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Foreword

In Europe, we put people first, because the success of every individual in learning, at work and in life is essential for a stable, prosperous and resilient European Union. The Union of Skills presents our vision for high quality education, training, and lifelong learning, with effective digital education as a key enabler for developing Europe's human capital. Making this happen will ensure that European citizens are well-equipped to navigate an increasingly digital society and economy.



Digital education content has never been more accessible to teachers and students, becoming a central and crucial element of their daily activities and practices. It is not simply swapping paper for pixels. Digital education content offers new ways to enrich the teaching and learning experience by engaging

learners and personalising learning journeys. It allows access to a broader spectrum of up-to-date resources and using authoring tools, including AI, to create personalised and tailored exercises. It also enables learners to acquire the skills they need for a more and more digitally focused world.

Teachers and educators are faced with daily decisions about how to choose and how to use digital education content in the best way. They often have to strike a balance and combine analogue and digital resources depending on the needs of their students and school context. In particular, identifying high-quality content in the vast sea of options is no trivial matter. What high quality is, varies based on every teacher's and learner's specific context, needs, learning objectives and teaching approaches. That is the reason why the Council Recommendation on key factors for successful digital education and training (2023) welcomed the Commission's commitment to developing guidelines and quality standards for accessible and well-designed digital education content.

To help teachers navigate this complex landscape, we brought together a group of experts from a variety of backgrounds (teachers, school leaders, public authorities, content and EdTech solution providers, researchers) to develop a common vocabulary, shared quality criteria and a structured approach for all stages

of digital education content use. These guidelines will support teachers and educators in making informed decisions on digital education and help develop teachers' and educators' confidence in the use of digital education content.

I want to sincerely thank all the experts who worked tirelessly to make these guidelines a reality. Each of them bringing their own expertise has ensured that these guidelines provide concrete advice to their audience - i.e. primarily teachers and educators but also all other educational stakeholders.

To everyone who is part of the digital education community – whether you are an educator, a content provider or a policymaker, a beginner or a digital pioneer – I invite you to read, use and experiment with these guidelines. Your engagement and feedback will inform our work, as we draft the 2030 Digital Roadmap on the future of digital education and skills, to be launched in the second half of 2026. Digital education has great potential to improve teaching and learning. And it all starts with you!



Introduction

Welcome! These guidelines are designed to support busy teachers and educators, including everyone from teaching and support staff to school leaders, in making decisions in relation to the use of digital education content (DEC) in schools. Simply put, DEC is any educational resource in a digital format. These can range from a video or interactive quiz to a structured digital textbook used to support teaching, learning and assessment practices. Importantly, these guidelines do not address the definition of curricula – in other words, what should be taught and how – which is the sole responsibility of each EU Member State. Our goal is to provide teachers and school leaders with guidelines that will help them in choosing, using, creating and adapting DEC, and in evaluating its impact on their learners.

Educational content is the very backbone of daily teaching and learning. Traditionally, it has involved textbooks, worksheets and materials created by educators or provided by publishers – primarily in paper format. However, as the world has become increasingly digital, so has the classroom. To keep up with digitalisation, countries have invested in digital equipment, connectivity and infrastructure, as well as in digital training for teachers, and in the creation and use of DEC. This evolution is not simply about swapping paper for pixels. Instead, traditional educational content can now blend naturally with digital formats, including recent ones that use of AI-generated content. In today's blended learning reality, DEC has the potential to transform and enhance educational experiences. It offers new ways to engage learners, personalise learning journeys, cater to diverse needs and access a broader spectrum of up-to-date resources. Ultimately, it better equips learners for a digitally driven future.

Yet the tasks of selecting, creating or adapting DEC, as well as assessing its impact on learners' experience, can sometimes feel daunting. These guidelines aim to provide some criteria, guiding questions and tips on how to select or create, access, use and evaluate DEC to enhance classroom lessons, support diverse learning needs, and inspire creative teaching approