetorical figures of speech based on my students' answers. • I use heart rate monitoring applications for training monitoring to improve aerobic endurance.
C. Research and development of new ways and formats to offer support and guidance during the learning process using digital technologies.	C1. Evaluation and coordination of the school actions to provide support and guidance to pupils in their learning using digital technologies.	<p>3.2.C1.1. Coordinates or actively participates in the periodic review and evaluation, from the technical, didactic and data safety and protection points of view, of the suitability of the digital technologies used at the school for interaction, communication and monitoring with a view to providing support and guidance to</p>	<p>I coordinate and lead the updating of communication, interaction and monitoring strategies, included in the school digital plan, to provide guidance and support to pupils during the learning process, using digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I coordinate a working group in my school in which various digital tools for communication, interaction and monitoring of learning are tested and the consequences of their application in the classroom are analysed. • I develop manuals, instructions and guidelines on the use of digital technologies for monitoring, supporting and guiding student learning at the school.

		<p>students during the learning process.</p> <p>3.2.C1.2. Identifies new functionalities in digital technologies that would facilitate the monitoring of learning in a non-intrusive and digital rights-compliant way in order to offer support during the process.</p> <p>3.2.C1.3. Offers advice and training to teachers on digital technologies provided by the EA or by school leaders for communication, interaction and monitoring of student learning processes.</p>	<ul style="list-style-type: none"> • I inform the school community about technologies for monitoring learning that bring new functionalities and respect the digital rights of students.
	<p>C2. Research and design of new models of support and guidance for students during the learning process using digital technologies.</p>	<p>3.2.C2.1. Investigates the impact of different models and strategies of communication and interaction using digital technologies during the learning process, assessing both technical and didactic aspects.</p> <p>3.2.C2.2. Experiments with emerging digital technologies for communication, interaction and monitoring in order to provide guidance and support to pupils during their learning, avoiding any kind of discrimination or bias and ensuring data protection and digital rights.</p> <p>3.2.C2.3. Designs new models of teaching intervention to offer</p>	<p>I design innovative strategies and models based on research processes on the use of digital technologies for communication, interaction and monitoring of learning that avoid discrimination, bias or the generation of inappropriate expectations of pupils and preserve their personal data and digital rights.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I lead a group researching the use of videoconferencing technologies for the development of academic tutorials and their effect on learning in online training environments, e.g. in distance learning and during work placements. • I experiment with emerging technologies, such as the Internet of Things, to develop systems for monitoring learning, avoiding any kind of discrimination or bias and respecting the digital rights of pupils.

		support and guidance to pupils during their learning by using digital technologies.	
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3.3. Peer learning

Competence description

Select and safe use of digital technologies to enhance student learning through collaboration. Provide pupils with strategies to use digital technologies for communication and cooperation to enrich learning processes and to develop students' ability to learn how to learn amongst peers.

Contextualising competence 3.3 in teaching

This competence is used by teachers when putting into practice strategies that promote peer learning using digital means, either through group or team work, or through more complex methods such as cooperative structures or collaborative learning depending on the degree of maturity of the pupils, their characteristics and previous experiences. Collaboration can be developed both with pupils from the same school or different schools.

On the other hand, it simultaneously aims to achieve two objectives: to use digital technologies so that all pupils achieve a specific learning objective by relying on their mutual interaction and to ensure that they develop their competence to learn together with others. The achievement of both objectives will require careful and systematic planning, included in competence 3.1, so the aim of this competence would be to develop such planning in the classroom.

The use of digital technologies in this competence may range from the choice of those to be used by students for organisation, communication, collaboration and creation during the suggested activity to their use by teachers to facilitate the joint development of learning.

The key elements of this competence include:

- Peer learning strategies and techniques to enhance peer learning.
- Digital technologies for collaboration: characteristics, functionalities, safety and educational use.
- Techniques and strategies for peer-to-peer learning mediated by digital technologies.

It is important to differentiate this competence from the one in Area 4 on feedback and decision making as although peer assessment can be considered as another aspect of collaborative learning, this competence focuses on the aspects linked to collaborative and learning processes through dialogue, participation and feedback using digital technologies.

On the other hand, we must establish a clear difference with competence 6.2 Communication, collaboration and digital citizenship, since 6.2 focuses on the development of the citizenship competence of communication and collaboration literacy, digital identity and digital citizenship and not on the processes linked to learning.

Actions that demonstrate this competence include:

- Implementing peer learning activities using digital technologies.
- Implementing collaborative learning activities in digital environments such as blogs, wikis or learning management platforms.
- Selecting and using privacy and data protection-friendly digital technologies for collaborative work.
- Supervising and guiding pupils to support each other's learning through collaboration in digital environments.
- Requiring groups of pupils to digitally present their collaborative activities and/or digitally document the process followed and assist them in doing so.
- Using digital tools to support peer learning and self-regulated collaboration.

- Using digital technologies to experiment with new formats and methods of cooperative learning.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

3.3. Peer learning			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided use of digital technologies to promote peer-to-peer learning	A1. Theoretical knowledge of the didactic criteria for the use of collaborative digital tools in the classroom	<p>3.3.A1.1. Knows various theoretical models and peer learning strategies and the pedagogical and safety criteria for the selection of digital technologies to develop them.</p> <p>3.3.A1.2. Uses, in training contexts, some digital tools that enhance peer learning and configures them in a way that suits the set objective.</p>	<p>I am familiar with different pedagogical models for developing peer learning and with how digital technologies allow them to be implemented and enriched in learning contexts.</p> <p>Examples:</p> <ul style="list-style-type: none"> I am familiar with different digital technologies (shared virtual whiteboards, equipment within videoconferencing) that allow me to implement paired learning structures. Before planning the use of a content sharing tool for peer-to-peer learning, I analyse its functionalities and the safety and data protection conditions. I manage access permissions in the collaborative virtual environments that I make available to my colleagues in the context of a training activity.
	A2. Guided application of strategies to enhance peer learning through the safe use of digital technologies.	3.3.A2.1. Designs and implements, with the help of other teachers, peer learning activities or learning situations using the collaborative digital technologies available at the school based on the analysis of their functionalities and applying the safety and protection guidelines for their use.	<p>I design and implement, with the help of other teachers, collaborative or cooperative activities to promote peer learning using the digital technologies available at the school, provided by the EA or school leaders.</p> <p>Examples:</p> <ul style="list-style-type: none"> I create, with the support of another teacher, teams and different communication channels in my school videoconferencing tool for the development of collaborative tasks. I set up, under supervision, groups and groupings in the school virtual learning environment for my students to develop collaborative work and I include forums that allow them to communicate asynchronously. I design, with the advice of the person in charge of a training activity in which I participate, digital questionnaires to be answered in pairs to reinforce the understanding of concepts during the teaching sessions. I design, with the support of a colleague, an activity consisting of the collective elaboration, by all the students in the group, of a wiki with the description of the tools of the technology workshop in the virtual environment of the school.

<p>B. Integrating digital technologies into teaching practice to promote and develop peer learning</p>	<p>B1. Application of digital technologies to implement, in the classroom, the peer learning activities included in the syllabus.</p>	<p>3.3.B1.1. Configures, autonomously, the functionalities of the digital technologies provided by the EA or school leaders that are most appropriate to implement or support peer learning activities adapted to the characteristics of their pupils.</p> <p>3.3.B1.2. Provides contextualised guidance and instructions to pupils to facilitate the development of peer learning activities in the classroom using digital technologies.</p>	<p>I configure the use of digital technologies so that my students can develop the programmed peer learning activities, including guidelines for their appropriate use.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I provide my students with applications that allow them to exchange documents and edit them together for class work. • I create collaborative panels for my students to make suggestions in a brainstorming process and set it up so that the contribution of each student is identified in order to avoid disruptive interventions. • I use the interactive MultiTouch tables for groups of students to solve sorting and classification problems collaboratively. • I set up my courses on the school institutional platform in such a way that they include some activities that students must carry out collaboratively, creating groups in which their members can interact privately and then present the results of their work to the group-class. • I use the school virtual environment for students to carry out, through heterogeneous interactive groups that facilitate peer-to-peer teaching, a repertoire of activities of increasing difficulty to develop problem solving involving mathematical modelling of real situations. • I provide instructions for efficient use of the chat tool to support communication in the development of teamwork.
	<p>B2. Adapting peer learning strategies using digital media to the design of collaborative activities and improving their practical application.</p>	<p>3.3.B2.1. Designs new collaborative learning experiences using the digital technologies provided by the school to apply peer learning strategies that allow a better adaptation to the characteristics of all students and their attitudes towards teamwork, guaranteeing the integration and participation of its members.</p> <p>3.3.B2.2. Involves pupils in the decision-making process about strategies and digital technologies</p>	<p>I analyse the characteristics of collaborative digital technologies and adjust them to the needs of the context to include them in my planning, allowing students to incorporate them in their learning process.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I shape the collaborative forums to suit the characteristics of my pupils and the purpose of the teaching, for example, by using a comment approval system to encourage participation and peer support in loosely knit groups. • I incorporate in PBL (Project Based Learning) activities the use, by my students, of digital group work planning systems to support peer learning processes. • I use digital technologies to adequately monitor the participation of all members of the working groups and share them with my students to stimulate their autonomy. • I ask my students to include, in the planning of collaborative learning activities, the technological tools they are going to select for their development, indicating the purpose for which they are going to use them.

		<p>for the development of peer learning.</p> <p>3.3.B2.3. Uses digital technologies to enable pupils to collaborate in peer learning projects with other groups in their own or other schools.</p>	<ul style="list-style-type: none"> I promote peer learning between my students and students from other schools through participation in national and international projects mediated by digital technologies.
<p>C. Research and design of new strategies and pedagogical models of peer learning using digital technologies.</p>	<p>C1. Searching for and experimenting with new strategies and models of collaboration to enhance peer learning using digital technologies.</p>	<p>3.3.C1.1. Analyses the characteristics of new digital technologies for collaboration and cooperation, reflecting on the possibilities of integration in their teaching practice and in the school.</p> <p>3.3.C1.2. Coordinates or makes significant contributions to the development of peer learning strategies at school mediated by digital technologies.</p>	<p>I participate in or coordinate the processes of revising, evaluating and updating the use of digital technologies to develop peer-to-peer learning used in the school.</p> <p>Examples:</p> <ul style="list-style-type: none"> I analyse new technological tools that respond, by implementing new functionalities, to the drawbacks detected when using chats to support collaborative learning processes. I coordinate a seminar to analyse the digital technologies used in the school in order to promote peer learning, detect their limitations and drawbacks and make proposals to overcome them. I collaborate in the development of guidelines for students to make safe use of the school digital technologies in peer learning activities and I contribute to their dissemination among the members of the school community. I advise other teachers on the most appropriate set up of digital technologies to meet different purposes and types of grouping, for example, on how to form heterogeneous groups that maximise the learning of all students and allow distributed leadership among them.
	<p>C2. Development and implementation of new peer learning strategies and models based on collaborative digital technologies.</p>	<p>3.3.C2.1. Transforms strategies and designs new models to improve learning in peer-to-peer collaborative processes using digital technologies.</p> <p>3.3.C2.2. Researches on the contribution of digital technologies to the development of new paradigms of peer-to-peer learning.</p>	<p>I design innovative models for integrating collaborative tools for co-creation of knowledge and I integrate them into planning.</p> <p>Examples:</p> <ul style="list-style-type: none"> I research on the interrelationship of social networks and peer learning in order to establish new models of integrating social learning in the context of formal education supported by the use of digital technologies. Through lectures, courses and publications, I transmit the most important news and studies on digital collaborative tools for learning with the aim of promoting educational innovation.

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| | | | <ul style="list-style-type: none">• I analyse the possible implications of the connectivist paradigm for peer learning in the classroom, school and inter-school context. |
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3.4. Self-regulated learning

Competence description

Using digital technologies to promote metacognition in pupils, through reflection on their own learning and the development of strategic actions for planning, supervising, contrasting ideas, asking for help and documenting the learning processes carried out.

Contextualising competence 3.4 in teaching

This competence is applied when the teacher plans and manages activities that develop the student's ability to learn how to learn. It is directly related to the production of autonomous knowledge by pupils and to the management of their learning process.

The key elements of this competence include:

- Digital technologies for the development of self-regulated learning and study techniques and strategies.
- Research methods and the contribution of digital technologies to these methods for their application in self-regulated learning processes.
- Teaching intervention strategies to develop student autonomy. Cognition and metacognition strategies. Thinking strategies and study techniques.

It is important to differentiate the metacognitive processes included in this competence, which are the result of reflection on the development of their learning as a regulatory element from competence 4.3 Feedback and decision making, in which self-assessment is included but applied, above all, to decision-making processes for future learning.

On the other hand, self-regulated learning is related to competence 5.3. Actively engaging learners, which addresses the application of meaningful learning and the development of motivation through digital technologies without going into the role of learners in this process.

Competition	Teaching role
3.4. Self-regulated learning	<i>Developing student strategies for learning how to learn</i>
4.3. Feedback and decision making	<i>Facilitating student competence in self-assessment and decision-making about their own learning processes.</i>
5.3. Actively engaging learners in their own learning	<i>Use of strategies to motivate learners, develop their transversal competences and design activities that promote meaningful and relevant learning.</i>

Actions that demonstrate this competence include:

- Using digital resources (e.g. diaries or planning tools) to enable pupils to plan their own learning.
- Using digital resources to enable pupils to gather evidence and document their progress, e.g. through audio, video recordings or photographs, taking into account current data protection regulations.
- Using digital resources - such as portfolios or blogs - to enable students to record, organise their work and reflect on their learning process, developing their metacognitive skills.
- Encouraging the creation of personal learning environments by students using digital technologies.
- Selecting educational technologies that have elements to guide digital learning and self-assessment, facilitating self-directed use by pupils.
- Providing students with knowledge of the functioning and parameters used in the personalisation tools to promote control and metacognitive reflection on their own learning.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

3.4. Aprendizaje autorregulado			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Theoretical knowledge and practical use of digital technologies applied to self-regulated learning in educational situations.	A1. Theoretical knowledge and practical use of digital technologies in self-regulated learning situations.	<p>3.4.A1.1. Knows the theoretical foundations of self-regulated learning (cognition strategies, metacognition, thinking and study techniques) and identifies the digital technologies that can be used in educational contexts for the development of autonomous learning.</p> <p>3.4.A1.2. Knows and uses digital technologies to manage and organise one's own learning.</p>	<p>I am familiar with the theoretical foundations of self-regulated learning and how, from my own learning experience, digital technologies can contribute to its progressive development.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I have a learning e-portfolio created with a blogging application where I reflect on my learning, using, for example, the questions what did I know and what do I know now? • I use a digital diary to organise my academic work. • I plan my work using project management applications. • I use a digital reference manager for my work, where I gather and catalogue all my references.
	A2. Application, with guidance, of the digital technologies available at the school to develop students self-regulated learning.	<p>3.4.A2.1. Knows the digital technologies provided by the EA or school leaders that could be used by pupils for the development of self-regulated learning.</p> <p>3.4.A2.2. Incorporates, with guidance, activities in which self-regulated learning strategies using digital technologies are applied in teaching sessions.</p>	<p>I incorporate into my teaching practice, with support, tasks that enable students to apply various self-regulated learning strategies using the school's digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use, with the help of other teachers, mind-mapping <i>software</i> to enable students to consciously analyse and reflect on their previous ideas about a topic. • At the end of the didactic unit, and thanks to the support of another classmate, my students create diagrams with online applications, included in the school digital plan, to consolidate their knowledge and establish relationships between the concepts learned. • I ask my students, following the suggestion and with the guidance of other teachers, to elaborate, with the <i>software</i> provided by the A. E. or the head teachers of the school, a presentation or an infographic in digital format, where they explain which digital tools they use to organise their work and how they use them. • I design, with assistance, a wiki for students to include their study techniques and offer them to the rest of their classmates.

			<ul style="list-style-type: none"> I select, with advice from other teachers, the thinking strategies to be applied by my students in the development of their digital learning journal.
B. Integration of self-regulated learning strategies using digital technologies into the teaching-learning process in accordance with the learning context.	B1. Adoption and autonomous implementation of activities and tasks requiring the use of digital technologies to enhance students self-regulated learning.	<p>3.4.B1.1. Implements in the classroom, autonomously, the tasks adapted to the degree of maturity of pupils which allow them to plan, document, record and consult their learning through the use of digital technologies.</p> <p>3.4.B1.2. Incorporates, systematically and according to the educational context, cognitive and metacognitive reflection activities for students using digital technologies.</p>	<p>I incorporate activities adapted to the maturity of my students into the syllabus and implement them autonomously in the classroom, encouraging their cognitive and metacognitive reflection and facilitating the planning and management of their learning by using the school digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> I use the 3-2-1 bridge strategy to have my students create a digital canvas to reflect the learning outcomes on the world food problem. I ask students to document their learning process by means of a digital practical notebook in which the work carried out in the laboratory is included. I use an interactive digital board for students to answer a controversial question, reflecting on their previous ideas, before starting the project on global warming. I have included in the planning a digital questionnaire that allows students to measure their own knowledge on a specific topic in order to detect and improve the aspects that need it most through the analysis of the feedback offered. I teach my students how to interpret the information on the LMS (Learning Management System) calendar to organise their work. I set up learning platform tools so that students can, at any time, access and consult the grades of all their assignments.
	B2. Adaptation of digital technologies and the educational context (organisational, temporal and spatial aspects) to the needs of pupils in order to promote self-regulation of their learning.	<p>3.4.B2.1. Designs a digital ecosystem for pupils to plan, record and consult documentation related to their learning, as well as to share their ideas, knowledge and solutions through digital technologies.</p> <p>3.4.B2.2. Systematically integrates into the teaching-learning process moments for students to reflect, in accordance with their characteristics, on the digital technologies that are most</p>	<p>I adjust and configure the characteristics of digital technologies in order to facilitate pupils' management, recording, self-assessment and documentation of their learning and the development of cognitive and metacognitive processes.</p> <p>Examples:</p> <ul style="list-style-type: none"> I configure the virtual learning environment so that my students can check the competences they have acquired and their degree of development so that, through the platform, I offer them a set of activities so that they can select those that best suit their work plan. I use digital applications in class to enable students to organise their own personal learning environment (PLE), facilitating access to different resources. I offer my students a repertoire of digital applications, both general and subject-specific, organised by the tasks to be tackled when reworking, understanding and applying information and reflecting on one's own learning.

		appropriate for the development of their self-regulated learning.	<ul style="list-style-type: none"> I design an activity in which students show the rest of their classmates the process they have followed in solving a problem using a digital timeline, linking the information used and marking the most important moments in the process.
C. Experimentation and applied research on teaching strategies that promote self-regulated learning through the use of digital technologies.	C1. Evaluation of strategies and design of proposals for improvement to favour self-regulated student learning through digital technologies.	3.4.C1.1. Analyses and evaluates different strategies to promote self-regulated learning through digital technologies among pupils at the school and makes proposals to improve it.	<p>I contribute to the review, evaluation and improvement of the teaching strategies followed in my educational centre to promote the use of digital technologies by students in the self-regulation of their learning.</p> <p>Examples:</p> <ul style="list-style-type: none"> I coordinate a working group in which methodological strategies are developed to facilitate self-regulated learning. I design materials so that the school teaching staff can advise students on the development of their PLE. I share different proposals in professional communities, where I present technological alternatives for the tasks involved in self-regulated learning.
	C2. Transformation of teaching practices through the development of new strategies and models of integration of digital technologies for the improvement of pupils' self-regulated learning.	3.4.C2.1. Designs, on the basis of research, new strategies, models and intervention sequences for students to develop their learning in a self-regulated way using digital technologies.	<p>I design new strategies and models for the integration of digital technologies in the educational process that favour the self-regulation of learning by students.</p> <p>Examples:</p> <ul style="list-style-type: none"> I investigate the impact of the integration of digital applications for self-regulated learning in the PLE on the improvement of students' academic results. I am participating in a research project on the correlation between the use of self-regulated learning strategies using digital technologies and the continuity of students in the education system in post-compulsory education. I develop new educational proposals that allow students to reflect on their learning process autonomously and through the use of digital technologies, e.g., taking the Universal Design for Learning approach as a reference.



Area 4. Assessment and feedback

Assessment is an indispensable element in the teaching and learning process and as such contributes to the development of educational innovation. When integrating digital technologies into learning and teaching, we need to consider, on the one hand, how they can enhance existing assessment strategies. At the same time, we must also consider how they can be used to create or facilitate innovative assessment approaches. Digitally competent teachers must be able to use digital technologies in the field of assessment with these two objectives in mind while *respecting the privacy and safety of personal data handled in this process to ensure digital rights and personal data protection*.

The use of digital technologies in education, whether for assessment, learning, administrative or other purposes, results in a wide range of data available on the learning behaviour of individual students. The analysis and interpretation of this data and its use in decision-making is becoming increasingly important, although the information it provides needs to be complemented by analysis of conventional data on student behaviour.

At the same time, digital technologies can help to directly monitor the progress of learners, facilitate feedback and enable educators to adapt their teaching and assessment strategies as a result of this process.

All educational evaluation has to be oriented towards the improvement of its objective, namely teaching and learning as previously mentioned. To achieve this, it is essential to take into account the following phases:

- The definition of the assessment criteria and indicators, the selection of the techniques and means to be used to collect the data relating to each of them and, finally, the configuration of the most appropriate instruments for recording these data.
- Systematic and rigorous data collection, analysis of information and formulation of conclusions.
- Assessment, decision-making and taking the necessary measures for improvement.

The three competences in this area correspond to the teaching performances linked to these phases using digital technologies:

- a. **4.1 Assessment strategies:** Focuses on the initial stages of planning and data collection. It deals with aspects related to the use of digital technologies throughout the assessment process, moving from the use of analogue media and tools to their digital counterparts and considering what they can contribute to the improvement of assessment.
- b. **4.2. Learning analytics and analysing evidence.** Once a set of data has been obtained through the use of digital technologies, we must proceed to analyse, organise and interpret this data, both individually and within the teaching team.
- c. **4.3 Feedback and decision making.** Finally, conclusions should be drawn from the analysis of assessment results and these conclusions must be communicated to students and families. The essence of this competence is to establish a process which guides teachers, students and families on the measures to be adopted for the improvement of teaching and learning processes. In addition, it influences the assessment of learning and teaching in order to make decisions and carry out actions to improve both processes in the initial stages, throughout their development, and at the moment of their completion.

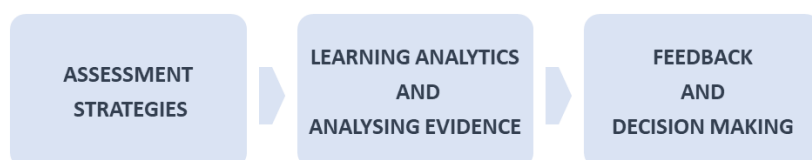


Illustration 18. Assessment process. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Common BY-SA 4.0

These competences are directly linked to the exercise of the following tasks included in Article 91 of Chapter I of Title III of the LOE, Spanish Organic Law on Education (consolidated legislation):

- b) Assessment of the pupil's learning process, as well as the evaluation of teaching processes.*
- c) Tutoring pupils, directing and guiding their learning and supporting their learning process, in collaboration with their families.*
- d) Educational, academic and vocational guidance of pupils in collaboration with specialised services or departments where appropriate.*
- e) Taking care of the intellectual, emotional, psychomotor, social and moral development of pupils.*
- h) Regular information to families about the learning process of their children, as well as guidance on how to contribute to it.*
- k) Applying the assessment processes determined by the educational administrations or the schools themselves.*

4.1. Assessment strategies

Competence description

Use digital technologies for the design of diagnostic, formative and summative assessment tools and instruments and implement them in compliance with safety and personal data protection measures. Improve the diversity and appropriateness of assessment formats and approaches.

Contextualising competence 4.1 in teaching

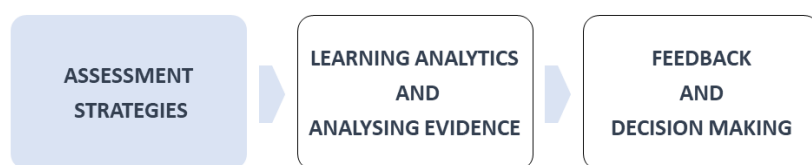


Illustration 19. Assessment process. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Common BY-SA 4.0

This competence is applied when selecting and using the means and instruments of assessment supported by digital technologies to obtain data and information on each of the indicators that have been defined in accordance with the established criteria and depending on the techniques, means and purpose of the assessment that, at any given time, are considered most appropriate and are to be carried out. It is a process in which digital technologies are integrated by adding the functional improvements that they can bring to this process while also providing new approaches to its development. The incorporation of digital technologies does not have to replace the use of analogue means or tools; they must be combined, adapting their use to the different evaluation contexts that may arise.

Digital technologies, in their support for assessment, should not only be applied to the assessment of pupil learning, but also to the assessment of the teaching process.

In addition to the configuration and use of digital technologies by teachers to gather information to assess student learning and the teaching strategies and materials used, it also includes the training they should provide for pupils to use digital technologies for self- and peer-assessment.

It should be emphasised that digital technologies offer specific support for systematic data collection, but this should not only lead to quantitative evaluation. In addition, the collection of such data must be at the service of a qualitative evaluation. Digital technologies can be particularly useful in enriching these media used by learners and in facilitating teachers' recording of information with instruments that extend the functionalities of analogue ones or incorporate new ones.

It is important to bear in mind that the primary purpose of assessment, especially in compulsory education, is to improve the learning of all students, so that the formative and diagnostic functions of assessment are fundamental. Assessment should not, therefore, be reduced to its summative function at the end of a particular stage, level or period of learning.

The use of digital technologies in the assessment process is subject, as if it were carried out by analogue means, to a series of rules regarding the custody and protection of the documents and data collected. These rules must therefore be respected, taking into account the specificities required by the use of digital technologies.

The development of this competence is closely related to 3.2. Guidance and learning support in terms of monitoring pupil progress. The difference lies in the fact that in competence 3.2. guidance is addressed through the singular and specific teaching actions carried out during the process to redirect it, mediated by the immediacy of action and decision-making in real time. In competence 4.1., however, formative assessment accompanying the above process is planned for analysis and decision making in the short, medium and long term, respectively in competences 4.2. Learning analytics and analysing evidence and 4.3. Feedback and planning

Furthermore, this competence, as far as the evaluation of the teaching process is concerned, would also be interconnected with competences 1.3 Reflective practice and 3.1. Teaching. The difference with 1.3. lies in the fact that reflective practice uses a qualitative method of analysis based on the reconstruction or observation of teaching performance, whereas in this case the assessment is inferred from the analysis of the learning outcomes obtained by students in competence 4.1. Assessment strategies and from the analysis of data collected by digital means during the process in the case of 4.2. Learning analytics and analysing evidence. Competence 3.1. Teaching-, presents a relationship of mutual interaction and continuity, since the specification of the curriculum in the syllabus requires the definition of learning objectives for the assessment of which it will be necessary to determine indicators, criteria and procedures to be applied in the implementation of competence 4.1. Assessment strategies. Assessment activities must be carried out in a way that respects the digital rights of all pupils and guarantees data protection.

The key elements of this competence include:

- Assessment techniques, media and tools using digital technologies.
- Improvement and optimisation of the evaluation process supported by digital technologies.
- Adequacy of the digital technologies used in assessment to the learning curriculum and teaching processes, as well as procedures for establishing assessment criteria and indicators.
- Ensuring the privacy, personal data protection and digital rights of all pupils.

Actions that demonstrate this competence include:

- Being aware of the advantages and disadvantages of the use of digital technologies in assessment and reflect critically on their appropriateness.

- Using digital technologies to:
 - Intentionally and systematically gather information and monitor the learning process.
 - Create means for diagnostic, formative and summative assessment, e.g. computer-based tests, classroom feedback systems, digital murals, digital portfolios, etc.
 - Design and create diagnostic, formative and summative assessment tools, e.g. forms for recording observations, rubrics in the virtual environment, digital checklists, etc.
 - Provide a pre-assignment assessment guide for pupils.
- Protecting access to digitally stored assessment results data.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

4.1. Assessment strategies			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Theoretical knowledge and guided use of digital technologies for assessing teaching and learning processes.	A1. Knowledge of the techniques, means and tools for the assessment of teaching and learning processes using digital technologies.	<p>4.1.A1.1. Knows and configures the most common digital tools according to the different functions of assessment of teaching and learning (diagnostic, formative and summative).</p> <p>4.1.A1.2. Designs assessment activities in which learners use digital media to carry them out.</p> <p>4.1. A1.3. Knows the regulations on personal data protection and how they affect the processes of collecting information using digital technologies.</p>	<p>I am aware of the use that can be made of digital technologies to support diagnostic, formative and summative assessment of teaching and learning processes according to the techniques and tools chosen and taking measures to protect personal data.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I set up spreadsheet forms to facilitate the collection of student learning data in order to monitor student progress. • I am aware of the existence of specific programmes that emulate the "teacher's notebook" to keep track of the assessment. • I have designed an assessment test to detect laterality problems in my future students using a digital presentation programme. • I use data validation using lists in a spreadsheet to specify the assessment of curricular elements. • I design a digital survey to identify learners' prior knowledge and concepts about a given topic in a learning situation. • I am familiar with different strategies for "pseudonymising" student data when using digital technologies in educational contexts.
	A2. Tutored use of digital technologies provided by the EA or by the school leaders for diagnostic, formative and summative assessment of teaching and learning processes.	<p>4.1. A2.1. Applies with guidance, the digital assessment technologies provided by the EA or the school leader for the collection of information on the indicators set in the syllabus.</p> <p>4.1. A2.2. Uses with guidance the school digital technologies to design a diversified range of media (attitudes, students work and performance) that allow him/her to adequately monitor learning and detect possible student needs.</p>	<p>I use with guidance and following the safety guidelines established by the EA or the school leader, the digital tools provided to carry out assessment of the teaching and learning processes included in the syllabus.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use, with support, the report card of the school management platform. • I use, in a guided way, the school Virtual Learning Environment (VLE) qualifiers. • I use with guidance, an interactive tactile table to identify pupils who have prior knowledge of the spelling of the most common words (name, day of the week, numbers from 1 to 9). • I design and apply, with the help of other teachers, a digital form that I use as a descriptive scale for pupils to self-evaluate their attitude in class during the term. • I select, with the help of the school counsellors, "serious" video games that will help to detect learning difficulties, e.g. dyscalculia, dysgraphia, etc.

		<p>4.1. A2.3. Designs and uses, with the help of other teachers, a tool for evaluating their teaching practice using the school's digital technologies.</p> <p>4.1. A2.4. Knows and applies, under supervision, the school's data protection guidelines in assessment procedures involving the use of digital technologies.</p>	<ul style="list-style-type: none"> • I review, with the advice of the form teacher, the means of assessment programmed for pupils using digital technologies in order to check that they are sufficiently varied and that they will allow information to be obtained on the indicators set in the syllabus. • I implement, with the advice of other teachers, a digital survey for pupils to provide feedback on how difficult the suggested activities have been for them. • I use, under supervision, the digital tools provided by the EA or school leaders to collect pupils' assessment data in compliance with safety and data protection guidelines.
<p>B. Autonomous implementation and adaptation to new contexts of digital media and tools for the assessment of teaching and learning processes.</p>	<p>B1. Autonomous use of digital assessment technologies available at the school.</p>	<p>4.1.B1.1. Autonomously uses the digital assessment platforms provided by the EA or the school leaders.</p> <p>4.1.B1.2. Diversifies the techniques, means and tools for assessing pupils learning and teaching practice autonomously using the school digital technologies.</p> <p>4.1. B1.3. Autonomously applies the school safety and personal data protection guidelines in the assessment processes.</p>	<p>I use the school digital assessment technologies autonomously, following the established guidelines on personal data protection.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the grading system of the school management platform. • I use the school VLE qualifiers. • I use digital assessment tools (observation scales, checklists, class diary...) to record evidence of pupils learning. • I use different means of assessment (digital portfolio, digital presentation and video recording) for pupils to show the level of achievement of a learning objective and assess it using the same rubric. • I apply a frequency table in the school VLE to monitor the punctuality of homework submission. • As a counsellor, I select and apply the most appropriate digital psychometric tests available in my department to detect the level of intellectual maturity of a pupil in order to determine whether he or she is affected by pervasive developmental disorders (PDD). • I apply the items released from the PISA digital cognitive tests. • I use a descriptive scale or digital "rubric" for the co-evaluation of the work produced by each class team. • As a means of assessment, I use interactive animations and video recordings for groups of pupils to explain the law of leverage. • I use digital graphic scales with my pupils so that they can see their progress in learning to read and write throughout the term.

			<ul style="list-style-type: none"> • I use the survey system of the virtual learning environment for pupils to assess the quality of the teaching process followed. • I use a digital survey to gather information about pupils' interests in order to obtain information for their academic and vocational guidance report. • I collect data in digital format from the interviews held with pupils in my form class and with their families in the protected file system of the school's Counsellors and the educational support department.
	<p>B2. Adapting the use of the school's digital technologies to the implementation of known assessment techniques in new contexts.</p>	<p>4.1. B2.1. Combines techniques, means and tools for the collection of data in digital format on assessment indicators in such a way as to be able to contrast the results obtained by triangulation.</p> <p>4.1. B2.2. Applies the school's digital technologies in the design of means and instruments that facilitate the evaluation of teaching and learning processes in which new teaching strategies have been used.</p>	<p>I adapt the use of digital technologies provided by the EA or the school leaders to the implementation of assessment means and tools to new learning and teaching situations.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I incorporate a wide range of digital assessment methods into the programming. • I design and implement through macro programming a digital system of descriptive scales or "rubrics" for self-assessment and co-assessment that complement the students' heteroassessment. • I design a specification matrix and an associated digital cognitive questionnaire to evaluate the degree of assimilation of the concepts by pupils. • I have created a checklist and an associated rating scale in a spreadsheet to assess my pupils' attitudes in class discussions. • I implement in class the use of a descriptive scale or digital "rubric" for the assessment of the development of oral expression through self-evaluation, co-evaluation and heteroevaluation, integrating, for their unified calculation, the different scores assigned. • I use a training application on my mobile phone to establish an event log using time tracking to quantify the frequency with which disruptive behaviour occurs. • I set up the marker in my Learning Management System (LMS) to combine and weight the assessment of individual learning outcomes with those of the team work in which pupils participate. • I combine digital educational games, checklists and student-made podcasts into a unified assessment system to evaluate my pupils listening and speaking skills. • I design a spreadsheet to collect data on the errors or difficulties that pupils have encountered when applying a particular learning process and their assessment of the degree of difficulty of the suggested activities in order to compare both. • I configure the reports of a virtual learning environment to obtain a variant of a checklist that records the viewing of contents and the delivery of activities by pupils

			and the date on which they have completed them as performance indicators that provide information on the autonomous planning of their academic work.
C. Research and design of new models, means and tools for the assessment of teaching and learning processes using digital technologies.	C1. Integration of digital technologies for the assessment of teaching and learning processes and of school plans and projects.	<p>4.1.C1.1. Participates in the monitoring and assessment of the guidelines and digital technologies used at the school for the assessment of teaching and learning, making contributions for their updating or for the implementation of new strategies.</p> <p>4.1.C1.2. Advises or trains other colleagues on the use of the school's digital technologies applied to educational assessment.</p> <p>4.1.C1.3. Coordinates the integration of digital technologies in the assessment of the school's different programmes and projects.</p>	<p>I contribute to the integration, revision, assessment and updating of the use of digital technologies for the assessment of teaching and learning processes and of the plans and projects of my school.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am leading an innovation project on the use of digital technologies in the assessment of teaching and learning processes in my school. • I coordinate a working group to design and implement, using digital technologies, data collection tools that facilitate a collegiate summative assessment of the degree of acquisition and development, by pupils, of the competences included in the curriculum. • I make specific contributions to diversify the digital tools for assessing the teaching and learning processes used in my school with a view to determining whether they are aligned with the school project and to introduce the necessary improvements. • I am responsible for the integration of digital technologies for the assessment of the school's educational project. • I have designed an evaluation protocol, included in the school's digital plan, to determine which cursor control peripheral on the computer screen is most suitable for a pupil with reduced mobility.
	C2. Research on the use of digital technologies in teaching and learning processes and design of new models, means and tools for data collection.	<p>4.1.C2.1. Researches and critically analyses the functionalities of digital technologies, including emerging ones, which facilitates the data collection to assess teaching and learning processes or various aspects of the education system.</p> <p>4.1.C2.2. Makes innovative suggestions for the integration of digital technologies, including</p>	<p>I research the use of digital technologies to assess teaching and learning processes in order to design new models, techniques, tools or new technological developments.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am involved in an applied research project to determine whether pupils' self-assessment using the digital learning portfolio has an impact on improving their academic performance and the acquisition of competences for autonomous learning. • I design an assessment tool that, thanks to the use of digital technologies, facilitates the comparison of the data recorded from observation with those obtained through the recording of activities in the virtual learning environment.

		<p>emerging ones, in educational assessment, respecting the digital rights and guarantees of all the agents involved and aligned with the ethical and pedagogical principles set out in current educational laws.</p>	<ul style="list-style-type: none">• I design data collection systems, obtained by means of sensors that track eye movement, for the diagnostic evaluation of learning difficulties in reading and writing.• I collaborate with Educational Administrations in the design and validation of standardised tests for the assessment of pupils' competences.
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4.2. Learning analytics and analysing evidence

Competence description

Generate, store, validate, select, analyse and interpret digital evidence of student activity, performance and progress in order to improve the teaching and learning process, respecting current data protection regulations.

Contextualising competence 4.2 in teaching

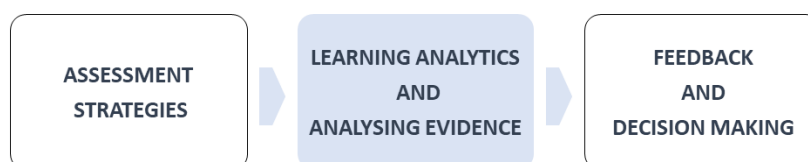


Illustration 20. Assessment process. Learning analytics and analysing evidence. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Common BY-SA 4.0

Learning analytics are the procedures for storing, managing, processing and analysing data to improve learning and teaching processes. In this context, it must be taken into account that personal data, pupils and teacher metadata, or activity records must always be treated safely according to the indications of the school. In this sense, it is necessary to consider the types of learning analytics that are commonly used: descriptive, with the aim of drawing conclusions from the analysis of the data obtained, predictive, whose purpose is to anticipate results based on the comparison of behaviour patterns with other previously given ones and, finally, those aimed at automated decision-making based on the activity and results of the students. The latter two use Big Data; however, the former can be applied to small data sets, such as those obtained from teaching and learning activities in a group-class.

This competence should enable teachers to make use of the data generated to improve teaching and learning processes and to be able to critically analyse technological developments that incorporate analytics for predictive or automated decision-making purposes and the use that should be made of them.

The proposal is designed for mixed contexts of face-to-face education supported in digital environments and with digital tools or resources, not only for online training.

The concept of interpretation of data in this competence is limited to the understanding of purely mathematical statistical measures, whereas competence 4.3 deals with an educational interpretation of these measures and their impact on teaching and learning processes.

The key elements of this competence include:

- Pedagogical, didactic and content criteria for the selection of relevant variables.
- Configuration of services and platforms to obtain data selectively and appropriately for further processing.
- Techniques, media and digital tools for data validation, storage, aggregation and analysis.
- Statistical analysis of data by digital means and technologies that can be used for graphical representation and visualisation.
- Ensuring the privacy, personal data protection and digital rights of all learners.

Actions that demonstrate this competence include:

- Designing and implementing learning activities that generate data on student activity and performance.

- Analysing and interpreting available evidence of pupil activity and progress, including data generated by the digital technologies used.
- Critically appraising available data to shape teaching and learning.
- Applying the guidelines on personal data protection established by the education administration when processing learning analytics.
- Validating evaluation data obtained by digital means through the triangulation technique.
- Using triangulation in order to obtain a more complete and objective view of a given learning experience by incorporating different digital data sources on the same element under analysis.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

4.2. Learning analytics and analysing evidence			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge of digital media for the management and interpretation of data from educational evaluation under ethical and pedagogical criteria and guided application of the procedures.	A1. Knowledge of the use of digital technologies to obtain, process, visualise, analyse and interpret data collected in the evaluation of teaching and learning processes.	<p>4.2.A1.1. Understands the basic concepts and procedures of statistical analysis and uses digital technologies to process and visualise them.</p> <p>4.2.A1.2. Is familiar with common interoperability standards and the techniques, tools and means for data validation, import/export, storage and aggregation.</p> <p>4.2.A1.3. Determines, in hypothetical situations, the relevant variables for assessing a teaching and learning situation through the collection of data using digital technologies.</p> <p>4.2.A1.4. Is aware of the regulations applicable to the protection of personal data when collecting learning and interaction metrics on platforms.</p>	<p>I have a theoretical understanding of the procedure to be followed for collecting, processing, storing, analysing and interpreting data obtained through the use of digital technologies for the evaluation of teaching and learning processes and the regulations on personal data protection applicable in this field.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I download the data generated by a virtual learning environment into a spreadsheet to determine measures of central tendency (means, modes and medians). • I use pie charts to represent published statistics on the use of digital devices in compulsory education. • I export evaluation data from a spreadsheet in CSV format. • I analyse whether or not there is a correlation between the cultural level of families and the academic success of pupils based on reports and statistical data to determine whether or not it is a relevant variable. • I review the privacy policy of digital education service platforms to determine whether there are any international transfers of the personal and evaluation data collected.
	A2. Implementation, with guidance, of data analysis skills for the assessment of teaching and learning processes generated through the school programmes.	4.2. A2.1. Uses with the advice of other teachers, digital technologies provided by EA or school leaders to obtain, import/export, store, process, visualise and interpret data related to the assessment of the teaching and learning process.	<p>I use, with the support of other teaching staff, the digital technologies provided by the EA or the school leaders to manage and interpret data related to the evaluation of teaching and learning processes, applying safety and personal data protection protocols.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use, with the help of other teachers, digital technologies to obtain a summary of data with the most frequent pupil errors, e.g. from activities with digital chronological axes to determine which dates and historical sequences have not been well assimilated.

		<p>4.2. A2.2. Selects with the guidance of other professionals, data that may be relevant for evaluating a particular teaching or learning process using the school's digital technologies.</p> <p>4.2. A2.3. Applies, under supervision, the security and data protection guidance established for the use of digital technologies in the processing of data linked to the assessment of teaching and learning processes.</p>	<ul style="list-style-type: none"> • I design, with the support of other teachers, a report in the virtual learning environment that allows me to know which pupils have seen the contents before starting the teaching session. • I set up, with help, the school's virtual platform to record the moment when pupils hand in their homework in the classroom and analyse the relationship between the grade and the time spent on it. • I statistically analyse, with the help of other teachers and using the school's survey tool, the study patterns of my students in order to determine whether there is any correlation with the degree of achievement of the learning objectives. • I select, with the help of other teachers, the use of a line graph to represent a student's learning development. • I apply the guidelines established in the school digital plan under the supervision of another colleague to "pseudonymise" pupil data when using a digital service authorised by the EA or school leaders.
<p>B. Autonomous use of the school's digital data analysis technologies in teaching and learning assessment processes, and transfer of their application to new educational strategies.</p>	<p>B1. Autonomous use of the school's digital technologies to manage and interpret data in teaching and learning processes.</p>	<p>4.2. B1.1. Uses digital technologies provided by the EA or school leaders to obtain, import/export, store, process, visualise and interpret data related to the evaluation of the teaching and learning process.</p> <p>4.2. B1.2. Selects data that may be relevant for assessing a particular teaching or learning process using the school's digital technologies.</p> <p>4.2. B1.3. Autonomously applies the school's data protection and safety guidelines for the processing of data linked to the assessment processes.</p>	<p>I use autonomously and applying data protection guidelines, the digital technologies provided by the EA or by the school leader to collect, store, statistically process and interpret data on the evaluation of teaching and learning processes.</p> <p>Example:</p> <ul style="list-style-type: none"> • I apply the assessment criteria agreed by the teaching team in the configuration of the digital teacher's planner, provided by the school, to automate the calculation of the percentages assigned to the assessment indicators. • As a form teacher, I carry out a statistical analysis of the marks obtained by my pupils in the different subjects and I share it with the teaching team for subsequent analysis during the assessment session. • I use data filtering systems on learning variables that allow me to obtain assessment results according to different criteria (individual pupils, groups, areas, etc.). • I use an alert system in the virtual classroom to learn which pupils have not accessed the virtual platform a week before an important assignment is due. • I statistically analyse, using digital tools, the data on the assessment that my students make, through digital questionnaires, of the difficulty and interest of the proposed learning activities. • I regularly change my password to access the platform, which contains the evaluation data, regardless of whether or not it is covered by the school's safety guidelines.

	<p>B2. Innovative use of the school's digital technologies in the collection, processing, analysis, representation and interpretation of data to evaluate teaching and learning processes.</p>	<p>4.2.B2.1. Critically analyses the relevance and pertinence of the variables used in the processes of assessment, collection, processing and storage of data and applies validation procedures using digital technologies.</p> <p>4.2.B2.2. Specifically configures the school's digital tools to adapt them to the collection, processing, representation or analysis of specific assessment processes using non-predefined functionalities.</p> <p>4.2.B2.3. Knows and critically analyses, from a technical, ethical and pedagogical point of view, the profiling patterns and algorithms that can be used in the school's platforms for assessment.</p>	<p>I analyse, from a didactic point of view, the variables selected for data collection and validation in order to determine their suitability, and I use digital technologies to process them more efficiently.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I set up a dashboard in my spreadsheet that collects the relevant variables of the teaching and learning process and displays them in a single view. • I calculate the mode, median, mean and standard deviation of the marks obtained by my pupils by different means (tests, activities, presentations, assignments, etc.) and analyse them using digital technologies to determine whether the scores are consistent. • I design data processing systems that allow me to catalogue pupils learning behaviour obtained from the VLE reports: sequence of content consultation and activity completion, order in the consultation of content and time dedication. • I use, in collaboration with the teaching staff, the school's digital tools to implement a system for collecting, managing and analysing the data of the pupils in my form class in all subjects to show their learning progress. • I statistically analyse the manipulation data of the animations in the virtual laboratory simulator in which I work with my students to draw conclusions about whether they follow patterns that respond to a prior hypothesis or are random or trial-and-error. • I consult the results provided by a data analytics tool for my pupils and compare them with my own personal analysis, drawing conclusions about the appropriateness of its use.
<p>C. Applied research on data management and interpretation for the improvement of the evaluation of teaching and learning processes using digital technologies.</p>	<p>C1. Analysis and validation of the functionalities offered by the school's digital technologies including the study of data to improve the evaluation process.</p>	<p>4.2.C1.1. Collaborates and/or coordinates the analysis of the use of digital technologies in order to design systems adapted to the school for the management, processing and interpretation of data linked to the assessment of learning, teaching and organisational processes.</p> <p>4.2.C1.2. Advises the school's management team and teachers on</p>	<p>I contribute to the improvement of the school's educational assessment processes through global suggestions for the use of digital technologies in the collection, processing and interpretation of data.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I have developed a procedure for collecting and processing digital data to improve the assessment of the actions programmed in the school's Improvement Plan. • I coordinate a school training project to collaborate on the implementation of procedures for the statistical analysis of data obtained in the assessment of teaching and learning processes using digital technologies.

		the use of digital technologies applied to the collection, storage, export/import, processing, visualisation and interpretation of quantitative data used in assessment processes.	<ul style="list-style-type: none"> I have designed all the actions of a process of data analysis in relation to the improvement of the reading comprehension of school pupils using digital technologies.
	C2. Research on the use of digital technologies for data analysis and development of new proposals to improve assessment practices in teaching and learning processes.	<p>4.2.C2.1. Participates in research projects on the collection, processing and analysis of data in the evaluation of teaching and learning processes or various aspects of the education system.</p> <p>4.2.C2.2. Proposes new models for obtaining, processing and analysing assessment data using digital technologies.</p>	<p>Design models, based on applied research, for obtaining, processing and analysing evaluation data using digital technologies in order to improve educational processes.</p> <p>Examples:</p> <ul style="list-style-type: none"> I am involved in a research project on the use of digital technologies to provide a real-time synthetic visualisation of information on the learning progress of each pupil with respect to both the curricular criteria and their initial level of competence. I collaborate with the EA to define the relevant variables in a longitudinal statistical study to assess the impact of measures taken to reduce grade repetition on continuation in post-compulsory education.



4.3. Feedback and decision making

Competence description

Using digital technologies to provide feedback to pupils while respecting the privacy and safety of the information provided. Adapt teaching strategies and provide specific reinforcement based on the data obtained. Inform pupils and families and facilitate understanding of the evidence of learning provided by digital technologies so that it can be used in decision-making.

Contextualising competence 4.3 in teaching

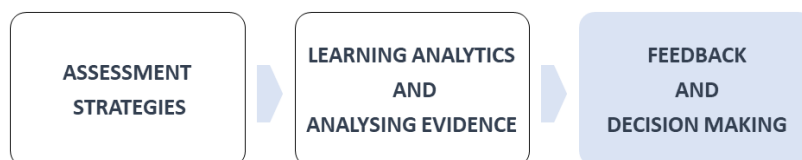


Illustration 21. Assessment process. Feedback and planning. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Common BY-SA 4.0

This competence is deployed when using digital technologies and/or the data provided by these technologies to offer formative and summative assessment to pupils, to make a diagnostic assessment of the needs of each learner and to adopt reinforcement, support or extension measures based on the data analysed.

It also includes the training of pupils in two fundamental aspects:

- The interpretation of the results of diagnostic, formative and summative assessments so that they can make informed decisions. Support should also be given to families when interpreting these data because, in the case of minors, they are responsible for the decisions taken and, in any case, they should accompany pupils in this process gradually depending on their age, maturity and personal conditions.
- The competence to self-assess learning - their own (self-assessment) and that of others (peer assessment) - and teaching processes.

On the other hand, this competence should also be oriented towards decision-making in order to redirect the teaching-learning process.

This competence requires the prior definition of the data to be collected in assessment processes using digital technologies (competence 4.1: what, when, how and for what purpose to assess) and the processing and analysis of such data (competence 4.2: how to organise the information obtained) in order to carry out the assessment for decision-making.

The key elements of this competence include:

- Digital management systems to inform families and pupils and provide feedback on the assessment of the teaching and learning process. Applications for the collection of grades, reports, etc.
- Assessment of the conclusions drawn from the interpretation and analysis of data in order to produce assessment reports and make decisions for the improvement of teaching and learning.
- Academic and vocational guidance.

Actions that demonstrate this competence include:

- Grading and commenting on digitally submitted assignments.

- Configuring virtual learning environments and assessment management systems to provide and improve the effectiveness of feedback.
- Using digital technologies, in a safe way, to inform learners and their families about their progress and to make decisions related to educational support.
- Adapting teaching and assessing practices on the basis of the data obtained.
- Enabling pupils to evaluate and interpret the results of assessments, as well as self- and co-assessments.
- Helping pupils to identify areas for improvement and jointly develop learning plans for these areas.
- Using digital technologies to enable pupils and families to receive up-to-date information on progress and make informed decisions about next learning priorities, electives or future studies.
- Using digital technologies to provide families with regular information and guidance to enable them to cooperate and support their children's learning.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

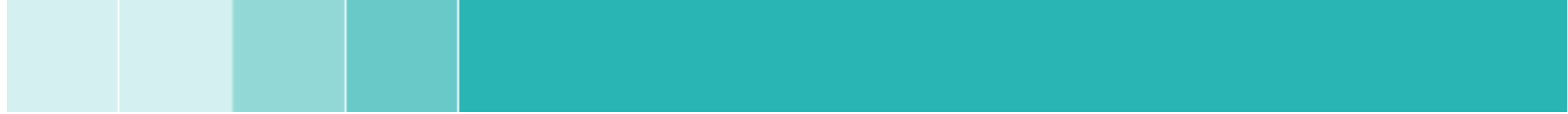
4.3. Feedback and decision making			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge of digital technologies used to inform assessment processes and guide teaching and learning accordingly.	A1. Theoretical knowledge of the use of digital technologies to inform assessment processes and guide teaching and learning based on these assessments.	<p>4.3.A1.1. Knows the pedagogical, didactic, technical and ethical criteria to be applied when selecting the digital technologies used, depending on their purpose and recipients, to prepare and transfer information, both quantitative and qualitative, on the assessment.</p> <p>4.3.A1.2. Is aware of the regulations on data protection, privacy and digital rights that affect the processing of academic assessment data.</p>	<p>I am aware of the possibilities offered by digital technologies to inform pupils and families about the different assessment processes and to provide feedback to improve learning and adapt teaching practice.</p> <p>Examples:</p> <ul style="list-style-type: none"> I can use the functionalities of virtual learning environments to provide feedback on assignments submitted by learners in different formats (qualitative messages accompanying the marking, comments in pdf, messages in audio recordings, etc.). I create digital questionnaires with closed questions that provide feedback both if the answers are correct, with an explanation of why they are correct, and, if they are incorrect, with an explanation of why they are wrong. I am familiar with different digital tools that allow the creation of graphical representations of learning assessment adapted to the maturity level of pupils. I am aware of the regulations on the duty to inform pupils and families about the progress of the learning process and the precautions to be taken in the use of the digital technologies used for this purpose in order to guarantee the protection of personal data and to comply with the duty of confidentiality.
	A2. Selection and guided use of the school's digital technologies to make decisions, based on the data obtained in the assessment process, and to provide feedback, information and guidance on teaching and learning according to their purpose and audience.	<p>4.3.A2.1. Uses with guidance and under supervision, digital technologies provided by the EA or school leaders to make decisions about teaching and learning on the basis of data obtained in assessment processes.</p> <p>4.3.A2.2. Applies, with advice, pedagogical, didactic, ethical and technical criteria when selecting digital technologies to inform and provide feedback and guidance to</p>	<p>I use, with the help of other teachers, digital technologies provided by the EA or by school leader to inform and provide feedback on evaluation processes using established guidelines.</p> <p>Examples:</p> <ul style="list-style-type: none"> I use manuals or video tutorials to provide feedback with the school VLE tools on the tasks carried out by the pupils. I am aware of and use with help the communication channels established by the EA or school leaders to provide feedback to students and their families. I set up, with the help of another colleague, the marker of the virtual environment of the school in order to offer continuous information to the students about their learning process.

		<p>students and families on the learning process.</p> <p>4.3.A2.3. Uses, with the guidance of other teachers, the school guidelines when using digital technologies to inform assessment processes and to provide or plan guidance and adaptations to improve teaching and learning.</p>	<ul style="list-style-type: none"> • I assess, with the support of other teachers, the level of difficulty of the exams taken by pupils through digital media based on their answers, in order to guide the necessary actions to redirect teaching activities. • I use, in collaboration with the school counsellors, the school's digital tools to provide regular individual feedback on a pupil's difficulties with mathematics and guidance on what the family should look out for and what support they can provide at home. • I am aware of and apply, following the guidance of a colleague, the school's data protection protocols and the regulations on the transmission of information about the assessment of pupils in specific cases of separation or divorce, loss of parental authority, abuse or minors under legal guardianship.
<p>B. Autonomous use of the school's digital technologies to make decisions and provide feedback, information and guidance on the development of teaching and learning processes based on the data obtained in the assessment processes.</p>	<p>B1. Autonomous and selective use of the school's digital technologies to provide feedback, inform and guide teaching and learning based on the data obtained in the different assessment processes.</p>	<p>4.3.B1.1. Autonomously uses pedagogical, didactic, technical, ethical and subject matter criteria to make decisions on the orientation of teaching and learning processes based on data obtained through the use of digital technologies in the different assessment processes.</p> <p>4.3.B1.2. Communicates to the school, the teaching and support team, the pupils and their families, as appropriate, the results of the different assessment processes through digital technologies following the guidelines established by the EA or by the school leaders.</p> <p>4.3.B1.3. Applies the personal data protection and safety guidelines established by the EA and by the school leaders in the use of digital technologies for the processing of assessment reports.</p>	<p>I apply protocols and autonomously use digital technologies provided by the EA or by the school leaders to make decisions, provide feedback, inform and guide teaching and learning processes based on the data obtained in the assessment processes.</p> <p>Example:</p> <ul style="list-style-type: none"> • I autonomously use the schools VLE tools to provide feedback. • I adjust the degree of difficulty of the activities suggested in a unit of work on the basis of the analysis of the graphical learning curve of my pupils in that theme. • I set up the marker on the school virtual learning platform so that pupils and families have continuous access to information on the assessment of learning. • In the form class meeting I explain to the families how they can access the results of the assessments on the digital platform and how to interpret the information obtained. • I participate in assessment processes of the different improvement plans of the school in which digital technologies are used. • I provide support to the school counsellors and form teachers, using the school platform, with the assessment information corresponding to the monitoring of gifted students, applying safety and data protection guidelines.

	<p>B2. Contextualised adaptation of procedures and systems developed through digital technologies to integrate assessment-related data and facilitate the understanding of information and guidance on teaching and learning processes.</p>	<p>4.3.B2.1. Adapts procedures to automate the integration and presentation of assessment-related data from different sources using digital technologies.</p> <p>4.3.B2.2. Uses digital technologies to make it easier for pupils and their families to understand the data obtained in the different assessment processes.</p>	<p>I adapt the configuration and use of the school's digital tools to integrate the data obtained in the assessment in a way that enriches and facilitates decision-making, the monitoring of teaching and learning processes and feedback, information and guidance.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I have a protocol, developed from computational thinking techniques, to systematise the way I give feedback to my pupils by integrating data from different sources. • I set up, using digital technologies, a control panel that integrates assessment information (task scores, time taken to complete the activity, number of attempts, etc.) to facilitate individualised consultation by pupils and their families and to provide me with clear information on the actions to be taken to improve the teaching and learning process. • I set up a digital tool in the school that allows to represent, in real time and by means of a system of colours projected on the interactive panel of the classroom, the degree of execution of the tasks that pupils must carry out in group in a given time, in order to provide them with information that helps them to self-regulate their work. • I use digital technologies to automatically transform the quantitative information obtained in the assessment process into iconographic information that can be understood by my early childhood education pupils. • I prioritise automated decision-making systems in which I can configure the variables and the relationships between them that are applied in this process. • I use the data on the type of errors made by my pupils in the tasks associated with a particular learning process to review the actions contemplated in the programme and to distribute more effectively the tasks carried out in the classroom with the support specialist in a shared teaching model. • I develop audio-visual materials that enable families and pupils to better understand the data provided through the assessment information tools provided by the school.
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C. Evaluation, configuration and development of new systems, using digital technologies, to provide feedback, inform and guide teaching and learning based on the data obtained in the different assessment processes	C1. Analysis and evaluation of the systems for providing feedback, informing and guiding teaching and learning employed in the school.	<p>4.3.C1.1. Configures/Analyses the digital technologies used at school for information and guidance on assessment, both in their use for communication with pupils and families and, internally, for the coordination of teaching teams and the improvement of teaching and learning processes.</p> <p>4.3.C1.2. Contributes to and/or coordinates the assessment of the decision-making processes of the school's improvement plans aimed at informing, guiding and making decisions on teaching and learning processes, using digital technologies.</p> <p>4.3.C1.3. Contributes to and/or coordinates decision-making and action on the basis of the data obtained in the assessment of the digital plan or other school plans using digital technologies.</p>	<p>I analyse and evaluate the digital systems used in the school to provide feedback and inform and guide teaching and learning based on the data obtained in the different assessment processes.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I analyse the automated decision-making programmes used in the school in order to know their limitations and the biases they may employ so that the orientation based on the results obtained is based on ethical criteria and not only on the data obtained. • I coordinate the use of digital technologies in processes where the results of automated programmes are contrasted with classroom observations. • I configure, following the school's guidelines, access for families to the virtual environments so that they can consult the evaluation of the learning process of their children or the minors they are in charge of. • I make a functional analysis of the control panel where the information on student assessment should be collected and make suggestions for improvement. • I coordinate and/or actively participate in the design of the digital assessment reports provided to families. • I coordinate actions of the school for parents aimed at understanding the assessment reports obtained by digital means and the processes to be faced in families based on the conclusions obtained. • I lead the actions of the school digital plan aimed at improving processes to provide feedback, inform and guide teaching and learning based on the data obtained through assessment.
	C2. Design of new systems to provide feedback, inform and guide teaching and learning based on the data obtained in the different assessment processes	<p>4.3.C2.1. Participates in research projects on the role of digital technologies in the processes of information, feedback, guidance and decision-making based on the data obtained in the assessment.</p> <p>4.3.C2.2. Designs new models of integration and representation of assessment data that facilitate decision-making, information and guidance of teaching and learning</p>	<p>I transform information, feedback and decision-making processes based on the results obtained from the assessment of teaching and learning processes through digital technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I suggest new systems, using digital technologies, to improve real-time feedback in learning activities in virtual environments. • Design systems for the development of individual learning plans, based on the analysis of the evidence obtained through digital technologies, offering functionalities that allow teachers to control this process. • I critically analyse automated results obtained from data processing programmes and new feedback formats.

		<p>processes using digital technologies.</p>	<ul style="list-style-type: none"> • I train other teachers in the process of thinking about the use of systems and intervention in automated decision-making, as well as the legal requirements that must be met for their use. • I am collaborating in the design of a digital system to provide combined information on the labour market integration of graduates of certain degrees, the probability of successfully completing these studies correlated with compulsory education scores and job preferences expressed by those who have completed this training. • I am involved in a group researching and promoting transparency in the publication of algorithms and variables used in applications that offer automated assessments that are not configurable by teachers. • I am collaborating in the creation of a code of ethics on the use of digital technologies in educational assessment processes.
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Area 5. Empowering learners

Among the principles of the Spanish education system, set out in Article 1 b) of the Spanish law of education LOE as amended by the LOMLOE, is that education should act "as an element that compensates for personal, cultural, economic and social inequalities, with special attention to those arising from any type of disability" and, in this sense, digital technologies enable access to information, communication and knowledge, reducing or eliminating physical, sensory or socio-economic barriers. On the other hand, the "digital divide", caused by unequal access to devices, the Internet and a lack of digital skills, poses a risk to the right to education under equal conditions for pupils in situations of socio-educational vulnerability.

Therefore, the digital competences in this area should enable teachers to act, in collaboration with schools, administrations and families, to overcome and compensate for existing inequalities (e.g. access to digital technologies or digital competence) and to ensure accessibility for all learners according to their personal educational needs.

Likewise, teachers' use of digital technologies should contribute to providing attention to pupils' personal needs by offering learning activities adapted to the level of competence, interests and needs of each pupil. This enhances one of the main advantages of digital technologies in education: their ability to support learner-centred pedagogical strategies, encouraging active engagement in the learning process and helping students to take responsibility for it.

In order to realise this empowerment of learners, it must also be understood that pupils' competences in the appropriate and inclusive use of these technologies imply knowledge of the underlying pedagogical models, the ability to configure them, use them and assess their suitability to achieve learning objectives taking into account ethical and didactic considerations.

In this regard, one should bear in mind that part of the technologies aimed at personalising learning derive from data processing and the application of artificial intelligence developments. Therefore, the use of these technologies will be subject to the authorisation of the data protection officer, whether this is the educational administration or the school leader. Furthermore, it is essential that teachers actively intervene when using applications based on automated decision-making processes and supervise them, so that pupils' rights are protected, overcoming discriminatory biases or algorithmic predictions that may limit their potential progress, while promoting creative and critical learning as an alternative to mechanistic learning focused on standardised tasks.

The use of profiling as a basis for learning development, if authorised, should be carried out from an ethical point of view, taking into account the necessary digital guarantees for all pupils and avoiding the accumulation and processing of unnecessary data. Furthermore, the data collected should be pedagogically relevant and its use should always be oriented towards the benefit and improvement of pupils learning. The information that can be generated through the use of technology should be protected and its access controlled according to the profiles and responsibilities of the different professionals involved in the design of the new learning environments.

To sum up, all actions carried out in this area must comply with current state and European legislation on accessibility and on the protection of personal data, privacy and digital rights and with the principles set out in the LOE, as amended by the LOMLOE and, specifically, in article 111bis.

Teachers duties that are developed through the competences of this area are:

- a) Planning and teaching of the subject areas, fields, modules or curricular aspects assigned to them.*
- c) Tutoring pupils, directing and guiding their learning and supporting their learning process in collaboration with their families.*

d) Educational, academic and vocational guidance of pupils, in collaboration with specialised services or departments where appropriate.

e) Taking care of the intellectual, emotional, psychomotor, social and moral development of pupils.

f) Promotion, organisation and participation in complementary activities, inside or outside the school premises, organized by schools.

g) Ensuring that school activities take place in an environment of respect, tolerance, participation and freedom in order to foster pupils' values of democratic citizenship and a culture of peace.

h) Researching, experimenting, and continuously improving teaching processes.

5.1. Accessibility and inclusion

Competence description

Using digital technologies to facilitate learning for all pupils by removing contextual barriers to their presence, participation and progress. Ensuring physical, sensory and cognitive accessibility to digital resources. Adopting measures that promote equity and make it possible to reduce or compensate the digital divide and the impact of socio-cultural and economic inequalities on learning

Contextualising competence 5.1 in teaching

This competence enables the realisation of educational goals in classroom practice. Without a teaching model that focuses on the educational success of all pupils, the main objective of the education system will not be fully developed.

It is applied when including aspects in the syllabus aimed at guaranteeing access to education for all pupils, also using digital technologies, taking into account two main factors:

- Digital technologies should not be an element that limits or prevents access to learning for any reason.
- Digital technologies should be used to support learning in cases where pupils are unable to access information, communication or due to physical, sensory, intellectual or other limitations.

Special attention should therefore be paid to the analysis of socioeconomic and cultural factors associated with the integration of digital technologies in education, as their use should not become a factor that aggravates the digital divide and future discrimination of pupils. On the contrary, access to digital literacy experiences should be a fundamental element in reducing this divide, and therefore access to devices, connectivity, software and services used and the digital competence of learners and their families should be taken into account in order to provide them with support where necessary.

In short, this competence focuses on the application of the principles of equity, universal accessibility and design for all in the integration of digital technologies in teaching practice in order to guarantee equal opportunities and the full development of learning for all pupils.

Teacher's ability to select, create or share accessible content is addressed in area 2. This competence focuses on the accessible use of virtual content, services and platforms.

On the other hand, the whole process of didactic design taking into account the aspects linked to accessibility are dealt with in competence 3.1 Teaching. However, this competence develops the capacity of teachers for its practical application, guaranteeing accessibility and educational inclusion

so that all pupils can participate in a common teaching and learning context regardless of their personal conditions.

This general approach, which must guide professional performance, must be completed with competence 5.2. Addressing personal differences in learning, in order to meet the needs of each and every pupil with the mediation of digital technologies.

The key elements of this competence include:

- Technical knowledge of digital technologies associated with accessibility of resources and in digital educational environments
- Technologies as a factor that compensates for inequalities and facilitates access to education. Digital divide
- Digital technologies as resources that can extend and enhance learning for all pupils
- Data protection. Digital rights and guarantees
- e-Inclusion and e-Accessibility legislation

Actions that demonstrate this competence include:

- Participating in the adoption of solutions to reduce the digital divide among pupils in terms of availability, knowledge and use of both software and technological equipment.
- Selecting educational technologies, content and pedagogical strategies that ensure physical, sensory and cognitive accessibility for all learners.
- Using digital resources and implementing teaching strategies that offer all learners opportunities for participation, as well as multiple ways of presenting information and expressing what they have learned, without any possibility of discrimination on socio-economic or cultural, sex or gender, or any other grounds.
- Using assistive technologies for learners who are more vulnerable in their access and participation in a digital context (e.g. for learners with specific needs such as motor, cognitive, sensory).
- Continuously monitor and evaluate the adequacy of the measures implemented to improve e-Accessibility in order to make appropriate changes.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

5.1. Accessibility and inclusion			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge of existing technological solutions to achieve universal accessibility and their incorporation into educational practice.	A1. Knowledge of the pedagogical use of digital technologies to facilitate accessibility and inclusion of all learners.	<p>5.1.A1.1. Knows how the technological resources existing in the educational sphere work to facilitate universal accessibility and how to integrate their use into educational practice.</p> <p>5.1.A1.2. Understands the positive and negative effects of including digital technologies in teaching and learning.</p> <p>5.1.A1.3. Knows the principles of universal accessibility and the pedagogical application of digital technologies for the inclusion of all pupils, as well as the regulations in force in this respect.</p>	<p>I am familiar with the principles of universal accessibility and the pedagogical use of digital technologies for the inclusion of all learners, as well as the corresponding regulations in force.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I analyse the parameters of digital accessibility in office documents: information architecture, integration of multimedia elements, use of colour and contrasts, styles, tables, hyperlinks, etc. • I am familiar with assistive technology and its potential uses in education, e.g. the use of communicators. • I know the procedures to follow to guarantee the web content accessibility guidelines (WCAG) when integrating them in virtual environments. • I understand the constraints of the digital divide in education, e.g. connectivity, and indicate possible solutions to address them, such as downloading content to devices when students are at school, or the use of offline tools. • I am familiar with technological solutions for accessibility in web environments, e.g. screen readers or operating system accessibility tools. • I am familiar with some peripheral devices that facilitate learner interaction in digital environments, e.g. switches or scanning software.

	<p>A2 Using the principles of universal accessibility and inclusion in their teaching practice with the aid of digital technologies</p>	<p>5.1.A2.1. Selects and uses in controlled or supervised environments, basic accessibility options with the technology present in the school.</p> <p>5.1.A2.2. Knows the guidelines and measures to reduce the digital divide adopted at the school and/or by the EA and applies them with the guidance of other teachers.</p>	<p>I select and use, in controlled environments or with guidance, the basic accessibility options of digital technologies in the school and collaborate in the application of the measures planned to compensate for the digital divide of school pupils.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I configure with guidance, the accessibility options of the operating system in the school's digital plan, e.g. the high contrast mode of the desktop theme. • I select the most appropriate joystick to control the movement of the cursor on the computer screen when the pupil has motor issues with the advice of the school's counselling services. • I develop, with guidance, classes in mixed settings when there are pupils who cannot attend school for health reasons. • I identify the conditioning factors of the digital divide of the school's pupils and apply the solutions suggested in the school digital plan with guidance, e.g. using free software office applications.
<p>B. Applying universal accessibility solutions when using digital technologies in teaching practice to respond to learner diversity</p>	<p>B1 Adoption of a conventional and autonomous use of digital technologies provided by the EA or by the school leaders, respecting the principles of accessibility and inclusion.</p>	<p>5.1.B1.1. Independently uses the accessibility options of the school's digital technologies, selecting those most appropriate for pupils.</p> <p>5.1.B1.2. Collaborates in the implementation of the measures adopted by the EA, and by the school to compensate for the digital divide and promote the educational inclusion of all pupils in the use of digital technologies.</p>	<p>I know, select, configure and use, in my teaching practice, the digital technologies in my school in such a way that I facilitate my students' access to education, compensating for existing inequalities.</p> <p>Examples:</p> <ul style="list-style-type: none"> • To support the monitoring of the sessions by pupils with hearing difficulties, I activate the automatic subtitling of the school's videoconferencing service in the mixed teaching and learning processes and I use an FM system for hearing aids and cochlear implants during the face-to-face sessions. • I use the digital camera with macro in my classroom to project, both on the interactive screen and on the pupils' monitors, to visualise the details of the reproductive apparatus of a flower.

			<ul style="list-style-type: none"> • I configure the mouse to be used by left-handed pupils. • I send families the necessary information on the use of digital resources and on support training actions included in the school's digital plan and developed by the school, by the parents' association, or by other entities such as the city hall. • I collaborate with members of my teaching team to use the assistive technologies available in the school, e.g. in the creation of dashboards for dynamic communicators.
	<p>B2 Adapting digital technologies and their use to different educational contexts to improve the learning of all pupils</p>	<p>5.1.B2.1. Evaluates the accessibility options of the digital technologies available at the school in order to make selective and adapted use according to the teaching and learning context.</p> <p>5.1.B2.2. Adapts technological solutions for inclusion in any educational context and teaching and learning situation, enabling the participation and progress of all learners in the same didactic process.</p>	<p>I modify the usual use and configuration of conventional and accessibility technological solutions to adapt them to any educational context and teaching-learning situation, allowing the participation and progress of all pupils in the same didactic process.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I assess the suitability of the technologies used in my teaching practice and categorise educational technology according to its possibilities for universal accessibility in order to select the most appropriate for each context and teaching-learning situation and draw up a protocol to help me make decisions. • I modify the touch sensitivity of the digital screens so that all pupils can make their digital presentations, e.g. by using both the side of the fist and the finger to select or click and, depending on the choice, an automatic increase in the number of icons. • I adapt conventional technology, e.g. digital tablets, to turn them into augmentative and substitute assistive communication tools. • I collaborate in a working group with the school's counsellors to provide new technological solutions that favour accessibility to the contents of the virtual environment.

			<ul style="list-style-type: none"> • I share information with the school community about technological solutions related to universal accessibility, educational inclusion and bridging the digital divide, e.g. I design aids for families to configure videoconferencing tools so that conversations are subtitled in mother tongues. • I configure the school virtual learning environment to show the different accessibility options, e.g. the size of texts and icons or the contrast of the theme.
<p>C. Experimentation of new accessibility solutions and pedagogical strategies of use to ensure the inclusion of all learners in the same didactic process.</p>	<p>C1. Evaluation of educational accessibility and inclusion practices using the school's digital technologies.</p>	<p>5.1.C1.1. Analyses and evaluates the characteristics of the school's digital technologies as an element favouring the accessibility and inclusion of pupils, providing solutions for improvement so that all pupils participate in the same didactic process.</p> <p>5.1.C1.2. Actively collaborates in or coordinates the development and evaluation of pedagogical strategies that enable the joint participation of all students in the teaching and learning processes using digital technologies.</p> <p>5.1.C1.3. Provides formal advice or training to other teachers on the use of digital technologies to facilitate accessibility and inclusion of all learners in teaching and learning processes.</p>	<p>I coordinate or actively participate in actions at my school to implement the principles of universal accessibility with the use of technology and to evaluate its impact on the inclusion of pupils, supporting other teachers in this task.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I carry out assessments of the accessibility of the school's technology, e.g. the website and the different information platforms of the school, detecting its shortcomings and suggesting improvements. • I contribute proposals in the design of the school digital plan in relation to the use of assistive technologies, incorporating the relevant improvements after assessing its impact, e.g. optimising the use of adapted keyboards, switches and mice. • I coordinate a seminar for the development of pedagogical strategies that favour the joint participation of ASD pupils using digital technologies. • I participate in decision-making when implementing a digital resource or acquiring technological equipment for the school, in order to ensure universal accessibility, e.g. acquiring new monitors that allow optimised use by amblyopic pupils. • I coordinate a comprehensive programme to eliminate the digital divide for pupils at risk of social exclusion and families for the development of digital competence in

			<p>which the school collaborates with social services and non-profit associations.</p> <ul style="list-style-type: none"> • I advise other teachers on the use of the switches when using the screen-scanning software. • I configure the school's virtual learning environment in such a way as to guarantee accessibility to its functionalities, as well as to the contents and activities and the personalisation of the interface according to the characteristics of the pupils.
	<p>C2. Innovation of inclusive education practices through digital technologies</p>	<p>5.1.C2.1. Investigates the impact of aspects related to accessibility and inclusion of digital technologies on the improvement of teaching and learning processes and suggested new pedagogical strategies.</p> <p>5.1.C2.2. Collaborates in the development of new functionalities in digital technologies to improve accessibility and educational inclusion.</p>	<p>I innovate educational inclusion practices, proposing new pedagogical strategies that make use of digital technologies or improve them by identifying and/or creating new functionalities, based on research or scientific evidence.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I have published research on improving learning through accessibility features in office software, including specifications on how they should be used to ensure inclusion. • I lead a research project on the relationship between the development of digital competence and employability. • I advise other education professionals on assistive technology solutions to be adopted according to the target audience. • I am involved in a research project on standards for automatic audio transcription files to make it easier to incorporate subtitles into multimedia materials. • I collaborate in the development of a system for the adaptation of the user interface in the virtual learning environment according to the reading competence of the pupils (reader, neo reader and non-reader).

5.2. Addressing personal differences in learning

Competence description

Using digital technologies to accommodate pupil differences and guaranteeing their digital rights so that all can achieve the learning objectives.

Contextualising competence 5.2 in teaching

In general terms, the term "personalised learning" will be understood as the interpretation suggested by the UNESCO International Bureau of Education (IBE) of this concept in its document *Personalised Learning* (2017)⁴⁰, according to which "Personalized learning is teaching and learning that is focused on the background, needs, potential and perception of the learner. It is learner-centred education".

This conception implies a learner-centred educational model, in which teaching intervention aims to ensure that each and every pupil achieves the learning objectives set. This complex approach to teaching requires the implementation of a wide and diversified range of strategies that actively engage students and adapt to their needs and interests in order to make learning comprehensible, achievable and relevant. This is why this area is called "Empowering learners" and incorporates teacher competences to use digital technologies in such a way that all pupils can access the teaching and learning processes without barriers, receive individual attention to their needs and make the desire to learn their own. The teaching model to which it responds could be represented as follows:

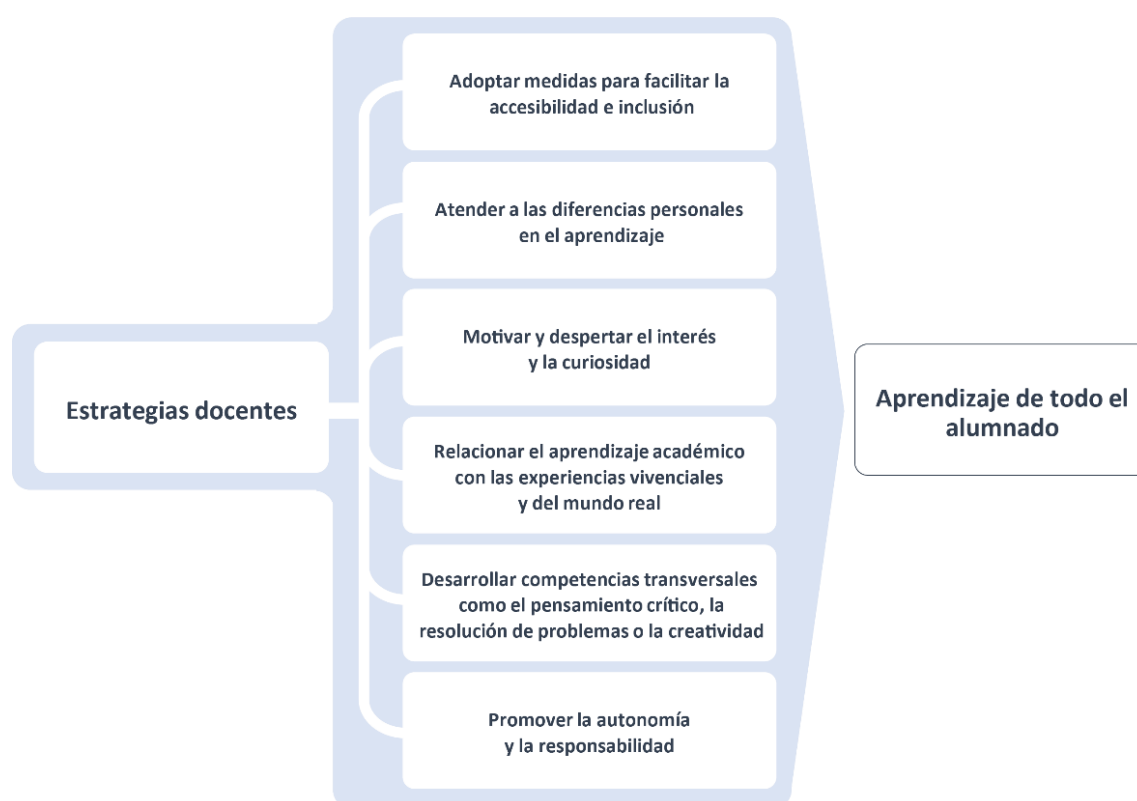


Illustration 22. Teaching strategies for the learning of all pupils. Spanish Learning Technologies Working Group (GTTA) for the revision of the SFDCT. Creative Commons BY-SA 4.0

⁴⁰ United Nations Educational, Scientific and Cultural Organization (UNESCO) and International Bureau of Education (IBE) (2017). Personalized Learning (Training Tools for Curriculum Development Series). Retrieved from UNESDOC Digital Library on 25/01/2022: <https://unesdoc.unesco.org/ark:/48223/pf0000250057>

This competence focuses on improving the individual learning of each and every pupil through the use of digital technologies for the design and implementation of individualised measures that make it possible to respond to the personal needs detected in the assessment processes, fundamentally in those of a diagnostic and formative nature. It involves the use of digital technologies and resources to implement different strategies that look to provide the personal attention that each pupil may need, from the development of training itineraries and reinforcement plans to mentoring and peer teaching practices or ensuring flexibility and the widening of pupils' choice in relation to the activities to be carried out or the way to complete them. It should be bear in mind that it is not possible to offer an exhaustive list of these interventions, which should be adapted to specific situations and to the needs, characteristics and degree of maturity of the students, and that they should be aimed at the achievement of learning objectives by all pupils, prioritising their interaction and participation in the same social process which avoids isolation, generating high expectations and promoting confidence in their own abilities. The intervention of teachers lies in providing each pupil with the necessary support and reinforcement appropriately and timely in different learning situations.

In relation to the use of some digital technologies such as adaptive systems and so-called 'intelligent tutoring systems', this process is heavily conditioned by factors such as profiling, prediction and automated decision-making through algorithms. Furthermore, they can also lead to excessive standardisation of activities, and therefore of responses and learning, which can be demotivating and hinder the development of transversal competences. In some cases, these systems can lead to the limiting of pupils' learning options, especially in compulsory education stages, to pigeonholing them and to consolidating situations of inequality by unduly limiting the type, format, subject matter or degree of difficulty of the activities and content offered to pupils.

For these reasons, it is essential that teachers know how to interpret the model underlying this type of decision-making and act in a way that ensures the educational success of all pupils in personalised, fair and ethically and pedagogically well-designed teaching and learning processes. In any case, the use of these applications inevitably requires the authorisation of the personal data protection officer, as an educational administration or the school leader, after the prescribed evaluation and audit.

The deployment of this competence would require, where appropriate, the prior development of a multilevel syllabus, the design of which would be the subject of competence 3.1. Teaching, and would complement the actions associated with competence 3.2. Guidance and learning support, in which teachers provide general guidance and interact, both individually and collectively, with learners, offering tools, content, activities or additional resources for support or further activities.

On the other hand, the competences of area 4 are closely linked to personalised attention to learning, as they will provide us with the necessary information to be able to detect such needs and adjust teaching interventions. Finally, the creation of learning pathways will depend on the teaching competence for the selection and creation of specific content (area 2).

The key elements of this competence include:

- Techniques, models and pedagogical strategies to provide personalised attention to students (personalised plans, itineraries, reinforcement and extension activities, peer teaching, etc.) and functionalities of digital technologies to implement them.
- Digital technologies to respond to personal learning needs, whether these are extremely specific or less specific.
- Understanding the functioning of algorithms and artificial intelligence developments applied in this field.
- Digital rights and guarantees.

Actions that demonstrate this competence include:

- Using digital technologies to address the specific educational support needs of a particular pupil (e.g. dyslexia, ADHD, high abilities).
- Enabling different learning paths, levels and paces when selecting and implementing digital learning activities.
- Using digital technologies to develop individualised learning plans.
- Checking the digital resources and tools that enable the design of personalised learning plans comply with all data protection guarantees and support the achievement of the learning objectives of all pupils, encouraging the highest development expectations in all of them.
- Knowing the parameters and algorithms used in automated decision-making applied in a learning platform and monitoring them individually in order to intervene critically and selectively in the process while adapting the degree of intervention to their potential risk.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

5.2. Addressing personal differences in learning

Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge of digital resources to respond to individual learning needs under ethical and pedagogical criteria.	A1. Theoretical knowledge of the functionalities of digital technologies to respond to individual pupils' needs and of the pedagogical criteria for their use.	<p>5.2.A1.1. Knows the pedagogical criteria to be applied when using digital technologies to meet the different types of learning needs of pupils.</p> <p>5.2.A1.2. Configures basic functionalities in learning platforms to develop different pedagogical strategies to personalise learning processes.</p> <p>5.2.A1.3. Understands, in general terms, the principles of operation of digital technologies using artificial intelligence developments and is aware of the applicable regulations and the ethical and pedagogical risks that their use may entail.</p>	<p>I know and understand the functioning of digital technologies that make it possible to respond to individual learning needs, as well as the ethical and pedagogical criteria that should guide their use.</p> <p>Examples:</p> <ul style="list-style-type: none"> • In a case study involving a pupil with a possible dyslexia problem, I select the most appropriate technology to support the pupil's learning (audio books, screen readers, text-to-speech devices). • I know of apps for developing mental arithmetic that can be configured to suit different learning paces. • I know how to set up lessons in the VLE so that pupils can voluntarily choose to access supplementary information while doing a task. • I am aware of some applications or developments of machine translation software with speech recognition and transcription which can be used by learners with a mother tongue other than the target language. • I analyse the system used by mobile language teaching Apps to determine the criteria used to grade the difficulty of the proposed tasks. • I read the privacy rules of mobile apps for learning coding in order to check whether they comply with current data protection regulations. • I identify the advantages and disadvantages of using a commercial platform with an adaptive learning system based on learner preferences for a particular type of content and activity format.

	<p>A2. Supervised use of the school's digital technologies to respond to pupils' personal learning needs.</p>	<p>5.2.A2.1. Knows the digital resources available at the school and uses them with guidance to meet the personal learning needs of pupils, applying a varied range of strategies following ethical and pedagogical criteria.</p> <p>5.2.A2.2. Identifies and understands, with advice from other professionals, the algorithms used by digital technologies provided by the EA or the school leader, which use learner data to personalise learning processes in an automated way.</p>	<p>I understand the functioning and use with guidance of the digital technologies provided by the EA or by the school leader which allows me to respond to my personal learning needs following ethical and pedagogical criteria.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I select, in collaboration with the person responsible for ICT at my school, the most appropriate software repertoire so that each of my students can choose the application they wish to use to make a multimedia presentation on COVID-19. • I use, with guidance, different digital technologies available in my school to carry out activities that facilitate a pupil's choice between different options. • I suggest different types of multimedia productions (digital comic, podcast, digital book, audiobook, video, radio soap opera) for my pupils to work on narrative, following the multilevel syllabus. • I use programmes, recommended by my school's counsellors' team, for late school pupils learning to read and write. • I set up, with guidance, a lesson on operations with integers that applies different learning paths depending on the answers of each of the pupils in the tasks.
<p>B. Use of digital resources and design of strategies to respond to pupils' needs following ethical and pedagogical criteria in order to achieve the learning objectives.</p>	<p>B1. Autonomous use of digital technologies in teaching to respond to the diversity of pupils' learning needs.</p>	<p>5.2.B1.1. Uses the digital resources available at school to incorporate them selectively and inclusively into the syllabus.</p> <p>5.2.B1.2. Identifies the pedagogical parameters and models associated with the digital technologies provided by the EA or by the school leaders to provide</p>	<p>I make autonomous use of digital technologies provided by the EA or by the school leaders which allow me to generate personalised learning responses in the same teaching context under ethical and pedagogical criteria.</p> <p>Examples:</p>

		personalised responses to learning processes and the use made of AI to provide these responses.	<ul style="list-style-type: none"> • I select focused games in the teaching of Newton's Laws that allow my pupils to progress at different paces in their understanding. • I use the itineraries and personalised didactic sequences of an adaptive platform provided by the school leader to work on the spatial capacity of my pupils when representing three-dimensional objects in two dimensions through technical drawing. • I offer a sequence of derivative calculation activities of increasing difficulty so that pupils can solve the operations in pairs and receive precise feedback on possible mistakes they have made and then suggest the resolution of other exercises that reproduce the same problematic situation. • I use a flipped classroom strategy, integrating the contents and videos with explanations in the school's VLE so that each pupil has the opportunity to review the contents at home as many times as needed, and to dedicate the lesson to individualised guidance on how to comment on the suggested philosophical text. • I complete using digital technologies, the reinforcement plan programmed by the teaching team, with the advice of the guidance service, team or department, in order for a pupil to achieve the learning objectives. • I apply the error-free learning model when I suggest closed activity sequences, e.g. when developing an educational breakout using digital technologies.
	B2. Transferring the use of digital technologies and adopting new pedagogical strategies to respond	5.2.B2.1. Configures the digital technologies available at the school and uses new functionalities to improve the response to the personal needs of their pupils,	I analyse and improve, from a technical, ethical and pedagogical point of view, the use that I make of the digital technologies provided by the EA or by the school

	<p>to learners' personal needs in new learning situations.</p>	<p>adapting them to the achievement of new learning objectives and situations.</p> <p>5.2.B2.2. Integrates into their teaching practice, after required adaptation, new pedagogical approaches that use digital technologies to respond to the learning needs of their pupils in a personalised way.</p> <p>5.2.B2.3. Analyses the AI processes that use digital technologies for personalised attention to pupils provided by the EA or the school leaders in order to use them selectively and modify them, within the possibilities offered by the application, their configuration so that they comply with the ethical and pedagogical principles set out in the school project.</p>	<p>leaders to respond to the personal learning needs of my pupils and integrate new practices that allow me to provide more appropriate responses.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I provide my pupils with different types of digital devices (mobile phone, tablet, digital camera, laptop, etc.) and free software to work, in small groups, on the language of journalism, creating a news item as correspondents using the format they prefer. • I develop an application with a presentation programme that pupils can view on their tablets so that, during the process of learning to read and write, the text is accompanied by images and sounds, selectively, depending on the interactions. • I adapt the pedagogical approach of learning landscapes by crossing Bloom's taxonomy with the key competences to create differentiated sequences of activities. • I set up a system that combines the webquest format, surveys and inquiry-based learning so that my pupils understand that cultural movements are a consequence of the socioeconomic circumstances in each historical period in a common research process, albeit based on the personal choice of a specific movement (Hellenism, romanticism, millenarianism, hippie culture, rock and roll, punk movement). • I have analysed the decision tree of the adaptive learning system used by the school's platform in order to optimise its functioning in relation to the development of numeracy skills by my pupils. • I configure the contract simulator used in the VET module I teach so that it adapts to my pupils by choosing the vehicular language and the easy
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			reading parameter according to the different profiles of my pupils, adding the different languages to its library.
C. Research and innovation on the use of digital technologies to respond to pupils' personal needs during teaching and learning processes.	C1. Evaluation of the suitability of the pedagogical strategies and technological resources used in the school to respond to the personal learning needs of the pupils and decision making for their improvement.	<p>5.2.C1.1. Coordinates and evaluates the actions of the school aimed at the use of digital resources for the attention and monitoring of pupils' personal learning needs, applying functional, ethical and pedagogical criteria and makes the appropriate suggestions for improvement to incorporate them into the digital plan.</p> <p>5.2.C1.2. Evaluates digital technologies to meet the learning needs of pupils in order to identify new functionalities and determine whether their design responds to ethical principles that safeguard the rights of pupils and are consistent with the school project.</p> <p>5.2.C1.3. Offers assistance and support to other teachers in making efficient, creative and critical use of the digital technologies developed to meet personal learning needs.</p>	<p>I assess the suitability, from an ethical, pedagogical and functional point of view, the digital strategies and resources used to respond to the educational needs of pupils through the application of the digital plan and the technologies provided by the EA or by the school leader.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I establish criteria for the evaluation of educational technological resources that favour the personalisation of teaching through proposals for the integration of learning experiences that promote the adaptation of the levels of difficulty to the development of the pupils' level of competence, for their incorporation into the school digital plan. • I check the automated decision-making system of any resources designed to address personal learning needs before suggesting them to the EA or the school leader for inclusion in the school digital plan, e.g. an adaptive learning platform. • I have designed a pedagogical and organisational project consisting of dedicating two consecutive teaching sessions of the weekly timetable of the groups at each level to improving communicative competence in a foreign language in a primary school with two classes per year group, with the aim of optimising digital resources and the action of the language assistant in attending to the personal learning needs of all the pupils. To this end, three groups are created from the two groups per year in which the pupils work in pairs and which are attended simultaneously by the two

			<p>teachers and the assistant, who guide the rotating work in the creation of a dialogue, the rehearsal of the role playing and the recording of the conversations held by the pairs of pupils which will be automatically corrected by the voice recognition system implemented in the school's platform.</p> <ul style="list-style-type: none"> • I coordinate a training project at the centre aimed at meeting the individual learning needs of the pupils using the digital technologies provided by the EA through the design of personalised learning programmes.
	<p>C2. Research on the use of digital technologies for personalised attention to learning needs and the creation of new pedagogical models or definition of new functionalities.</p>	<p>5.2.C2.1. Researches the impact of different models of personalised attention through digital technologies on pupils learning.</p> <p>5.2.C2.2. Designs new pedagogical models to provide personalised responses to learning needs by making use of digital technologies.</p> <p>5.2.C2.3. Defines new functionalities for integration in digital technologies dedicated to providing a personalised response to pupils learning processes.</p>	<p>I research the impact on learning of the use of digital technologies to address learners' personal needs in order to design new strategies for their use or devise new functionalities that respond more efficiently, inclusively and ethically to these needs.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I create new systems for the design of learning pathways combining the use of different digital technologies. • I analyse the biases that could arise from the use of artificial intelligence developments to make predictions about pupils from previous demographic and academic data in 'intelligent tutoring systems'. • I develop a research project aimed at optimising the use of robots for the care of pupils with autism spectrum disorders. • I investigate the validity of dialogue tutoring systems supported by AI assistants. • I collaborate in the development of an 'enriched' accessibility environment in which pupils

			<p>participate in group activities together with their peers while receiving personalised attention.</p> <ul style="list-style-type: none"> • I am coordinating a research project to carry out a comparative analysis of the impact on overcoming the learning difficulties of pupils for whom personalised reinforcement plans supported by the use of digital technologies have been developed and those for whom they have not, in order to determine which have proved to be effective.
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5.3. Actively engaging learners in their own learning

Competence description

Integrating digital technologies in pedagogical strategies that promote the active engagement of pupils with a subject, making them the protagonist of their own learning and encouraging the development of complex cognitive operations and transversal competences, such as critical thinking or creativity.

Contextualising competence 5.3 in teaching

This teaching competence is shown in the ability to ensure that the use of digital technologies, both by teachers and pupils, encourages their motivation and commitment to their own learning and the development of their transversal competences. It involves them in solving problems in a particular context by engaging in research and communication with different agents and connecting academic learning with real-world experiences. In short, the aim is to develop meaningful, active, authentic learning in students, aimed at achieving objectives and goals. This requires a creative and critical use of digital technologies, both by teachers when motivating pupils by presenting content or learning experiences, and, indeed by pupils in their learning process. The use of technologies must escape the standardisation of learning proposals that may be present in the performance of other functions linked to other competences. This competence is intrinsically associated with the teacher's ability to develop proposals, problems and learning situations of an open and complex nature, which do not have a single solution that can be arrived at mechanically, but which require students to use strategies of a heuristic nature.

A fundamental aspect of this process is that pupils use digital technologies for the development of their learning according to their level of maturity. Therefore, it is necessary to establish situations in which pupils research, analyse, design, create and present their work using digital media. In this sense, the sequence presented in TIM (Technology Integration Matrix of the Florida Center for Instructional Technology) can serve as a guide to get an overview of how teachers and pupils interact.

In any case, the levels of teacher professional development in the SFDCT do not coincide with those set out in the TIM matrix. In the SFDCT, insofar as it is a framework for the practice of a regulated profession, it is assumed that any teacher, regardless of their level of professional development, should be competent, even if, given the logical lack of A proficiency level, the deployment of their competence to promote pupils' active engagement with their own learning through the use of digital technologies is theoretical in nature or requires the help of other teachers.

		LEVELS OF TECHNOLOGY INTEGRATION				
		ENTRY LEVEL	ADOPTION LEVEL	ADAPTATION LEVEL	INFUSION LEVEL	TRANSFORMATION LEVEL
		The teacher begins to use technology tools to deliver curriculum content to students	The teacher directs students in the conventional and procedural use of technology tools	The teacher facilitates the students' exploration and independent use of technology tools	The teacher provides the learning context and the students choose the technology tools	The teacher encourages the innovative use of technology tools to facilitate higher-order learning activities that may not be possible without the use of technology
CHARACTERISTICS OF THE LEARNING ENVIRONMENTS	ACTIVE LEARNING Students are actively engaged in using technology as a tool rather than passively receiving information from the technology	ACTIVE ENTRY Information passively received	ACTIVE ADOPTION Conventional, procedural use of tools	ACTIVE ADAPTATION Conventional independent use of tools with some student choice and exploration	ACTIVE INFUSION Choice of tools and regular, self-directed use	ACTIVE TRANSFORMATION Extensive and unconventional use of tools
	COLLABORATIVE LEARNING Students use technology tools to collaborate with others rather than working individually at all times	COLLABORATIVE ENTRY Individual student use of tools	COLLABORATIVE ADOPTION Collaborative use of tools in conventional ways	COLLABORATIVE ADAPTATION Collaborative use of tools, some student choice and exploration	COLLABORATIVE INFUSION Choice of tools and regular use for collaboration	COLLABORATIVE TRANSFORMATION Collaborating with peers, outside experts, and others in ways that may not be possible without technology
	CONSTRUCTIVE LEARNING Students use technology tools to connect new information to their prior knowledge rather than to passively receive information	CONSTRUCTIVE ENTRY Information delivered to students	CONSTRUCTIVE ADOPTION Guided, conventional use for building knowledge	CONSTRUCTIVE ADAPTATION Independent use for building knowledge: some student choice and exploration	CONSTRUCTIVE INFUSION Choice and regular use for building knowledge	CONSTRUCTIVE TRANSFORMATION Extensive and unconventional use of technology tools to build knowledge
	AUTHENTIC LEARNING Students use technology tools to link learning activities to the world beyond the instructional setting rather than working on decontextualized assignments	AUTHENTIC ENTRY Technology use unrelated to the world outside of the instructional setting	AUTHENTIC ADOPTION Guided use in activities with some meaningful context	AUTHENTIC ADAPTATION Independent use in activities connected to students' lives; some student choice and exploration	AUTHENTIC INFUSION Choice of tools and regular use in meaningful activities	AUTHENTIC TRANSFORMATION Innovative use for higher-order learning activities connected to the world beyond the instructional setting
	GOAL-DIRECTED LEARNING Students use technology tools to set goals, plan activities, monitor progress, and evaluate results rather than simply completing assignments without reflection	GOAL-DIRECTED ENTRY Directions given; step-by-step task monitoring	GOAL-DIRECTED ADOPTION Conventional and procedural use of tools to plan or monitor	GOAL-DIRECTED ADAPTATION Purposeful use of tools to plan and monitor; some student choice and exploration	GOAL-DIRECTED INFUSION Flexible and seamless use of tools to plan and monitor	GOAL-DIRECTED TRANSFORMATION Extensive and higher-order use of tools to plan and monitor

The Technology Integration Matrix (TIM). A project of the Florida Center for Instructional Technology (FCIT), College of Education, University of South Florida. Retrieved on 09/30/2021 from: <https://fcit.usf.edu/matrix/matrix/>.

This competence is closely linked to competence 3.1. Teaching, since the design and implementation of teaching programmes must take into account both pedagogical strategies and the use to be made of digital technologies to ensure that pupils develop complex cognitive processes to enhance their transversal competences and to engage them in the learning of an area or subject. Thus, competence 3.1 applies the principles and strategies developed through competence 5.3 to facilitate the connection of new learning with learners' prior knowledge, to assign them an active and leading role in the process and to relate what is to be learned to real problems or problems of interest to them, capable of stirring their intellectual curiosity.

The promotion of pupils' engagement with their learning is, on the other hand, related to the development of their autonomy, so that this teaching competence is also linked to 3.4. Self-regulated learning. However, competence 3.4 focuses on processes of metacognition and analysis of the learning process itself and competence 5.3 is linked to the teacher's ability to motivate learners and make them feel engaged in their learning.

Finally, it should be aimed at enabling learners to select and use digital technologies responsibly in the learning process and, to that extent, it is also closely related to the five competences in area 6. Developing the digital competence of learners. The difference lies in the fact that in competence 5.3, learners use digital technologies to develop learning processes in a specific subject or for the development of transversal competences, whereas in area 6, the use of technologies suggested by the teacher is directly linked to the development of pupils' digital competence. Although both competences are aimed at the autonomous use of digital resources, the objective pursued is different.

Applying the TPCK model, if in the case of competence 5.2. Addressing personal differences in learning, teaching action focused mainly on the intersection between technological and pedagogical knowledge, in competence 5.3. Actively engaging learners in their own learning, it shifts towards the confluence between technological and content knowledge, as it requires a solid theoretical-practical knowledge of how digital technologies contribute to learning, research and treatment of issues related to a given field of study, although, obviously, pedagogical knowledge that gives meaning to this integration is also included.

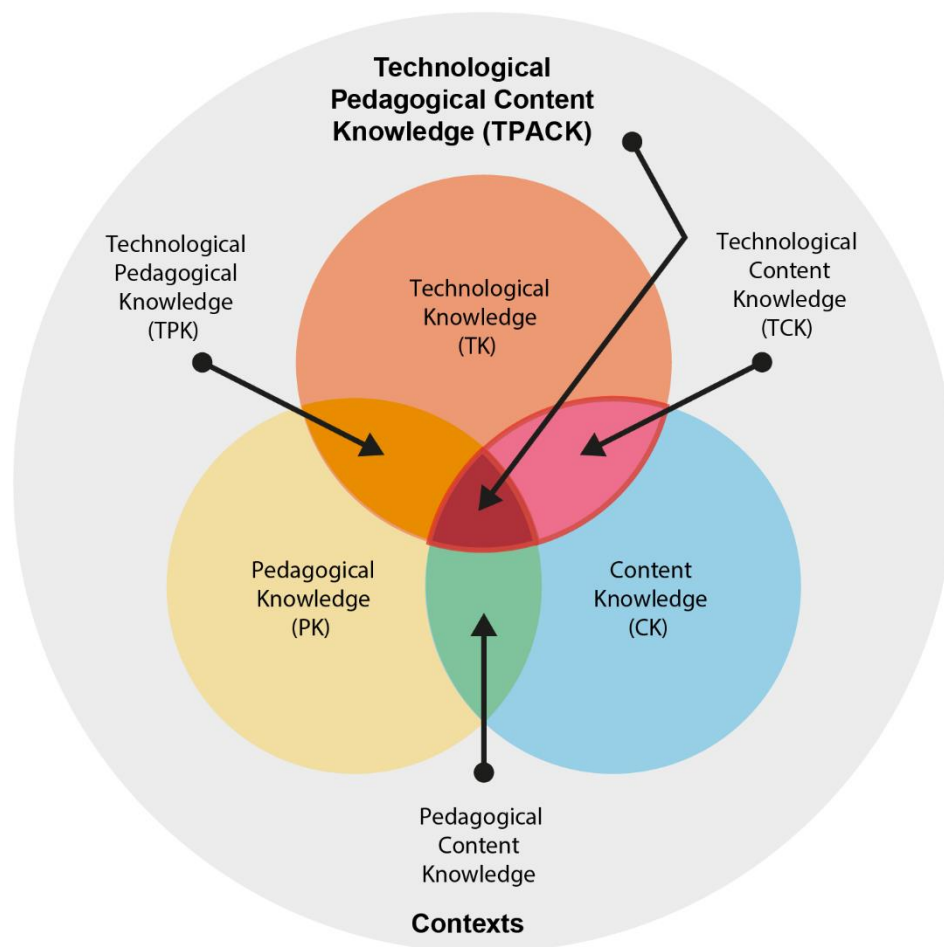


Illustration 23. Technological, Pedagogical and Content Knowledge Framework. Derived from TPACK Framework © 2012 by tpack.org.

The key elements of this competence include:

- Active, meaningful and authentic learning. Research and learning methods.
- Motivation and learning.
- Use of digital technologies to promote motivation and meaningful learning.
- Specific didactical methods and digital technologies used for each of them.
- Empowering pupils to use digital technologies autonomously and responsibly in their own learning.
- Development of pupils' transversal competences through the use of digital technologies.

Actions that demonstrate this competence include:

- Making active use of digital technologies by pupils as a fundamental element of the educational process.
- Using digital technologies to visualise and explain new concepts in an attractive way, e.g. using animations or videos.
- Using learning environments and/or digital activities that offer different ways of motivating and involving pupils: games, challenges, puzzles, augmented reality, manipulation of virtual objects, variations in the approach to a problem to facilitate its understanding and the search for solutions, etc.

- Encourage pupils to make decisions and provide solutions regarding the use of digital technologies for their learning, so that they acquire progressively greater responsibility according to their maturity and evolutionary development.
- Select appropriate digital technologies to promote active learning in a given context or for a specific learning objective.
- Reflect on the suitability of the different digital technologies used to stimulate pupils' active learning and adapt strategies and decisions accordingly.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

5.3. Actively engaging learners in their own learning

Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Theoretical knowledge and use of digital technologies with guidance to foster the active engagement of pupils and the development of transversal competences and complex cognitive operations.	A1. Knowledge and theoretical understanding of how digital technologies can support the active engagement of pupils with their learning.	<p>5.3.A1.1. Knows pedagogical strategies and uses of digital technology linked to the subject, area or teaching expertise that allows promoting the development of complex cognitive operations and transversal competences by pupils.</p> <p>5.3.A1.2. Applies didactic criteria in the analysis of digital technologies linked to the subject and area of expertise to determine which ones could be used by the pupils.</p> <p>5.3.A1.3. Identifies the characteristics of digital technologies that make it possible to introduce elements to stimulate pupils' motivation and commitment to their learning.</p>	<p>I know and understand how digital technologies encourage the active engagement of pupils and responsibility in their own learning, stimulating their motivation, developing transversal competences and solving tasks that involve the use of complex cognitive operations.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I analyse how digital simulations contribute to the understanding of physical quantities and the units in which they are measured and to the identification of the relationships between variables in pupils' learning of physical laws, as well as to the correct practical application of these laws. • I have designed a webquest in my teaching practice for pupils to learn about crystallographic structures and present a model made with a 3D printer. • In order to introduce elements of "gamification" and a playful component that stimulates the curiosity and participation of pupils in a hypothetical learning situation, I have designed, with the advice of another teacher, a digital escape room on the golden ratio. • I have updated Allan Carrington's wheel of apps which links Bloom's taxonomy and the SAMR model by linking which apps are most appropriate for each of the levels of the taxonomy and their relationship to the transversal competences. • I have designed, in a training session, the script of a didactic video structured in such a way that, firstly, it captures the pupils' attention, then it develops the subject for which it has been designed and, finally, it presents a series of conclusions that connect the contents of the area or subject with real-life situations.
	A2. Use of pedagogical strategies to develop pupils' active engagement with their learning based on the use of digital technologies in	5.3.A2.1. Applies, with support and depending on the context, the specific characteristics of the learners, the learning objectives and the digital resources available at the school, digital technologies so that pupils develop complex	<p>I use and promote, by my pupils, the use of the digital technologies available in the school to apply pedagogical strategies that allow motivation, the active engagement of pupils in their learning and the development of transversal competences, with the support of other teachers.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use, following the guidelines learned in a course and with guidance, the digital screen in my classroom to present 3D models of the internal organs of the human

	controlled or guided environments.	<p>cognitive operations and transversal competences in the learning of a specific subject or area.</p> <p>5.3.A2.2. With the help of other teachers selects from among the digital technologies available at the schools, those which can be used by pupils in their area or subject in a progressively autonomous manner.</p> <p>5.3.A2.3. Uses, in a guided manner, the school's digital technologies to encourage the motivation and active commitment of their pupils to the learning objectives of the area or subject.</p>	<p>body, which I can show in different views using a peripheral device to better understand the anatomy and functioning of the human body, in order to motivate my pupils.</p> <ul style="list-style-type: none"> • I apply, in the context of an interdisciplinary project in which I collaborate with other teachers, the problem-based learning strategy by asking my students to find out the number of trees cut down due to the paper consumed and discarded in the school during the last term and to suggest strategies to minimise the environmental impact, using only digital technologies. • I select, with the help of other teachers in my school, a gesture-controlled console for my pupils to work on laterality, rhythm and general dynamic coordination. • I select, with the guidance of other teachers, a digital tool to create interactive maps and chronological axes that allow my pupils to represent the journeys made by Plato and some biographical and historical facts and, in this way, facilitate the understanding of the influence of mathematics in his theory of knowledge and in his metaphysics and the evolution of his political theory.
B. Autonomous use and integration of digital technologies to encourage pupils' active engagement with their learning in the different areas and subjects and in the development of transversal competences.	B1. Adoption of a conventional and autonomous use of digital technologies that increase the motivation, leading role and responsibility of pupils in their learning.	<p>5.3.B1.1. Autonomously applies teaching strategies which, thanks to the use of digital technologies, promote the development of complex cognitive operations and transversal competences of their pupils related to the area or subject.</p> <p>5.3.B1.2. Implements pedagogical strategies based on the usability and access conditions of the digital technologies available at the school so that pupils use them in a progressively autonomous way in the different learning processes.</p> <p>5.3.B1.3. Autonomously uses the digital resources provided by the</p>	<p>I apply, in an autonomous way, the school's digital technologies to encourage the active engagement of my pupils, motivating them, giving them a leading role and responsibility in the learning process and supporting them in a progressively autonomous use of these technologies in a specific field of study to develop complex cognitive operations and transversal competences.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use computer games or applications for mobile devices, included in the school digital plan, to motivate my pupils to tackle learning that may be mechanical or tedious, such as calculus exercises. • In order to promote the opportunities of STEM careers among young girls, I have a Wiki in the VLE so that pupils individually applying the PBL strategy implementing digital technologies, can include the contributions that women have made to the development of mathematics in each of the subjects we work on, starting, for example, with Hypatia of Alexandria, so that downloadable books can be generated and shared on the school website. • I suggest that my pupils use a videoconferencing tool in which groups are configured and roles are assigned by the application itself, so that they learn how it can be used

		EA or school leader which stimulate the motivation and engagement with pupils.	<p>to analyse the problems that have arisen in the teaching and learning process with covid-19 and to propose technical and methodological alternatives.</p> <ul style="list-style-type: none"> • For the preparation of the students' digital laboratory workbook and for the presentation of the experiments carried out during the Science Week to be held in the town, I offer the possibility of using different types of applications so that they can choose the one that best suits the characteristics of the information to be included (web page, presentation, text document, etc.). • After asking my pupils to brainstorm (using a digital panel) the most emblematic moments of classical history that they knew, we selected the most representative ones so that, in small groups and using a digital application for the creation of animated videos, they recorded the dramatisation in Latin of the dialogues that pupils had previously recreated in writing after doing some research.
	B2. Adaptation of methodological strategies and the use of digital technologies to new learning situations in order to develop the active engagement of pupils.	<p>5.3.B2.1. Analyses, assesses and adapts teaching strategies and the use of technological resources to the characteristics of pupils, the context and the learning objectives in order to stimulate the motivation and engagement of pupils in the process, developing complex cognitive operations and transversal competences.</p> <p>5.3.B2.2. Analyses the characteristics of the different types of digital resources (software, hardware and peripherals), selects those that are more versatile for carrying out tasks, adapting them to the level of digital competence of pupils, and encourages learners to use them for their learning in a critical and autonomous way.</p>	<p>I adapt my methodological strategies and the use of digital technologies to improve pupils' motivation and active engagement, developing complex cognitive operations and transversal competences and promoting their autonomy when incorporating these technologies in the learning process.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I create an educational escape room in which my pupils, using sensors, applications and peripherals connected to the tablet to analyse the evidence offered to them, must solve a fictitious crime by applying the knowledge of physics, chemistry, geology, biology, technology and mathematics learnt during the school year. • I design an activity based on project-based learning for my pupils to analyse the impact of the disappearance of the gold standard on our economy, indicating which specific digital technology they should apply in each of the phases of the process (search for information, definition of the problem, organisation of the information). • In an inquiry-based learning activity, I suggest that pupils design an experiment to test whether graph theory can explain the phenomenon of rumour spreading using digital technologies. • I use dynamic mathematics software to get my pupils to come up with different hypotheses about how the last stone of the pyramid of Giza could have been placed. • I ask my pupils to develop a mobile application which, using web services, communicates with the database of the Spanish national Health Service to obtain information on the nutritional value of food and provides feedback to the user, showing whether the diet eaten is balanced and recommendations on the type of

			<p>food for which they should increase or decrease consumption based on the data they have provided. The work covers the whole process, including, for example, the application and contact with the National Ministry of Health to request access to the data and information on the format in which the data will be provided.</p> <ul style="list-style-type: none"> • I design personalised toolbars in office applications so that they adapt to the task to be carried out and to the level of development of my pupils' digital competence by simplifying their interface. • I suggest an activity to my history classes in which my pupils have to create virtual worlds with a software game where they represent the situation that would be generated in the 21st century if, for example, fire had not been discovered, the wheel had not been invented, the properties of metals had not been known or the industrial revolution had not taken place.
<p>C. Research and innovation on the integration of digital technologies in processes of transformation of pedagogical practices in order to improve pupils' motivation and active engagement with their learning.</p>	<p>C1. Analysis, evaluation and promotion of the digital pedagogical practices developed in the school to improve the motivation and involvement of pupils in their learning.</p>	<p>5.3.C1.1. Actively participates in the coordination, implementation and evaluation of teaching strategies that integrate digital resources to encourage, in each area or subject, the motivation, responsibility and engagement of pupils to their own learning and to promote the development of complex cognitive operations and transversal competences.</p> <p>5.3.C1.2. Offers assistance and support to teaching staff in the application of didactic and digital strategies aimed at the development of subject learning and transversal competences.</p>	<p>I contribute to the analysis and evaluation of the process of integration of digital technologies provided by the EA or school leader for the implementation of pedagogical strategies aimed at improving the active engagement of pupils in their learning and the development of transversal competences and complex cognitive operations in order to make suggestions for improvement that can be incorporated into the school digital plan.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I drive the evaluation process of the use of the digital technologies available in the school in order to motivate pupils and involve them in their own learning through a system of "pre" and "post" questionnaires and a comparative analysis of the results. • I teach courses on the use of digital technologies to work on the development of critical thinking through different strategies that pupils can use to compare the quantity of different magnitudes (time, space, economic amounts, speed, population) and thus improve their understanding of the data they obtain by consulting different sources on the Internet. • I coordinate an interdisciplinary school project aimed at different levels on citizen science (wastewater treatment, noise and light pollution, invasive species, use of agricultural herbicides) that integrates digital technologies to promote the development of my pupils' learning in real contexts. • I design the digital welcome pack which provides information on the technologies available at the school, contents, activities and work suggestions so that teachers who are joining the school for the first time are aware of the use we make of digital technologies to develop the pupils' active commitment to their own learning.

	<p>C2. Research, innovation and leadership in the process of transforming digital pedagogical practices to improve pupils' active engagement with their own learning.</p>	<p>C2.1. Investigates the integration of digital technologies in teaching proposals and their impact on motivation and on the development of complex cognitive operations and transversal competences of pupils.</p> <p>5.3.C2.2. Suggests innovative teaching strategies which, thanks to the functionalities of existing technological resources or their innovative use, promote the active engagement of pupils to their learning, increasing their motivation and their leading role in the process.</p>	<p>I investigate the didactic use of digital technologies associated with pedagogical strategies that assign pupils an active role in the teaching and learning processes in order to suggest improvements or new pedagogical models and to determine their impact on motivation and on the development of complex cognitive operations and transversal competences of pupils.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am involved in research on the impact of the use of augmented reality applications on the meaningful understanding of architectural elements and the identification of artistic aspects evolving throughout the history of art. • I have published a book to develop pupils' heuristic strategies for solving mathematical problems using digital technologies. • I coordinate a team of teachers of Vocational Training in Microcomputer Systems and Networks who work on defining the characteristics that service-learning educational projects must have in order for pupils to develop their transversal competences, in particular, entrepreneurial skills. • I give lectures and present at conferences on the use of real-time strategy video games as a motivating tool for learning the history of civilisations through simple models.
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Area 6. Developing the digital competence of learners

In contrast to other competences in this framework, which dealt with how teachers should use digital technologies to improve teaching and learning processes, Area 6 details the specific pedagogical competences that teachers need for pupils to acquire and develop their digital competence in order to exercise active, responsible and critical citizenship.

Following the TPACK model, they would be framed specifically at the intersection between pedagogical and technological knowledge, since technological knowledge would be the object of teaching and learning, but, in order for pupils to be able to acquire it, the teacher's ability to design and implement teaching strategies according to their characteristics and needs is required.

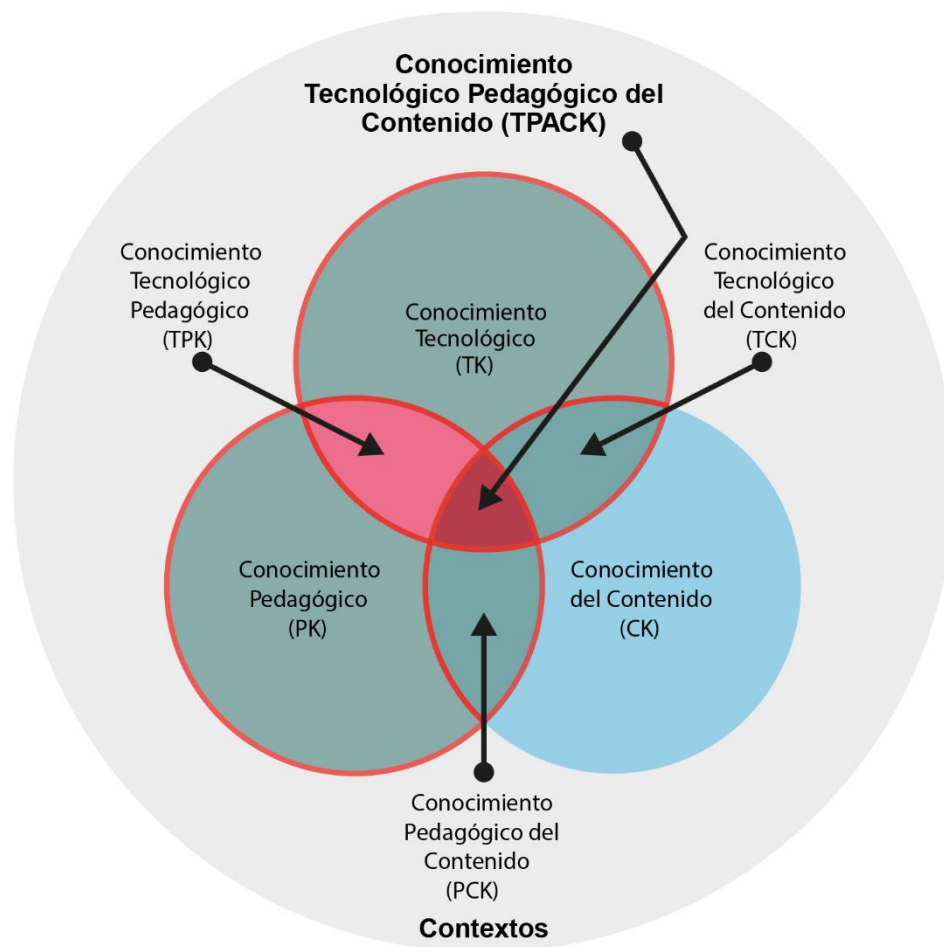


Illustration 24. Technological and pedagogical knowledge. Derived from TPACK Framework © 2012 by tpack.org.

The competences included in this area are specifically aimed at achieving the goal established for the education system in section I) of Article 2 of Organic Law 2/2006 of 3 May on Education:

"Upskilling to ensure the full integration of pupils in digital society and learning to use digital media safely and respecting human dignity, constitutional values, fundamental rights and, in particular, respecting and guaranteeing individual and collective privacy".

They complement competence 5.1 Accessibility and inclusion insofar as they also aim at bridging the digital divide in one specific aspect: the development of pupils' digital competence.

It also complies with the provisions of Article 83 of Organic Law 3/2018, of 5 December, on Personal Data Protection and digital rights guarantee, amended by the Organic Law 3/2020, of 29 December, on the right to digital education:

"1. The education system shall guarantee the full integration of pupils into digital society and the learning of responsible consumption and critical and safe use of digital media that respects human dignity, social justice and environmental sustainability, constitutional values, fundamental rights and, in particular, respect for and guarantee of personal and family privacy and the protection of personal data. Actions in this field shall be inclusive, in particular with regards to pupils with special educational needs.

Digital competence is included in the curriculum of Pre-school, Primary, Compulsory Secondary and post-16 Education regulated by Organic Law 3/2020, of 29 December, which modifies Organic Law 2/2006 of 3 May of Education. Likewise, it is also included in the specific curricula of the different Vocational Training qualifications and, depending on the professional and technical competences or the profile of the studies to which they are linked, in those of Special Regime Education.

The following description is given in the competence profiles for Primary, Compulsory Secondary and post-16 education:

"Digital competence involves the safe, healthy, sustainable, critical and responsible use of and interaction with digital technologies for learning, working and participating in society.

It includes information and data literacy, communication and collaboration, media education, digital content creation (including programming), safety (including digital wellbeing and cybersecurity skills), digital citizenship issues, privacy, intellectual property, problem solving, computational and critical thinking".

This conception of pupils' digital competence is inspired, as indicated in Article 2 of the Spanish Royal Decrees regulating the Minimum Levels of Education following the Council Recommendation of 22 May 2018 on key competences for lifelong learning, by the description included in the European Framework of Digital Competences for Citizenship (DigComp). For this reason, area 6 of this Framework follows the same structure and details five competences aligned in content and description with the DigComp areas. Some denominations, however, have been adapted to emphasise the pedagogical dimension and approach of this framework.

DigComp 2.2. Area	SFDCT Area 6 Competences
Information and data literacy	Media, information and data literacy
Communication and collaboration	Communication, collaboration and digital citizenship
Digital content creation	Digital content creation
Safety	Responsible use and digital wellbeing
Problem Solving	Problem solving

The role of the teacher is to enable students to develop their digital competence in the areas of DigComp 2.2:

Information and data literacy. It involves browsing, searching, filtering data, information and digital content, understanding the biases that the profiling and artificial intelligence systems used by engines and browsers apply to search results based, among other factors, on the data they have collected from the user. Subsequently, it deals with the evaluation of the reliability of the news offered by the different digital media - including those of horizontal dissemination among users – and of the information, the data consulted and the sources that publish them. Finally, it also deals with the storage, organisation and retrieval of data, information and content in digital environments.

Communication and collaboration. It focuses on the interaction and sharing of content using digital technologies and communication through platforms, forums and social networks, which requires the use of social skills, courtesy guidelines and an inclusive use of language in digital environments.

Furthermore, it also requires a commitment to active citizenship in the digital sphere and the construction of a digital identity, understood in a broad sense, from the profiles created on social networks to the records of our digital footprint. It considers the cocreation of content from the point of view of participation in collaborative platforms and skills for teamwork and for social and intercultural interaction.

Digital content creation. It integrates both the original generation and the reworking or editing of digital content, which would also include software, always respecting copyright and intellectual property rights.

Safety. This includes the protection of digital devices, the safeguarding of personal data and privacy, the adoption of measures for healthy use and digital wellbeing to prevent risks to physical and mental health, and the awareness and promotion of actions leading to environmental protection in order to avoid or mitigate the impact that digital technologies and their use could cause.

Problem solving. Work on the creative and efficient use of digital technologies, their understanding and the development of the ability to apply them when facing problematic situations in everyday life, developing different types of projects or solving technical problems that may arise in the operation, connection and installation of hardware, software and peripherals.

We should understand that the five teaching competences in this area are directly related to the development of digital competences in pupils for their integration into everyday life, leisure or work, without ruling out the possibility that they may be linked to learning. It is clear, for instance, that developing the competence to search for information will have a positive impact on this activity when it is carried out as part of a class task. However, this is not its only purpose as pupils must be able to transfer strategies for selecting reliable information, for critical analysis, and for the use of logical operators in any context and activity.

Thus, the five teaching competences included in this area are those necessary for pupils to develop their own digital competence and deploy it in all areas of life. The teaching strategies used may also include tasks, activities and dynamics or means and instruments of assessment that do not require the use of digital technologies by pupils to carry them out.

The performance of the competences in this area must be adjusted to the degree of maturity of the pupils, their characteristics and their diversity, as well as to the curriculum or syllabuses of the courses taught and take into account the rights and principles relating to national and European digital citizenship, as well as the regulations that may derive from them.

6.1. Media, information and data literacy

Competence description

Designing, implementing and integrating in the teaching and learning processes, pedagogical proposals for the development and assessment of the digital competence of pupils in media literacy and in the processing of information and data.

Contextualising competence 6.1 in teaching

This competence is deployed in teaching and learning situations in which pupils must develop their own competence in searching for, evaluating, organising and interpreting information and data. The aim is to enable them to act critically whilst facing the vast amount of information they can access and to be aware of the biases that arise when using search engines. Moreover it is important to recognise that their own actions on the Internet and their preconceptions limit the quantity and quality of information and data received. It requires, on the part of teachers, the simultaneous use of their pedagogical knowledge and knowledge of digital technologies and their evolution applied to data and information processing operations, including that published in digital media.

Teachers must know the pedagogical strategies that allow them to connect with pupils' needs when searching for and managing information and to present meaningful and relevant learning situations in proficiency levels of increasing complexity and appropriate to the age and competence development of their pupils. In this sense, the variety of devices and media traditionally considered in this field needs to be expanded:

- Regarding the media, the vision must be broad, as it is not only about newspapers or digital news agencies, but also about other platforms and services, with a large implantation among young people that offer such news including social networks, search engines or instant messaging systems which allow for horizontal dissemination.
- In terms of devices, it is also necessary to consider their increasing number and variety to include those that collect and retrieve data and information using the so-called 'Internet of Things' (IoT).

To sum up, the aim is to develop educational interventions to enhance the ability of pupils to interpret, both implicitly and explicitly, information and data in any kind of format, to relate and structure ideas, to learn to distinguish facts from evaluations, to seek plurality in information sources, to question and conceptualise situations and facts and to identify the interests underlying the emission of a message. All of this will require pupils to understand how technologies work, to apply resources to analyse information critically and to apply some basic psychological, sociological and anthropological knowledge and concepts that will take them away from a naive interpretation of the process and allow them to approach it with an awareness of its complexity.

This competence connects with competence 2.1 Searching and selecting digital content as it should apply similar strategies. However, in 2.1 the teacher applies them by herself/himself, whereas in 6.1 he/she has to pass them on to the pupils.

On the other hand, although the competences in area 6 address the issue of the processing of personal data and their protection together, they do so from a different approach. Specifically, competence 6.1 analyses how search results are conditioned by the personal data obtained by search engines and the use made of them by algorithms.

Finally, this competence is closely related to competences 3.4. Self-regulated learning and 5.3. Actively engaging learners in their own learning. In the first case, the difference lies in the fact that in competence 3.4. the teacher guides learners in the application of procedures and the use of technologies in formal learning, whereas in 6.1. many of these strategies should be transferred by learners to any context. In 5.3. digital technologies are used to enhance learners' meaningful learning, while in 6.1. meaningful learning is to be applied specifically to the understanding of the functioning and use of technologies in terms of searching, selecting and processing data and information.

The key elements of this competence include:

- Pedagogical strategies for the development of the digital competence of pupils.
- Browsing, searching and filtering information. Search strategies and basic aspects of the functioning of algorithms and AI developments used by browsers, search engines and connected devices that use IoT to provide information.
- Quality criteria for the evaluation of information and data sources and strategies for their application.
- Strategies for organising, storing, processing and retrieving information and data.
- Critical attitude towards the quality of different sources of information

Actions that demonstrate this competence include tasks and assessments that motivate and require pupils:

- Formulating their information and knowledge needs, based on specific situations or problems, in order to adequately guide the search for data and content safely in digital environments, as well as to access and navigate through these environments.
- Identifying services and platforms that use AI algorithms and developments, generally understand how they work and interact correctly with them while avoiding the risks that may arise from their use, such as those that may lead to unwanted targeting by commercial interests or receiving biased and partial information as a result of personalisation.
- Creating, updating and adapting search strategies according to the quality of the information found, adopting a critical attitude towards their own biases.
- Understanding the grounds and general principles that enable digital service providers to make a financial return on their activity or to cover the costs it generates.
- Analysing, comparing and critically evaluating the credibility and reliability of sources of data, information and digital content, as well as the quality of the information gathered.
- Organising, storing and retrieving data, information and content in digital environments safely and on more than one platform, both on physical devices and in the cloud.
- Applying statistical data processing strategies in order to facilitate the analysis and interpretation of data, converting them into meaningful, relevant and comprehensible information.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

6.1. Media, information and data literacy			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application of pedagogical strategies to integrate, in teaching and learning processes, the curricular aspects of digital competence in media literacy and information and data processing of pupils.	A1. Knowledge and theoretical understanding of the technical aspects involved in media literacy and in the processing of information and data and of the didactic criteria for teaching and learning.	<p>6.1.A1.1. Knows and understands how browsers, search engines, online services and IoT devices work in the processes of searching, processing and retrieving information and data.</p> <p>6.1.A1.2. Knows the didactic criteria to be applied in order for learners to be competent in the search for, selection, assessment and processing of relevant, pertinent and reliable information and data and the way in which this competence is integrated into the curriculum or syllabus.</p>	<p>I understand the basic principles applied in technological developments in the search and retrieval of digital information and data, and I know how media literacy and information and data processing skills are covered in the curriculum and the didactic criteria for their development.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I know of learning activities in which learners are encouraged to use browsers to locate information and answer assignments, e.g. a web quest. • I have created an infographic in which I explain the ten most used logical operators for Internet searches. • I am aware of reliable government sources that provide up-to-date information on how to configure major browsers and search engines so that I can select as needed whether I want them to offer me personalised search results. • I design, as part of my initial teacher training, a task for pupils to understand the data collected by the different types of cookies and to learn how to configure them when accessing Internet pages. • I draw up a list, within the context of a training activity, of fake news filtering websites that pupils could use to evaluate the sources of information they consult. • I incorporate into teacher planning activities that require the consultation of primary sources and the processing of the data they offer in order to provide answers to the problems or questions posed. • I have created a video tutorial on the configuration and use of the "favourites" tool in the most commonly used browsers.

	<p>A2. Guided application, in real contexts, of teaching and learning processes related to media literacy and information and data processing.</p>	<p>6.1.A2.1. Applies, with the help of other teachers, didactic proposals to integrate the contents, activities and dynamics that enable the development of competence in media literacy and in the processing of information and data of pupils, adapting them to the curriculum, the educational project and the school digital plan.</p> <p>6.1.A2.2. Contextualises technical knowledge of content management and configuration of search and information processing tools in the use of digital technologies provided by the EA or the school leaders.</p>	<p>I apply, in a guided way, the didactic approaches included in the syllabus and the digital plan so that pupils learn to search, evaluate and manage information and data in the digital environments provided by the EA or the school leader</p> <p>Examples:</p> <ul style="list-style-type: none"> • I plan, with the support of other teachers, an activity for pupils to develop, in small groups, a general protocol for evaluating the quality of information provided by different digital newspapers and then agree on it as a large group. • I implement a group dynamic, similar to the barometer teaching strategy with the help of another teacher, in which I ask my pupils to position themselves as to whether a certain statement, taken from some internet source, is true or false, placing themselves on one side or the other of the class to subsequently check which are true and open a debate on the beliefs and opinions that conditioned the previous assessment of the information despite not having knowledge of the facts described. • I incorporate, under the supervision of other teachers, a previous explanation that accompanies all the tasks that require pupils to search for information, indicating what requirements the sources used must fulfil in order to be admissible in the work (updating of the data and concordance with those of other sources, scientific, artistic or literary solvency or recognition). • I sequence in the syllabus, following the recommendations of a specialised training course, the degree of difficulty of the activities my pupils carry out in the application of criteria for selecting content consulted on the Internet, ranging from initial exercises to distinguish between facts and opinions or to contrast headlines with the contents of articles, to searching primary sources and collating data from different sources. • I configure in the browsers the trusted sites for pupils to access information following the guidelines set out in the school digital plan. • I suggest to my pupils that, when carrying out any activity involving data, they organise them at different levels of depth and represent them using different media (maps, timelines, flowcharts, graphs, infographics, etc.).
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<p>B. Designing and integrating learning situations to develop pupils' digital competence in information and data processing</p>	<p>B1. Integration of curricular aspects of pupil information and data literacy in teaching and learning processes in an autonomous way.</p>	<p>6.1.B1.1. Integrates into teaching practice learning situations in which pupils must develop different strategies for searching for, evaluating, selecting and organising information and data. 6.1.B1.2. Selects, from among the technologies provided by the EA or the school leader the most appropriate ones for pupils to develop their competence in information and data processing.</p>	<p>I put into practice different teaching strategies so that pupils develop their ability to search for, evaluate and manage information and data from digital environments, adapting the technologies used to their characteristics.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use the story of The vain little mouse to help my pre-school pupils understand the need to value the quality of information that can be provided by different sources. • I use a "treasure hunt" activity in which pupils in the same group have to use different search engines, compare the results, analyse the causes of possible discrepancies and present the information graphically and visually. • I develop activities in class to teach how to use the bookmarking tools so that my pupils can use them to organise content in a structured way, grouping it according to topics of interest. • I set challenges for pupils to analyse what information to look for and create structured searches using the logical operators of search engines (e.g. "+" and "-"). • I suggest to my pupils, as part of an interdisciplinary project involving Philosophy, Mathematics, English and Technology, to carry out advanced searches by applying the rules and concepts of propositional calculus and the dual function of calculator and search engine for mathematical operations. • I implement activities in my teaching practice that encourage pupil learning related to information management and administration, e.g. the ranking of the different teams in playground sports matches using dynamic spreadsheets. • I suggest to my pupils to enter the search query "Are dogs or cats better?" in order to analyse the algorithms used by search engines and to analyse the results in pairs. • I discuss with my pupils the sources they have selected in small groups for a paper on the sustainability of private electric car use in order to identify the interests, broadly understood, that the source that publishes them might have and how these interests might affect the approach in which the information is presented. • I introduce graph theory in Economics class and ask my pupils to design an advertising strategy for a product, determining the variables and nodes that would be most relevant for the campaign to be successful. Based on the work done, a large group reflection is carried out on the personal data and information we provide when selecting certain content and services or when sharing or evaluating publications on social networks. • I analyse with my pupils the most viewed news items in different digital media, we then open a debate on the reasons that may have led the public to choose these
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			<p>news items over others and we analyse what the consequences may be if this choice is one of the variables that a search algorithm considers to be relevant.</p> <ul style="list-style-type: none"> • I ask my pupils in small groups to identify, among the results of a search, the sources that offer advertisements of those that communicate information on a given topic and to identify the elements that characterise each of them. • I activate extensions in the browsers used in the classroom to optimise the organisation of search results and the evaluation of the sources that supply them. • I apply classroom activities to get students to use browser tools to highlight information on a website.
	<p>B2. Adaptation to new contexts of the school technologies and pedagogical strategies to promote the development of pupils' digital competence in the processing of information and data.</p>	<p>6.1.B2.1. Reflects on and evaluates his/her own practice in order to design or adapt new pedagogical suggestions so that pupils develop their competence in determining what information they need, how to search for it, select it critically and organise it.</p> <p>6.1.B2.2. Uses in a varied and flexible way and configures the digital technologies provided by the EA or school leader for pupils to develop their competence in information and data processing.</p>	<p>Based on reflection on my teaching practice, I adapt technologies to new learning contexts in which I design and put into practice didactic proposals for pupils to develop their ability to search, evaluate and organise information and data critically in digital environments.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I set up the digital learning environment graphically with boards or visual markers and QR codes so that my Early Childhood pupils can access and select information or audiovisual content to carry out the suggested tasks through guided searches. • I ask my pupils, in Economics class, to select variables that could be relevant for creating user profiles and to draw conclusions on how they could be used in the creation of an "advertising avatar" to present personalised online commerce offers on a social network. • I teach my pupils in the compulsory vocational training module, to create a curriculum that is not discarded in a pre-selection by the AI developments that carry out a prior analysis of this type of document. • I suggest to my pupils, after analysing the different types of fallacies that are commonly published on the Internet, to develop a media literacy project in the school consisting of publishing periodically on the school blog an entry identifying the use of some of them in opinion articles or in speeches on current issues of general interest. • I draw up a flow chart adapted to the degree of maturity of my pupils, which follows the teachings of my subject area with the general steps to be followed to make an assessment of the reliability of the sources consulted on the Internet. • I design activities in which my pupils have to carry out searches using different search engines and ask them to compare the data obtained.

			<ul style="list-style-type: none"> • I ask my pupils to analyse the source code of the first three pages that offer them a search engine so that they can analyse the search terms they have used in the <head> tag. • In the design phase of a home automation system for the training cycle I teach, I ask my pupils to define the data on the usual use of lighting and air conditioning in a home, identify which can be provided by the sensors to be installed and which must be consulted with the client or collected physically, and how they should be processed to carry out a basic configuration that offers advantages in terms of energy savings or improvements in the comfort or safety of the installations. • I ask my pupils to create a guide of hiking routes in the locality after explaining the basic notions of spatial orientation in Physical Education class. As a complementary activity, and in collaboration with the families, four small groups are organised to take a mobile device with a compass, GPS, and the map application activated, to look for information about the location of the paths they have followed and take photographs of the landscape elements of interest or that can guide the walker along the route. When preparing the information to be uploaded to the school website about each of the routes, we analyse the data provided by the applications, their advantages and risks, as well as the information contained in the properties of the images to be published, differentiating the information included when the geolocator is activated from that which appears when it is deactivated and selecting the most relevant information to share only. • I design a system for monitoring the progress made by my pupils in improving their ability to search for relevant information by solving a series of enigmas related to current affairs and the subject taught, which require the use of prior information not explicitly contemplated in their formulation. • I teach my pupils about the different types of cookies that different websites can offer, as well as their purposes, so that they can critically decide which ones they should restrict and which ones they should accept, according to their interests and needs.
C. Research and innovation in the design of pedagogical strategies for the development of pupils'	C1. Coordination or design of the school's actions to develop pupils' digital competence in media	6.1.C1.1. Coordinates or contributes to the design and implementation of the pedagogical proposals included in the school digital plan to develop pupils'	<p>I coordinate or actively contribute to the design, implementation and evaluation of the actions of the school's digital plan to develop students' digital competence in media literacy and information and data processing.</p> <p>Examples:</p>

digital competence in media literacy and information and data processing.	literacy and in the processing of information and data.	<p>digital competence in media literacy and in information and data processing, as well as in the evaluation of their impact on learning.</p> <p>6.1.C1.2. Evaluates the digital technologies and services used at school to develop the media literacy and information and data processing skills of pupils in order to make proposals for improvement.</p> <p>6.1.C1.3. Advises or trains other teachers on pedagogical strategies and the configuration and use of technologies to promote the development of digital competence in media literacy and in the processing of information and data of pupils.</p>	<ul style="list-style-type: none"> • I coordinate a digital radio programme that is developed as an interdisciplinary project at the school in which pupils have to search for, select, contrast, rework and present the information in different sections and analyse fake news. • I have coordinated the definition of the indicators that will allow us to make a longitudinal and collegial assessment of the development of students' competence in media literacy and information and data processing throughout their years at school. • I collaborate in an institutional research on the awareness of minors regarding the configuration of browsing options and cookies when using the Internet. • I set up the configuration of browsers, thesaurus-based and social bookmarking systems (folcsonomies), search engines and cookie management of the school's computers in order to perform secure searches on the Internet, reducing biases. • I act as a speaker in courses related to the training of pupils in searching and selecting information using specific strategies: webquest, micro web quest, treasure hunt, adapted edu breakout, etc. • I give workshops to teachers and the educational community on teaching and learning practices that enable pupils to make the most of office automation tools for the organisation of information and data obtained from the Internet.
	C2. Transforming teaching and learning practices to develop pupils' digital competence in media literacy and information and data processing through research and design of new pedagogical strategies.	<p>C2.1.1. Investigates the impact of didactic and pedagogical strategies and commonly used digital technologies and services on the development of pupils' competence in media literacy and in the processing of information and data.</p> <p>6.1.C2.2. Designs, on the basis of research, new pedagogical proposals to improve the acquisition and development of pupils' digital competence in media</p>	<p>I design, on the basis of applied research, new pedagogical practices aimed at developing and improving pupils' media literacy and information and data processing skills.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Designing new models of activities that improve the learning curve of pupils in the search for and evaluation of information, e.g. "cheat web quests", where the sources of information provided by the links in the webquest have contradictory information and identifiable deficiencies. • I publish articles in which I present new pedagogical strategies for the development of pupils' digital competence when evaluating the quality of information obtained from different sources (websites, digital press, social networks). • I am conducting research to compare the results obtained in educational tasks using different search engines and configurations, in order to test the thesis that search results are limited and uniform (bubble effect) due to the personalisation carried out by algorithms.



		literacy and the processing of information and data.	<ul style="list-style-type: none">• I am involved in a research project on the impact that improving pupils' digital competence to search for, select and organise relevant information can have on other learning.
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6.2. Communication, collaboration and digital citizenship

Competence description

Designing, implementing and integrating in teaching and learning processes, pedagogical approaches for the development and assessment of students' digital competence in communication and collaboration, using technologies and respecting digital etiquette, as well as for the construction of a responsible digital citizenship and identity.

Contextualising competence 6.2 in teaching

This competence refers to the teacher's ability to create teaching-learning situations in which learners develop their communicative, collaborative and civic participation competences in both educational and social contexts. It is expected that teachers have acquired these competences and are able to model them.

The age of pupils can significantly condition the type of educational actions that a teacher can undertake. In general, all the work carried out in the pre-primary and primary education stages would be of a propaedeutic nature, while those carried out in the later stages could have a direct practical application. This is due to the fact that article 7. Consent of minors set up by the Spanish Organic Law 3/2018, of 5 December, on Personal Data Protection and digital rights guarantee establishes that "*The processing of personal data of minors may only be based on their consent when they are over fourteen years of age*", i.e. from that age, minors may voluntarily provide their data to register on a platform or social network and, in any case, it will depend on the rules of the service they wish to access or on national or European regulations.

This means that many of the pre-teenagers may already be registered on social media or similar platforms and it is particularly necessary to train them so that they can participate with sufficient guarantees. In any case, pupils should be encouraged to be able to carry out a critical analysis of these services and assess the need to use them according to their needs, their values, their personal wellbeing and the risks and benefits associated with their use.

In these processes of communication and exchange or in the use of any Internet service, pupils should be aware of the 'digital footprint' they leave through the operations they carry out and their behaviour which can be tracked in detail and that it is practically impossible to have control over this information once any action has been taken, which, in one way or another, could affect their 'digital reputation' and present and future aspects of their lives. This footprint forms part of the digital identity, along with the 'profiles' that are built in a more deliberate and conscious way on social networks and platforms for sharing or publishing content of any kind. The concept, therefore, of the process of responsible construction of digital identity is broad, and also includes the "profiles" that third parties may create based on the pages visited, the services contracted, the purchases made, the data and metadata of the content shared, our networks of contacts or the data from our devices. All of this, and the inferences that can be made from this data, make up the identity or identities of internet users.

Finally, digital citizenship requires safe citizen participation through the services that can be offered by public administrations and private institutions, so that pupils, even if they are not old enough in some cases, must be aware of the existence and use of digital certificates, signature and authentication systems and other security measures associated with their digital identity.

This competence is related to 3.3 Peer learning, insofar as they will work with very similar applications and services, although in the case of area 3 it will be specifically focused on apprenticeships and in this one it refers to their civic participation in digital environments.

In addition, it has links with the other competences in this area due to the safety measures that must be taken to protect their digital identity and the way in which it affects other areas of their digital participation (information, safety, communication, etc.). Collaborative content creation is covered in

this competence, while the development of specific knowledge, procedures and values associated with individual content creation is covered in competence 6.3, i.e. the knowledge associated with this competence has more to do with how to collaborate in digital environments, not with the creation process.

The key elements of this competence include:

- Pedagogical strategies for the development of pupils' digital competence.
- Digital technologies that enable communication, interaction, sharing and collaboration.
- Digital footprint, reputation, digital identity and social engineering.
- Citizen participation through digital technologies.
- Rules of behaviour in communication and collaboration processes in digital environments.

Actions that demonstrate this competence include tasks and assessments that motivate and require pupils:

- Interacting using different digital technologies and be able to determine which media are most appropriate in each communication context.
- Knowing and applying the rules of behaviour - digital etiquette - and develop the skills to behave with respect and empathy when using digital technologies and interacting in digital environments.
- Adapting communication strategies to specific target audiences and take into account cultural and generational diversity and accessibility guidelines in digital environments.
- Using digital technologies to collaborate with others, to co-create resources and knowledge and to share data and digital content.
- Knowing and respecting copyright, intellectual property and privacy regulations when sharing data and digital content.
- Participating in society through the use of public and private digital services.
- Knowing your digital rights and duties and acting accordingly.
- Seeking opportunities for self-empowerment and citizen participation through appropriate digital technologies.
- Protecting one's own and others' digital reputation. Creating and managing one or more digital identities. Safely managing data generated through different digital technologies, environments and services.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

6.2. Communication, collaboration and digital citizenship

Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and application, in controlled environments, of pedagogical approaches for integrating into teaching and learning processes curricular aspects of pupils' digital competence on communication and collaboration and on citizenship and digital identity.	A1. Knowledge and theoretical understanding of the aspects involved in the processes of communication and collaboration in digital environments and of the didactic criteria for pupils to learn to use these tools and to build their digital citizenship and identity in a responsible and safe way.	<p>6.2.A1.1. Understands the technical operation of communication and collaboration systems in digital environments to protect their own digital image and that of others.</p> <p>6.2.A1.2. Knows and understands the sociological and psychological theories that underpin the designs of social media and communication platforms and how they affect the behaviour of their users.</p> <p>6.2.A1.3. Knows the didactic criteria to be applied in order for learners to be competent in collaborating, communicating and participating in digital environments and the way in which this competence is integrated into the curriculum or syllabus.</p>	<p>I understand the basic psycho-sociological and technical principles applied to technological developments in communication and collaboration in digital environments and how the competence to use them responsibly and safely is covered in the curriculum and the didactic criteria for their development.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am aware of INCIBE's campaigns and educational resources to raise awareness among students about the safe use of the social media they regularly use. • I have participated in controlled digital environments in activities in which the use of collaborative tools for the joint creation and co-creation of content. • I integrate in the design of the didactic approaches of professional practices videos of the Spanish Data Protection Agency where it is explained how mobile chat applications should be configured in a secure way. • I apply a system to manage my contributions in communication environments following the principles of digital etiquette and being aware of the use I make of the different tools available (like, favourites, promotions, comments, dislike, blocks...).

	<p>A2. Application of didactic approaches with guidance for the development of pupils' competences to communicate, collaborate and participate in digital environments, progressively and responsibly building their digital identity and citizenship.</p>	<p>6.2.A2.1. Contextualises with guidance their technical knowledge of the configuration and use of open social media for use in teaching and learning situations using the communication and collaboration platforms provided by the EA or school leaders.</p> <p>6.2.A2.2. Is aware of the advantages and problems associated with the use of communication, collaboration and participation platforms and addresses both aspects, with help, in awareness-raising activities with learners.</p> <p>6.2.A2.3. Applies with the help of other teachers, didactic approaches to integrate the contents, activities and dynamics that enable the development of the concept of citizenship and digital identity in pupils.</p>	<p>I apply with guidance the didactic strategies included in the school digital plan so that pupils learn to communicate, collaborate and participate in a safe and responsible way in digital environments.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I plan existing learning activities in which learners have to communicate through synchronous and asynchronous digital tools, such as virtual meetings and forums. • I am aware of sources that offer teaching materials adapted to the maturity level and characteristics of my pupils to inform them about their digital rights and how to exercise and claim them and I apply them with the help of other teachers in my classes. • I apply, with the advice of another teacher, a group dynamic consisting of dramatising different situations related to the publication of content (photographs, comments, personal information) on a social network, e.g. the publication of an anecdote that occurred on a school trip, without the permission of the people involved on the wall of a short video platform, which generates a confrontation with a class group who consider themselves ridiculed by the comments made on the publication. • I develop the "broken telephone" game with pupils to make them aware of how easily messages can be distorted and misrepresented when they are transmitted through a chain of interlocutors. • I use the guessing game with emoticons with the help of other teachers to help pupils appreciate the importance of using non-textual resources to show the emotionality that accompanies a message in a microblogging application. • I implement an activity for my vocational training pupils with the advice of another teacher to learn how to use e-Government applications as users, asking them to locate the forms they have to fill in to register as self-employed and the information on the subsidies offered for Social Security payments during the first year, and to make a sequential list of all the electronic operations they should carry out and the certificates and digital documentation they would have to present. Finally, I ask them to analyse the digital footprint they have left in this procedure, indicating the data they have had to provide.
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B. Design and integration of learning situations to develop pupils' digital competence for communication, collaboration and civic participation and for the creation of their digital identity.	B1. Integration of curricular aspects related to the development of pupils' digital competence for communication and collaboration and for the exercise of citizenship and the construction of digital identity in teaching and learning processes in an autonomous way.	6.2.B1.1. Integrates into teaching and learning processes situations aimed at enabling learners to develop their competence to communicate and collaborate using digital technologies, to exercise active citizenship and to manage their digital identity responsibly. 6.2.B1.2. Selects from among the technologies provided by the EA the most appropriate ones for pupils to develop their digital competence in order to collaborate, communicate and participate.	<p>I put into practice different teaching strategies so that pupils develop their capacity for communication, collaboration, for the exercise of citizenship and for the responsible construction of their digital identity, adapting the technologies and proposals used to their characteristics.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I implement different learning activities that require pupils to communicate via the school platform, e.g. to organise the end-of-year school party. • I participate with my pupils in an eTwinning project. • I use the dynamic "two truths and a lie" to identify which of the statements about a person is false and to draw conclusions about the possibility of altering their image on the Internet. • I use the story of The Three Little Pigs, Little Red Riding Hood or The Seven Little Goats to explain "catfish" to my pre-school pupils. • In English class, I carry out an activity in which, analysing the text of a news item, I extract fragments of it to try to conclude a different fact from the one presented, in order to check how a communication can be manipulated on social networks, affecting positively or negatively the digital image of a person or a company. • I ask pupils to establish, depending on the digital image they want to project, the differences between a personal profile and a professional profile on social networks, regarding the characteristics of the publications and the privacy settings of the account. • I ask my pupils in the Civic and Ethical Education class to find out the steps they need to take to implement a crowdfunding initiative selected as a critique in class. • I do an activity in class which consists of cutting out messages to take them out of context and then analysing the possible rational and emotional reactions to them in small groups. These results are then compared with the meaning that would be given to the messages in their original context in order to construct a decalogue on the guidelines of courtesy in digital communication.
	B2. Design and adaptation of pedagogical strategies to enhance the development of pupils' digital competence in	6.2.B2.1. Reflects on and evaluates his/her own practice in order to design or adapt new pedagogical proposals so that pupils develop their competence in using digital technologies to communicate,	<p>I design or adapt different didactic approaches to integrate into teaching and learning various processes that aid the development of pupils' digital competence in order to make appropriate and responsible use of technologies in communication, collaboration and citizen participation and to raise awareness and guide them in the process of building their digital identity.</p> <p>Examples:</p>

	<p>communication, collaboration and participation through digital technologies and in the construction of digital identity.</p>	<p>collaborate with others or participate as citizens in digital society, as well as to manage their digital footprint and identity.</p> <p>6.2.B2.2. Applies his/her sociological, psychological and technical knowledge of technologies for communication, collaboration and participation to adapt their use by pupils to changing contexts.</p>	<ul style="list-style-type: none"> • I develop didactic approaches in order to improve my teaching practice that help pupils to communicate through digital tools, applying and respecting their own rules of behaviour and communication, through the exchange of messages via multicultural networks. • I set up the classroom blog so that pupils work collaboratively to create rules of digital etiquette while respecting diversity and the ideas of others. • I suggest to my pupils, in Philosophy or Civic and Ethical Education classes, an activity to reflect on the conception of their own identity and on the construction of their personality in which it is necessary to carry out a comparative analysis of the data selected in the profile to personalise the services of two different types of companies, one that offers a content search engine ("you are what you see") and another that provides a social communication network ("you are what you share"). • I invite my pupils to complete the quadrants of a Johari window based on their activity in digital environments to identify what kind of data would be placed in each of the quadrants and to analyse their interaction within a social network or virtual collaboration group. • I ask my pupils to draw up a list of digital rights in small groups. Once they have done so, they compare them with the digital rights and principles proposed by the European Commission to be included in an institutional declaration as part of the actions included under the initiative "Europe's Digital Decade: Digital Targets 2030". • I have designed, with an authoring tool, a simulator that allows a fictitious personal profile to be configured and I dump the data in a text document template so that pupils are aware of the information they are giving up when they carry out this type of process. • I set up the class blog so that pupils can rate the contributions of other classmates with a like or dislike and analyse their effects, offering alternative rating systems. • I have created a didactic video in which I explain to my pupils how to configure the privacy settings of their social media accounts. • I participate with my pupils in a school collaboration project at regional level consisting of collecting data on pollution levels in different localities in order to build, with the support of a research centre located in the region, an informative and awareness-raising website and to develop models to simulate different evolutions depending on the behaviour of the citizens.
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<p>C. Research and innovation in the design of new pedagogical strategies for the development of pupils' competence for communication, collaboration and participation in digital environments.</p>	<p>C1. Coordination or design of the school's actions to develop pupils' digital competence in communication, collaboration and participation through digital technologies and in the construction of a digital identity.</p>	<p>6.2.C1.1. Coordinates or contributes to the design, implementation and evaluation of the impact of the pedagogical approaches included in the school digital plan to develop pupils' digital competence in communication, collaboration and participation through digital technologies and in the construction of a digital identity.</p> <p>6.2.C1.2. Evaluates the digital technologies and services used at school to develop competence in communication, collaboration and participation through digital technologies and in the construction of digital identity in order to make suggestions for improvement.</p> <p>6.2.C1.3. Advises or trains other teachers on pedagogical strategies and the configuration and use of technologies to promote the development of competence in communication, collaboration and participation through digital technologies and in the construction of pupils' digital identities.</p>	<p>I coordinate or actively contribute to the design, implementation and evaluation of the actions of the school digital plan to develop students' digital competence to use technologies appropriately and responsibly in communication, collaboration and citizen participation and to raise awareness and guide them in the process of building their digital identity.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I research, experiment with and integrate, in a didactic repository of the school, innovative teaching and learning activities that allow pupils to reflect and debate on the needs and use of digital technologies for communication and collaboration in virtual environments. • I coordinate a seminar at the school with the aim of bringing together the actions of the departments so that all pupils achieve the development of digital competence to safely and responsibly use the technologies that enable communication, collaboration, civic participation and a conscious construction of digital identity, included in the curriculum, at the end of their studies. • I emulate in the school's VLE a social network with groups, walls, news or comments, so that the actions contemplated in the school's digital plan can be carried out safely. • I evaluate the social media most used by the school's pupils to determine which aspects should be taken into account when managing their digital footprint and I design activities to raise awareness that can be used at different educational levels. • I actively participate in the integration of the school's digital and coexistence plan in order to adapt the rules on the development of the pupils' digital identity, their digital citizenship and the rules of etiquette and accessibility to be followed in the school's virtual environment and in digital interactions with other people. • I am coordinating a school training project for the development of a service-learning initiative involving the whole school aimed at building responsible digital citizenship. • I design and coordinate a school project linked to the achievement of the improvement objectives of the digital plan consisting of the development of an awareness and dissemination campaign on the digital footprint and identity developed by pupils themselves and target to the whole school community. • I actively collaborate in a school approach for educating pupils in the exercise of responsible digital citizenship based on the development of channels of communication, organisation and horizontal participation, through digital technologies, in decision-making processes on how the school community can contribute to the achievement of the SDGs (Sustainable Development Goals).
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	<p>C2. Research and innovation on teaching and learning practices aimed at developing pupils' digital competence in the use of communication and collaboration technologies and in the construction of digital identity and active and responsible citizenship.</p>	<p>C2.1. Researches the impact of teaching and pedagogical strategies to develop digital competence for civic participation, communication, collaboration and the construction of a responsible digital identity and on the technologies usually used by pupils and the use they make of them.</p> <p>6.2.C2.2. Designs based on research evidence, new pedagogical approaches to improve the acquisition and development of pupils' digital competence in communication, collaboration, citizen participation and responsible and conscious construction of digital identity.</p>	<p>I design, based on applied research, new pedagogical practices aimed at developing pupils' digital competence in order to make appropriate and responsible use of technologies in communication, collaboration and citizen participation.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I lead a European inter-school project for all pupils to collaborate in the development of a charter of digital rights for children and teenagers. • I conduct longitudinal research on the impact of pedagogical strategies to develop pupils' self-esteem, assertiveness and social skills on the responsible use of communication and collaboration technologies and on the construction of their digital identity. • I carry out a field study to find out what technologies teenagers use to communicate and how they use them, and I design pedagogical approaches aimed at developing this competence in pupils. • I design and implement a teaching experiment, based on the evaluation of the impact on pupil learning of pupils' own work together, which engages with an intelligent agent that plays the role of learning companion (Learning Companion or LC).
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6.3. Digital content creation

Competence description

Designing, implementing and integrating pedagogical approaches in teaching and learning for the development and assessment of pupils' digital competence in the creation and re-elaboration of digital content, including programming and the content or functionalities to create or edit them from emerging technologies, applying authorship and intellectual property rights.

Contextualising competence 6.3 in teaching

Digital content is understood as any production produced by digital means: text, images, videos, software or interactive activities, amongst others. The context of application is the creation of teaching and learning situations in which pupils must create and edit digital content accessible in different formats, with different devices and tools or technologies, including code editors and the use of AI (text correctors, translators, image processing), IoT, virtual and augmented reality.

Teaching practice requires pupils to develop their ability to use different types of authoring tools, to integrate content from different sources (AI, IoT) and to use developments that automate and facilitate creation and editing processes. This requires pupils to understand, in general terms, how they work and reflect on the ethical implications of their use. This will also enhance their creativity, their ability to solve problems and to express ideas, knowledge, feelings, and concerns in a richer and more effective way through digital media.

Activities for the development of an adequate exercise and respect of copyright and intellectual property rights and the analysis, from the point of view of their economic benefits of the services that companies offer free of charge for the creation or publication of digital content, should be considered.

Finally, pupils should work with programming as an indispensable resource for automating and applying solutions through algorithms to solve everyday problems. In this sense, scripts, understood as sequences of commands and instructions with a specific objective, are in themselves digital content, as computer programmes in general. It is interesting to note here that the use of programming languages, whether through blocks or command lines, leads to the creation of programmes that satisfy a myriad of needs, thus transcending the plain creation of content towards the creation of tools.

This competence is linked to 6.1 Media, information and data literacy, as the reworking and creation of content requires prior search and selection. However, in competence 6.3 only the ability to integrate this information and data into new content from different sources is considered.

Competence 6.3 Digital content creation is also related to 6.2 Communication, collaboration and digital citizenship, insofar as 6.2 deals with the collaborative creation of content, although only from the point of view of social skills and the use of technologies for the development of this collaboration. However, competence 6.3 deals with the necessary knowledge for the actual creation of content from the mastery of different languages to the use of technological tools.

On the other hand, this competence, as it includes the ability to programme in order to solve problems and automate processes, may be confused with competence 6.5. Nevertheless, a programme is understood as a special type of content. In competence 6.5 Problem solving, programming is not included as a resource for solving problems, but they are tackled from a deep knowledge of technologies in order to achieve a creative use of them in all facets of life.

The key elements of this competence include:

- Pedagogical strategies for the development of pupils' digital competence.

- Digital technologies that enable the expression and creation of content through digital media. General principles and functioning of artificial intelligence developments and emerging technologies in relation to the edition and creation of digital content.
- Copyright and intellectual property rights.
- Computational thinking and programming strategies.

Actions that demonstrate this competence include tasks and assessments that motivate and require pupils:

- Creating and editing digital content in different formats while preserving privacy and personal data for themselves and others.
- Using digital technologies to create content to express ideas, knowledge or feelings in different languages and formats in an accessible way.
- Modifying, refining, improving and integrating information and content into an existing body of knowledge.
- Creating new, original and relevant content and knowledge.
- Understanding how copyright and licences affect data, information and digital content and use them correctly.
- Programming and developing a sequence of instructions for a computer system to solve a given problem or perform a specific task.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

6.3. Digital content creation

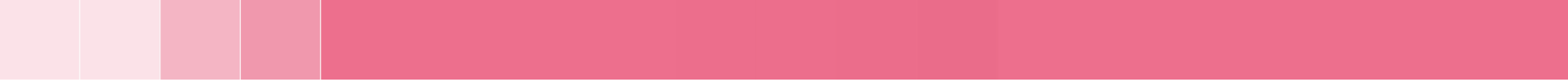
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application of pedagogical strategies for integrating the curricular aspects of pupils' digital competence for the creation of digital content into teaching and learning processes.	A1. Knowledge and theoretical understanding of the technical aspects involved in the development of pupils' digital competence to create digital content and of the didactic criteria for its teaching and learning.	<p>6.3.A1.1. Uses the most common authoring tools, including those that make use of AI and IoT in the creation of digital content.</p> <p>6.3.A1.2. Knows and applies scientific, technical, aesthetic and accessibility criteria to determine the quality of digital content.</p> <p>6.3.A1.3. Knows and applies the regulations on copyright and intellectual property rights.</p> <p>6.3.A1.4. Knows the didactic criteria to be applied in the selection of educational approaches for pupils to be competent in creating digital content and the way in which this competence is integrated into the curriculum or syllabus.</p>	<p>I apply scientific, technical, aesthetic and accessibility criteria to determine the quality of digital content. I use the most common authoring tools and I know the didactic criteria to be used in teaching and learning processes so that pupils develop their competence in the creation of digital content.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I use a digital device to take photographs and I use the AI of the functionalities of a photo editing tool to give it an old-fashioned look and feel to show how it works in a professional internship. • I created a small application to teach kindergarten children how to use the mouse by means of a painting game using a visual programming language as part of my initial teaching training. • I apply WCAG 2.1 standards for accessibility and use APA standards for citations in my blog on digital content creation that I might use in the future for my educational practice. • I know the basic guidelines for combining the colour palette to create contrasts that facilitate visualisation and generate the desired aesthetic impact and the different chromatic classification systems used in digital environments. • I apply rules of spatial distribution to give balance to graphic compositions (diagrams, infographics, drawings, presentations, layout of documents, etc.) and facilitate their reading and the understanding of the structure and ideas they represent. • I draw up a checklist during the training activity in which I am participating so that pupils can check that they have followed all the recommended guidelines in the development of content and that they will be taken into account for the assessment of their performance.

	<p>A2. Guided application, in real contexts of teaching and learning processes to develop pupils' competence in the creation of digital content.</p>	<p>6.3.A2.1. Applies, with the help of other teachers, didactic proposals that enable the development of competence for the creation of digital content adapting them to the curriculum, the educational project and the school digital plan.</p> <p>6.3.A2.2. Contextualises technical knowledge about the creation of digital content to the authoring tools provided by the EA or school leaders to be used by the pupils.</p> <p>6.3.A2.3. Applies with guidance the use of scientific, technical, aesthetic and accessibility criteria in the creation of content to teaching and learning situations.</p>	<p>I apply in a guided way the didactic strategies included in the programme and in the digital plan so that pupils learn to create quality digital content using the authoring tools provided by the EA or by the school leader.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I integrate into my teaching practice with guidance learning activities that require my pupils to create and modify infographics to present the content learned about the Spanish Civil War. • I ask my pupils to create a video presentation using a mobile device and AI editing software following the guidelines set out in an assessment rubric in the lesson plan. • I make my pupils assess the quality of the content they have created from an accessibility point of view, by accessing it using only screen-scanning software, following the guidelines offered by other teachers. • I put into practice with the support of another classmate the action of the school digital plan consisting of pupils creating a personalised template to make presentations following previously established parameters of accessibility and adaptation to the format which will be used for their assessment. • I open a discussion in a shared teaching session for my pupils to carry out a comparative analysis of various schemes on types of sentences to determine which elements facilitate or hinder the understanding of the conceptual hierarchy and the relationships between ideas and, once the conclusions have been agreed upon to apply them in the elaboration of their own scheme.
<p>B. Design and integration of learning situations to develop pupils' digital competence in the creation of digital content.</p>	<p>B1. Integration into teaching and learning processes in an autonomous way of curricular aspects related to the development of pupils' competence in the creation of digital content.</p>	<p>6.3.B1.1. Integrates into teaching practice learning activities that allow pupils to express and share their ideas in a creative way, through the use of appropriate digital tools, while respecting copyright rules and licences.</p> <p>6.3.B1.2. Encourages learners to evaluate their own digital content by reflectively applying scientific, aesthetic, technical and accessibility criteria and</p>	<p>I put into practice different didactic strategies so that pupils develop their ability to transfer their ideas and develop digital content in a creative way, adapting the technologies provided by the EA or by the school leader to their characteristics.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I ask my pupils to use scripts and storyboards to create videos for a school news programme. • I ask the families of my pre-school pupils to collaborate in the creation of the travelling book by recording podcasts and "talking pictures" accessible through augmented reality. • I organise an online learning activity in which pupils must collaboratively and sequentially create a story based on existing online content. • I ask my pupils in all assignments, tasks and activities to include the references of the sources consulted following the APA guidelines and to personally rewrite the

		<p>formulating suggestions for improvement.</p> <p>6.3.B1.3. Selects from among the technologies provided by the EA or school leader, the most appropriate ones for pupils to develop their competence in the production of digital content.</p>	<p>information with an original structure and wording, quotations must always be in quotation marks and referenced.</p> <ul style="list-style-type: none"> • I include in my didactic planning following the curriculum, the programming of simple algorithms that allow the application of recursive thinking strategies and tools such as flow charts, as is the case e.g. with multiplication, so that pupils understand this concept and can apply it to the development of other programmes. • I apply programming challenges of increasing difficulty with my pupils to develop a programmable barrier and traffic light system, using a controller board, which closes automatically when it detects the movement of a fire engine leaving its station. • I ask my pupils to create an infographic representing the mass of a mole the Molar Mass of different elements.
	<p>B2. Adaptation to new contexts of the school technologies and pedagogical strategies to promote the development of pupils' digital competence for the creation of digital content.</p>	<p>6.3.B2.1. Reflects on and evaluates their own practice to design or adapt new learning suggestions that involve pupils in creative design processes in order to create quality digital content.</p> <p>6.3.B2.2. Offers learners a varied and flexible repertoire of digital technologies and devices provided by the EA or the school leader to develop pupils' competence in digital content creation in a versatile way.</p>	<p>Based on reflection on my teaching work, I adapt technologies to new learning contexts in which I design and put into practice didactic suggestions for pupils to develop, in creative design processes, their ability to create digital content in different formats and using different devices.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I put into practice a project in which I put my pupils through a design process in the development of an advertising campaign, similar to one followed in an agency, aimed at encouraging the sustainable use of electricity in the school. • I ask my pupils to create an article about our town that will be hosted on a public wiki, so it must meet all the required quality standards (correctness in writing, verifiability and accuracy of data, neutrality, balanced development of the topic to be addressed, well documented, and illustrated, accessibility). • Together with my pupils, I have created a science popularisation section in the school's digital magazine in which they publish a weekly article to debunk some pseudoscientific myths and offer a well-founded explanation of the selected problems using different types of content such as html5 animations, videos or infographics. • I ask my students to make video tutorials on possible tools that use AI for the creation of digital content. • I am launching a project for my pupils to learn how to design with a 3D programme the templates of the parts to be built using origami folds of a self-propelled pneumatic vehicle.

			<ul style="list-style-type: none"> • I have designed a presentation to show my pupils how to use the Gestalt principles to present information when creating content. • I run a quiz with my pupils to teach them how to make quotes from different types of web content (digital newspaper, blog, tweets, online video) that are randomly obtained from Internet searches generated by a bot. • I suggest to my pupils that, after processing the data, they look for ways of representing quantities of different magnitudes that are significant and arouse the curiosity and interest of the spectator, using digital technologies and artistic criteria and attributing a licence to their creations in order to set up an exhibition on human food consumption at the school. • Using augmented reality, my pupils create an audiovisual guide to the plant species in the school, which can be viewed using an app they have developed themselves as part of an interdisciplinary project.
<p>C. Applied research and innovation in the development of didactic approaches to stimulate creativity in the expression of ideas and knowledge through the creation of digital content by pupils.</p>	<p>C1. Coordination or design of the school's actions to develop pupils' digital competence in the creation of digital content.</p>	<p>6.3.C1.1. Coordinates or contributes to the design and implementation of the pedagogical approaches included in the school digital plan to develop pupils' digital competence for the creation of digital content and in the evaluation of its impact on learning.</p> <p>6.3.C1.2. Evaluates the digital technologies and services used at school to develop pupils' competence in the creation of digital content in order to make suggestions for improvement.</p> <p>6.3.C1.3. Advises or trains other teachers on pedagogical strategies and the configuration and use of technologies to foster the development of pupils' digital</p>	<p>I coordinate or actively contribute to the design, implementation and evaluation of the actions of the school digital plan to develop pupils' digital competence for the creation of digital content in different formats and using different devices.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I redesign learning activities to encourage digital expression in the form of digital stories or e-portfolios and encourage practices of sharing texts, photos, images and presentations among pupils with the obligation to cite sources and avoid plagiarism. • I coordinate a seminar to train teachers at the school to apply the Visual Thinking technique with their pupils as a design and planning tool for the creation of digital content. • I coordinate the development of a project in a school of music for pupils to compose and perform a virtual musical concert with digital instruments created by themselves. • I coordinate a training project at my school in order to bring together actions of the teaching teams so that all pupils reach the level of development of digital competence for the creation of digital content set out in the curriculum at the end of their studies. • I analyse different applications and authoring software in order to suggest its use in the school for pupils to create quality digital content. • I coordinate the editorial team of the digital newspaper produced by the school's students.

		competence for the creation of digital content.	<ul style="list-style-type: none"> • I design, with the participation of pupils and other teachers, a solidarity project at the school for pupils to develop their competence in digital content creation by teaching other members of the school community how to use different authoring tools in different afternoon workshops. • I promote and coordinate the participation of the school's pupils in a digital fair in which they present the mobile applications they have created in small teams throughout the course.
	C2. Innovation of teaching and learning practices to develop pupils' digital competence for the creation of digital content.	<p>6.3.C2.1. Investigates the impact of didactic and pedagogical strategies and the technologies and services commonly used for the creation of digital content by pupils.</p> <p>6.3.C2.2. Design, on the basis of research, new pedagogical approaches to improve the acquisition and development of pupils' digital competence for the creation of digital content.</p>	<p>I design on the basis of applied research, new pedagogical practices aimed at stimulating the creative and rigorous use, applying quality criteria, of digital technologies by pupils to produce digital content.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am participating in a research project to evaluate how the creation and re-elaboration of digital content by pupils leads to an overall improvement in their learning. • I received a national award for the coordination of a school innovation project for the quality of the augmented reality content developed by pupils. • I have created a network of schools so that pupils can create a virtual exhibition of 'hidden worlds' based on digital content obtained from the Internet. • I investigate the 'Future Classroom Lab' methodology as a pedagogical strategy that allows for the improvement of the general process of creating quality digital content by students.



6.4. Responsible use and digital wellbeing

Competence description

Designing, implementing and integrating, in teaching and learning processes, pedagogical approaches for the development and assessment of pupils' digital competence in the safe, responsible, critical, healthy and sustainable use of digital technologies.

Contextualising competence 6.4 in teaching

This competence is used when it comes to knowing, designing and applying pedagogical strategies for pupils to develop a level of competence that enables them to make safe and responsible use of digital technologies. The common element of the competence that learners need to develop is protection and safety, but it should be applied in different areas: devices, personal data and privacy, both their own and others', physical and mental health, and the environment and society. This implies that pupils:

- Learn about the risks and benefits, both personal, social and environmental, of using digital technologies.
- Adopt healthy, green and sustainable consumption habits that systematically incorporate safety measures to protect your devices, personal data, privacy and content.
- Make decisions and make responsible use and consumption of digital technologies and know how to act appropriately facing problems that may arise and affect their own safety or physical or psychological well-being or that of others.

This competence is linked to 1.5. Personal data protection, privacy, safety and digital well-being, but it differs significantly from it, since competence 6.4. Responsible use and digital wellbeing is eminently pedagogical in nature, while 1.5. requires teachers to be competent in the adoption of safety measures and personal data protection and privacy in the exercise of all the functions entrusted to them, as well as to develop proactive measures to ensure the physical, psychological, social and emotional well-being of pupils in digital environments, also leading to positive coexistence in the school.

On the other hand, this competence is closely connected with the other competences in area 6, as pupils should exercise them to some extent whenever they make use of digital technologies.

The key elements of this competence include:

- Pedagogical strategies for the development of pupils' digital competence.
- Techniques for the protection of devices (computers, tablets, smartphones, personal assistants, home appliances and vehicles managed by IoT, wearable and street furniture technologies), personal data and privacy.
- Digital technologies and health. Healthy practices when using digital technologies.
- Risks and benefits of digital technologies. Protection of personal data and privacy.
- Digital technologies, social justice, environmental protection, and sustainability.
- Regulations on personal data protection and guaranteeing digital rights.

Actions that demonstrate this competence include tasks and assessments that motivate and require pupils:

- Protecting devices and digital content, as well as understanding the risks and threats in digital environments (inappropriate content, cyberbullying, grooming, sexting, addictions) and adopt proactive and reactive measures for action and prevention.
- Protecting personal data and privacy when using digital technologies.
- Understanding how to use and share personal information and, at the same time, be able to protect themselves and others from harm.
- Knowing how to manage and configure the options associated with the privacy policy of digital services.

- Being aware of the role of digital technologies in welfare and social inclusion, applying ethical criteria in their use.
- Avoiding health risks and threats to well-being in the use of digital technologies.
- Being aware of the environmental and social impact linked to digital technologies and their use.
- Identifying and acting in situations of digital fraud (e.g. identity theft, installation of malicious software, scams, swindles).
- Knowing and respecting the digital rights of citizens.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

6.4. Responsible use and digital wellbeing			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application of pedagogical strategies to integrate into teaching and learning processes the curricular aspects of pupils' digital competence on safe, responsible, critical, healthy and sustainable use of digital technologies.	A1. Knowledge and theoretical understanding of the aspects involved in the responsible and healthy use of digital technologies and of the didactic criteria for pupils to acquire safe usage habits and make reflective decisions.	<p>6.4.A1.1. Knows the didactic criteria to be applied so that pupils develop their competence in digital safety and well-being by acquiring the knowledge, use habits and values associated with it and the way in which this competence is integrated in the curriculum or syllabus.</p> <p>6.4.A1.2. Knows and understands the sociological and psychological theories that explain the behaviours associated with the most common risks to physical and emotional well-being in the use of the Internet and how to convey an understanding of them through educational designs.</p> <p>6.4.A1.3. Knows the digital rights of EU citizens and the regulations on personal data protection, the legal and ethical implications of the use of digital technologies, as well as the pedagogical measures to be adopted for pupils to develop an effective exercise of these rights.</p>	<p>I have the didactic, technical, regulatory, psychological and sociological knowledge necessary to integrate the development of pupils' competence in the responsible and safe use of digital technologies into teaching and learning processes.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I design, in a training activity, of an infographic that lists the 10 most common risks in the use of the Internet by minors and how to deal with them. • I have designed, with guidance, a learning situation in which the impact of the use of technology on the environment is studied through challenge-based learning, based on the question 'how much energy does an Internet search consume?' as part of my initial teacher training. • I collaborate in a school for parents giving talks on the preventive measures that can be adopted at home to avoid the risks posed by access to inappropriate content by minors and how to work on this issue at home. • I select the Amanda Todd or Two in Your Class video from UNICEF to initiate an awareness-raising exercise on cyberbullying among teenagers in the context of a professional development training activity. • As part of my training tasks, I prepare an outline and a short glossary with the basic concepts of personal data protection regulations adapted to educational contexts, including what data can be considered personal, what purposes justify their use, who are the data guardians and data protection officers, what are the digital rights and what specific measures affect minors. • I edit a short video, as part of a course activity, on the risks involved in the use of biometric data, including its use to restrict access to devices, presenting these arguments in a clear and orderly manner. • I apply, during the training sessions in which I participate, behavioural theory to the analysis of Internet gambling addiction by explaining the effects of the administration of time-varying and ratio-varying reinforcement. • I design, as an activity included in a training course, a presentation to guide pupils in the use of different tools to protect devices and personal information, such as the

			configuration of safety questions, the double authentication mechanism (2FA) or the use of authenticators that provide dynamic passwords.
	<p>A2. Application of didactic approaches, in a guided way, for the development of pupils' competence in the responsible, safe and sustainable use of digital technologies and to ensure their digital well-being.</p>	<p>6.4.A2.1. Applies with guidance the didactic criteria to be used so that pupils develop their competence in digital safety and well-being, acquiring the knowledge, use habits and values associated with it, following the didactic programme and the school digital plan.</p> <p>6.4.A2.2. Contextualises with guidance their technical knowledge so that pupils are able to configure the privacy and personal data protection options available in the digital technologies provided by the EA or school leader as well as in their own devices and services used.</p>	<p>I apply with guidance the didactic strategies included in the school digital plan so that pupils make a safe, responsible, critical, healthy and sustainable use of digital technologies.</p> <p>Example:</p> <ul style="list-style-type: none"> • I use the activity 'the bank always wins, included in the school digital plan, to make them apply their mathematical knowledge and find out what the expected value of typical games of chance is, to make pupils aware of the imbalance in favour of the house and thus avoid possible addictive behaviours. • I use the game 'the ignored' in class to subsequently deal with the psychological and sociological aspects that affect our behaviour in society and, specifically in digital environments. • I teach my students following the indications of a newspaper article, to use the domains.eu service to find out if the URLs that appear in an email or message correspond to the user or company they claim to be. • I help to configure the user profiles of the pupils in my form class in the school's virtual environment following the guidelines set out in the digital plan and in the manual provided for this purpose. • Following the suggestion and guidance of another teacher I developed an activity in the classroom to make my pupils aware of the risks of 'geotagging' and so that they learn to use this application selectively and responsibly. Following 'iknowwhereyourcatlives.com' I ask them to look for images of pets they like or like on the Internet, to find out, in small groups, what they can know about their owners and to present, in their conclusions, the risks that publishing content on the Internet may entail and the measures to be taken to do so safely. • I organise in the classroom, following the suggestions of a manual, a dynamic consisting of guessing, in small groups of students who know each other well, the password they use on their devices in order to make them aware of the need to create strong passwords as a prior step to explaining some of the guidelines they can follow to generate them and the tools they can use to manage them.

<p>B. Design and integration of learning situations to develop pupils' digital competence for safe, responsible, critical, healthy and sustainable use of digital technologies.</p>	<p>B1. Integration of curricular aspects related to the development of pupils' digital competence on the safe, responsible, critical, healthy and sustainable use of digital technologies in teaching and learning processes in an autonomous way.</p>	<p>6.4.B1.1. Integrates into the teaching and learning processes situations aimed at pupils developing the knowledge, habits and values to make safe, responsible, critical, healthy and sustainable use of digital technologies.</p> <p>6.4.B1.2. Teaches pupils to implement, from a technical point of view, the cyber security guidelines established in the school digital plan in all actions in which they have to make use of digital technologies and provides them with guidelines for transferring these measures to other areas.</p>	<p>I autonomously put into practice different teaching strategies so that pupils make responsible, safe, critical, healthy and sustainable use of digital technologies, both inside and outside the school, and apply the cyber security guidelines included in the digital plan.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I apply a playful activity, "we play at being spies", consisting of encrypting and decrypting digital messages for which they have to use different codes that I provide them with and the functionalities of the office automation tools provided by the school and the institutional email account. • I use the National Data Protection Agency videos on safety and privacy settings for instant messaging programmes to compare the guidelines provided and compare them with those in your profile. • I explain in class the basic rules to follow in the event of cyberbullying and provide them with leaflets with the necessary information. • I implement an interdisciplinary research project in which pupils, in small groups, must identify, throughout the process of extraction, production, distribution, consumption and disposal of digital devices, the factors that generate inequality, violence, resource depletion and environmental pollution, and then develop a series of lectures on the subject in the local cultural centre. • I explain to my pupils the basic steps to follow when sharing digital devices: logging in and out, creating profiles, switching off devices, etc. • I suggest the development of a debate in teams on the use and abuse of photo retouching filters on social networks and their contribution to promoting unrealistic standards of beauty and the way they affect self-esteem, with the title "Creative resource or deception?" • I establish IT class leaders who are responsible for ensuring that digital devices are switched off and properly stored in the charging and storage trolleys. • I have placed posters and infographics in different parts of the classroom indicating the basic cyber security guidelines included in the school digital plan and which should be used when using digital devices. • I develop of a workshop on the use of digital certificates and digital ID cards in an adult education centre.
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	<p>B2. Design and adaptation of pedagogical strategies to promote the development of pupils' digital competence in the responsible, safe, critical, healthy and sustainable use of digital technologies.</p>	<p>6.4.B2.1. Designs or adapts new pedagogical approaches, based on reflection and evaluation of their own practice, so that pupils develop their competence in using digital technologies in a responsible, safe, critical, healthy and sustainable way.</p>	<p>I design or adapt different didactic approaches to integrate into teaching and learning processes the development of pupils' competence to use digital technologies responsibly, safely, critically, healthily and sustainably.</p> <p>Examples:</p> <ul style="list-style-type: none"> • Based on the question "What is RoHS?", I ask my pupils to conduct an audit of the digital devices they use on a regular basis. • I suggest that pupils make an instructional video with recommendations on ergonomic habits and eye rest routines when using devices and screens, and then create a QR code with a link to the video so that other pupils can consult it in the digital corner, space or classroom. • I suggest a series of weekly challenges where I pose encrypted enigmas using different encryption systems for my pupils to discover in my mathematics classes. • I ask my pupils, during the class sessions of an interdisciplinary project in which digital devices are used intensively, to lead a session of micro-pause gymnastics to be prepared in the Physical Education class. • I design an experiment in Physics class to carry out an expert test to assess the electricity consumption of different devices and compare the result with the technical specifications indicated by the manufacturer, analysing the impact that this energy consumption has on the environment. • I ask my students, in an interdisciplinary project in Economics, Mathematics, Technology, and Civic and Ethical Values, to analyse the data that should be collected and sent to the company by a domestic robot for sweeping floors, to develop a programme for its processing in order to make improvements in the design of a new model and to develop the instruction leaflet and information on data protection to be provided to the consumer. • I use the poem 'the dog with a luminous nose' in my literature class as a basis for discussing the issue of trolls and flaming on social networks, establishing what the optimal response should be in these cases, analysing the most common types of harassment and creating a sonnet that draws the conclusions. • I ask my pupils to search for and identify on the Internet job offers and fraudulent businesses and investments in which the Ponzi scheme is applied - enhanced by the enormous reach of digital tools - and then choose one of them and give a presentation on the procedure followed and the psychological factors that characterise both the scammer and the victim.
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<p>C. Research and innovation in the design of pedagogical strategies for the development of pupils' competence in the safe, responsible, critical and sustainable use of technologies and for safeguarding their own and other people's well-being.</p>	<p>C1. Coordination or design of the school's actions to develop pupils' digital competence in the use of digital technologies in a safe, responsible, critical, healthy and sustainable way.</p>	<p>6.4.C1.1. Coordinates or collaborates in the design, implementation and evaluation of the pedagogical approaches included in the school digital plan in order to give continuity to the development of pupils' digital competence, contributing to creating a culture of safety and responsibility at the school and in the educational community.</p> <p>6.4.C1.2. Assesses the digital technologies and services used at the school to develop pupils' competence in cyber security and in the adoption of positive practices towards their physical, psychological and social well-being and that of their peers.</p> <p>6.4.C1.3. Advises or trains other teachers on pedagogical strategies and the configuration and use of technologies to enhance the development of pupils' digital competence in digital safety and well-being.</p>	<p>I coordinate or actively contribute to the design, implementation and evaluation of the actions of the school digital plan to ensure continuity in the development of students' digital competence in the adoption of measures that enable them to use digital technologies safely, responsibly and sustainably and to exercise positive practices towards their physical, psychological and social well-being and that of their peers.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I promote a campaign for the prevention of cyberbullying in the school, integrating the roles of pupils' mediator and cyber pupils. • I coordinate training actions for pupils offered by different social agents (police, social services, children's ombudsman's office, National Cyber Security Centre) for the prevention of the risks of inappropriate use of the Internet. • I manage and evaluate the content filtering settings so that access to inappropriate topics is reported when, in the context of an academic activity, searches or queries are made on certain web pages. • I actively participate in the evaluation of the figure of the CyberMentor pupil as a resource for training and tutoring younger pupils in the safe use of the Internet. • I coordinate the implementation of a school project to raise awareness in the school community about the collection of personal data by artificial intelligence assistants and small household appliances that incorporate an IoT system, in which all pupils, depending on their educational level and with the guidance of teachers, carry out the analysis of a given device and prepare an information panel that will be disseminated through the school's website and in its physical facilities. • I evaluate, with the help of my pupils, the use made of the school's digital technologies in order to minimise their environmental impact, making proposals that can be integrated into the school digital plan. • I am in charge of monitoring the actions of the school digital plan aimed at the progressive development of pupils' competence in the adoption of safety measures in the use of digital technologies and of the periodic evaluation of these measures carried out using the SELFIE tool. • I organise the participation of a group of pupils from the school in an inter-school debate on the use of facial recognition systems and help them prepare their interventions. • I provide training courses on pedagogical strategies to develop pupils' competence in the healthy use of digital technologies.
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	<p>C2. Research and innovation on teaching and learning practices in ways that adapt to the continuous evolution of risks and technologies aimed at developing learners' digital competence in the use of digital devices and services in a safe, responsible, critical, healthy and sustainable way.</p>	<p>6.4.C2.1. Investigates the impact of teaching and learning strategies to raise awareness of risks and threats in the use of digital technologies, environments and services and support students in understanding safety measures and adopting habits and values to protect their privacy, personal data and the well-being of themselves and others.</p> <p>6.4.C2.2. Designs new pedagogical approaches based on research to improve the acquisition and development of pupils' digital competence in the safe, responsible, critical, healthy and sustainable use of digital technologies.</p>	<p>Design, based on applied research, new pedagogical practices aimed at developing pupils' digital competence to use digital technologies in a safe, responsible, critical, healthy and sustainable way and to acquire awareness of the importance of their digital rights in order to preserve citizenship.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I promote a network of experimental e-safety and digital well-being workshops aimed at supporting teachers at all educational stages in developing pupils' digital competence in the safe and responsible use of digital technologies. • I am participating in field research on safety and privacy protection measures in the use of digital devices by minors. • I collaborate in a research group that is designing a questionnaire for the self-assessment of pupils' decision-making in simulated risk situations on the Internet. • I analyse, using controlled observation techniques, the impact of personal data protection and privacy awareness sessions for pupils on their subsequent adoption of security and protection measures. • I collaborate in the design and implementation of a regional programme to disseminate, among pupils aged between 11 and 14, the consequences of non-consent in the transfer of personal data when consulting, accessing and registering on different platforms, social networks and services.
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6.5. Problem solving

Competence description

Designing, implementing and integrating, in teaching and learning processes, pedagogical approaches for the development and assessment of pupils' digital competence in the use of digital technologies to solve everyday problems and to develop as prosumers in a creative and critical way in a digitalised world.

Contextualising competence 6.5 in teaching

The aim of this competence is for teachers to promote among their pupils the ability to cope in the digital world and to cover, thanks to the use of technologies, the needs they may have in any field, ranging from those of everyday life, those that affect their future work, professional development or participation or involvement in any personal or collective project or initiative. This makes them both consumers and producers of digital information and services, a definition which has come to be known as "prosumers", a term coined by Alvin Toffler in the 1980s and whose use became widespread with web 2.0.

This competence will be demonstrated by designing and carrying out teaching and learning situations requiring the solution of everyday problems and the innovative use of digital technologies by pupils. It requires teachers to be able both to solve these same problems and to use their pedagogical and didactic skills to motivate and involve pupils and get them to develop this learning. The field of application of this competence is open to any situation, but is articulated around the following axes:

- Hardware and software installation, device connection and synchronisation and troubleshooting, as well as customised configuration of devices, services and digital tools, including accessibility tools.
- Using digital technologies in a reflective and critical way to solve problems or carry out actions in everyday life, from making a doctor's appointment, a purchase or financial transaction, finding a job or taking part in leisure activities.
- Creative use of digital technologies to developing individually or collectively projects of any kind from the creation of a company to the constitution of social organisations or the development of scientific, artistic or cultural projects.
- Identifying one's own digital competence gaps and finding resources to overcome them, making use of digital environments, providing and receiving support for this.

This competence is closely related to 5.3 Actively engaging learners in their own learning, insofar as it contemplates the development of their autonomy in the use of digital technologies to carry out learning in a given area, subject or field of study. Both can converge in concrete projects, but the fundamental difference is that 6.5. Problem solving should be applicable and transferable to pupils' non-academic uses of digital technologies, even if their learning has taken place within the school environment.

The key elements of this competence include:

- Pedagogical strategies for the development of pupils' digital competence and to stimulate the creative and critical use of digital technologies.
- Technical knowledge to solve problems that may arise when using digital technologies. Reliable professional sources and forums to resolve doubts about the technologies.
- Use of online services.
- Online resources and platforms for the development of citizens' digital skills.

Actions that demonstrate this competence include tasks and assessments that motivate and require pupils:

- Identifying technical problems in the operation of devices and in the use of digital environments and solve them or refer them appropriately.
- Finding, evaluating, selecting, and using viable and safe digital tools and technological approaches to solve a given task or problem.
- Safely configure and customise digital environments according to individual needs.
- Innovatively use technologies to understand and solve conceptual problems and problem situations in digital environments, both individually and collectively.
- Identifying needs to improve or update their digital competence and help others in the development of their digital competence.
- Seeking opportunities for personal development and update on new developments in the field of digital technologies.

Stages of progression, proficiency levels, indicators of achievement, performance statements and examples

6.5. Problem solving			
Stages of progression	Proficiency levels	Indicators of achievement	Performance statements and examples
A. Knowledge and guided application of pedagogical strategies to integrate into teaching and learning processes the curricular aspects of pupils' digital competence to understand how technologies work and to act as prosumers in a digital society.	A1. Knowledge and theoretical understanding of the didactical aspects involved in developing pupils' competence to learn to use technology as a means to solve problems and meet their needs in the context of a digital society.	<p>6.5.A1.1. Knows the didactic criteria to be applied so that pupils develop their digital competence in order to satisfy everyday needs and develop as users in a digitised world in a critical way, and the way in which this competence is integrated into the curriculum or syllabus.</p> <p>6.5.A1.2. Knows pedagogical strategies to develop the competence of pupils, as creators, to make a practical, versatile, critical and creative use of technologies when carrying out individual or collective projects of any kind.</p> <p>6.5.A1.3. Understands how digital technologies work and knows didactic strategies to teach others to solve problems related to their use.</p>	<p>I have the necessary didactic, technical and normative knowledge to integrate into teaching and learning processes the development of pupils' competence to identify, understand and solve everyday problems and to function in a digitalised world in a creative and critical way using technologies.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I am familiar with activities for pupils to learn how to use the help functions of office tools. • I sequence the processing of the functionalities of an office automation programme frequently used in schools, applying an increasing complexity of operations and following what is established in the curriculum for a specific educational stage. • I select in a reasoned way the digital tool or tools to carry out different projects according to the evolutionary stage of the pupils is aimed at. • I have created a short video to explain the types of USB connectors, their relationship to USB standards and their most common uses. • I have developed a set of frequently asked questions to solve the most common connectivity problems that can occur on mobile devices with easy-to-read step-by-step guides for use in my mentored internships. • I have applied the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model of instructional design in my pre-service teaching practices in guided sessions, to create a didactic sequence to expose the social changes brought about by the Internet. • I design with guidance pedagogical approaches following the TIM levels of technology integration in order to ensure that pupils are able to attempt and solve problems related to the use of technologies.

	<p>A2. Guided application of didactic proposals for the development of pupils' competence to understand the functioning of technologies and to act as prosumers in a digital society.</p>	<p>6.5.A2.1. Applies with help in teaching and learning processes, didactic criteria that enable pupils to develop their competence to use technologies as users in order to satisfy everyday needs, following the educational programme and the school digital plan.</p> <p>6.5.A2.2. Knows pedagogical strategies and applies them with the help of other teachers so that pupils develop different projects, both individual and collective, making practical, versatile, critical and creative use of digital technologies.</p> <p>6.5.A2.3. Knows and understands the operation of digital technologies provided by the EA or school leaders and knows didactic strategies for teaching others to solve problems related to their use.</p>	<p>I apply with guidance didactic strategies included in the school digital plan for the development of pupils' competence in order to solve everyday problems and to manage in a digitalised world in a creative and critical way using the technologies provided by the EA or school leader.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I put into practice, with the advice of other teachers, an activity called 'The Zombie Apocalypse', included in the programme, where pupils have to work for a week without Internet and at the end of the week must present a mural in which they indicate which services they have not used and what implications it has had on their daily lives: searching for information, leisure, sports or studies. • I prepare, with the collaboration of the rest of the teachers of the class group, the end-of-year trip designed around project-based learning in which 14-15-year-old pupils organised in groups are asked to draw up specific actions specifying the days, routes, tickets, cultural visits, leisure or activities using the relevant digital tools, which must be presented and voted on in class to choose one of them. • I implement a reading promotion activity included in the school's general programme of study with the support of other teachers, consisting of creating, using digital media, a collective story for each of the class groups to submit it to the competition to be held at the end of the school year. • I tackle, following the guidelines provided by a colleague the solution of technical problems that arise in class as a result of the use of digital devices and environments, raising them in a large group to collectively and with the help of the guidelines included in the school digital plan, determine the steps to solve them.
<p>B. Design and implementation of pedagogical strategies to integrate into teaching and learning processes the curricular aspects of pupils' competence to understand the functioning of</p>	<p>B1. Integration into teaching and learning processes, in an autonomous way, of curricular aspects related to the development of pupils' competence in the use of digital technologies to respond to everyday</p>	<p>6.5.B1.1. Teaches pupils according to their age and level of maturity, to use digital technologies to meet everyday needs and management and provides them with guidelines for transferring this learning to other areas, so that they can integrate into a digital society.</p>	<p>I put into practice, in an autonomous way, different didactic strategies for the development of pupils competence so that they can solve everyday problems, get by in a digitalised world and carry out individual and collective projects using digital technologies in a creative and critical way.</p> <p>Examples:</p> <ul style="list-style-type: none"> • I present to my 10-11-year-old primary school pupils, in my science classes, the activity "spot the difference" where, based on the presentation of a certain service, e.g. shopping, banking or travelling, they must indicate what differences exist when using the virtual or face-to-face service.

technologies and to act as prosumers in a digital society.	problems and to implement individual and collective projects.	<p>6.5.B1.2. Integrates into the teaching and learning processes situations aimed at pupils developing individual and group projects that require their own initiative, using digital technologies creatively and critically.</p> <p>6.5.B1.3. Selects from among the digital technologies provided by the EA or school leader those which are most appropriate for pupils, according to their age and degree of maturity, to develop their competence to solve technical problems which may arise.</p>	<ul style="list-style-type: none"> • I ask pupils in small groups to solve a series of problems that require the use of some of the programmes or applications provided by the school to find out for themselves how to use certain functionalities to achieve this, e.g. I ask them to make a presentation to explain what density is, including multimedia material with an experiment they have done themselves. • I help pupils in recording the rehearsals of the concert they are going to give at Christmas so that they can perfect their performance and edit a digital recording that they will provide to their families. • At the beginning of the school year, I dedicate the first sessions to teaching students how to connect the equipment and peripherals they are going to use and how to configure the computer desktops in a personalised way. • I help my pupils to locate the information they need to solve a technical problem with the equipment by providing guidance only when required. • I have created the figure of the school prefect, so that every day, on a rotating basis, they are in charge of starting up the classroom devices from connecting the wiring, to starting up and solving any problems that may arise.
	<p>B2. Adaptation to new contexts of pedagogical strategies in the development of pupils' digital competence so that they can solve everyday problems and cope in a digitalised world by making creative and critical use of digital technologies.</p>	<p>6.5.B2.1. Designs or adapts new pedagogical approaches based on reflection and evaluation of their own practice, so that pupils develop their competence in using digital technologies to cover everyday needs and develop in digital society.</p> <p>6.5.B2.2. Designs learning situations adapted to new socio-technological contexts so that pupils develop individual and group projects that require their own initiative and the creative and critical use of digital technologies.</p>	<p>I design or adapt different didactic approaches to integrate into teaching and learning processes the development of pupils' competence in the use of digital technologies to respond to everyday problems and to implement individual and collective projects so that they can function in a constantly evolving digital society.</p> <p>Example:</p> <ul style="list-style-type: none"> • I ask my pupils to make a list of devices and sensors and their budget to assess the cost of carrying out an experiment on the reflection and refraction of light, involving them in the decision-making process in the laboratory practical programme. • I create an application that by means of QR codes, allows early childhood education students to request educational games for recess. • I develop a "mathematical photography" workshop with my pupils in which they have to represent the different concepts that we work on throughout the year, providing them with theoretical and aesthetic guidelines to find ways of expressing abstractions and patterns, as well as on the technical use of the school's cameras and digital image editing programmes, favouring progressively autonomous use and problem solving.

		<p>6.5.B2.3. Configures the digital technologies provided by EA or school leaders, so that they adapt to challenging learning situations appropriate to their age and degree of maturity in order to develop their competence to solve the technical problems that may arise.</p>	<ul style="list-style-type: none"> • I guide the drama group in Literature in the creation of sound and visual effects with the digital programmes provided by the school to give body to the different scenography that they have previously created. • I present to my pupils of the Classical Languages department a project to develop an awareness-raising campaign among the school community on the need to preserve linguistic diversity as part of the intangible heritage of humanity, based on an investigation into the way in which the presence on the Internet affects the different languages. • I use the Wiki in my virtual environment for my pupils to explain physics and chemistry concepts applied to real life using the digital media of their choice. • I help my pupils to set up a workshop for families so that they can explain how to set up their mobile devices and solve the most common problems related to connectivity and downloading files.
<p>C. Research and innovation in the design of pedagogical strategies for the development of students' competence to understand the functioning of technologies and to act as prosumers in a digital society.</p>	<p>C1. Coordination or design of the school's actions to develop pupils' digital competence so that they can solve everyday problems and cope in a digitalised world by making creative and critical use of digital technologies.</p>	<p>6.5.C1.1. Coordinates or collaborates in the design, implementation and evaluation of the pedagogical proposals included in the centre's digital plan to ensure continuity in the development of pupils' competence to use technologies to solve everyday situations and carry out personal projects, individually or collectively.</p> <p>6.5.C1.2. Assesses the suitability of the digital technologies and services used at the school in order to develop pupils' competence to solve the technical problems that may arise in different contexts of use.</p> <p>6.5.C1.3. Advises or trains other teachers on pedagogical strategies and the configuration</p>	<p>I coordinate or actively contribute to the design, implementation and evaluation of the actions of the school's digital plan to ensure continuity in the development of pupils' digital competence in the use of digital technologies to respond to everyday problems and to carry out individual and collective projects so that they can develop in a constantly evolving digital society.</p> <p>Example:</p> <ul style="list-style-type: none"> • I collaborate in the school library team, made up of pupils and teachers, which is carrying out a project with a twofold objective: to encourage reading and to familiarise pupils with carrying out procedures electronically. To this end, as well as implementing a digital system for cataloguing, managing loans and consulting the catalogue, it is creating a system of forms that connects to the virtual environment of each group so that pupils can make reading recommendations in multimedia formats that are then published on the library's website. • I coordinate the school's astronomy project, which includes the periodic organisation of a "blackout" or "light-decontamination day" where pupils must carry out all the necessary procedures and communications, using digital technologies, to request the corresponding permissions from the town council, inform about the project and request the collaboration of all neighbours, businesses and companies, and finally organise the event.

		and use of technologies to foster the development of pupils' digital competence in order to understand how technologies work and to act as prosumers in a digital society.	<ul style="list-style-type: none"> • I lead the "Virtual Mentoring" project so that pupils can consult different experts from the social, economic, cultural, educational, sporting and other fields on issues related to their professions and the digitalisation of the world of work. • In the Microcomputer Systems and Networks VET module we have created an internship programme so that, during the first week of the course, teams of pupils are responsible for training the rest of their classmates in the use of the school's technologies. • I design the "Influencers" project where pupils develop a TV programme through the school's intranet in which they report on the latest technological innovations. • I manage a private social network at the school with the authorisation of the person in charge and the data processing officer, so that pupils can engage in peer support and mentoring exchanges according to their skills, preferences and availability, with the necessary supervision by teaching teams and tutors. • I support the school's collaboration with a local animal protection association where pupils contribute to the monitoring of budget execution, vaccinations, income and adoptions using various online applications with generic accounts.
	C2. Research and innovation on teaching and learning practices applied in a continuously evolving digitalised world and aimed at the development of pupils' digital competence in order to enable them to cope with it by making effective creative and critical use of technologies.	<p>6.5.C2.1. Investigates the impact of didactic and pedagogical strategies on the development of pupils' digital competence in order to respond to their daily needs and carry out projects as prosumers in a digital society.</p> <p>6.5.C2.2. Designs, on the basis of research, new pedagogical approaches with the aim of improving the acquisition and development of pupils' digital competence so that they can solve everyday problems and cope in a digitalised world making creative and critical use of digital technologies.</p>	<p>Design, based on applied research, new pedagogical practices adapted to continuous technological changes and aimed at developing pupils' digital competence so that they can solve everyday problems and cope in a digitalised world by making effective, creative and critical use of digital technologies.</p> <p>Example:</p> <ul style="list-style-type: none"> • I am involved in field research on the use of social media by teenagers and the impact this use has on the development of their digital problem-solving skills. • I collaborate in a research group that is analysing the interrelationship between the JRC projects on DigCompOrg and the Creative Learning and Innovative Teaching study. • I investigate the impact of teaching practices associated with each of the levels of the SAMR model on the development of pupils' critical thinking.

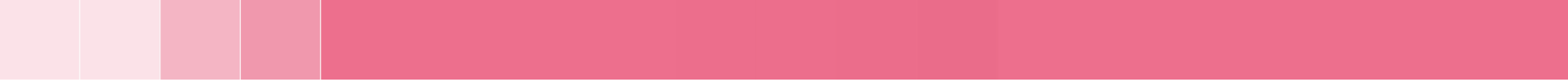


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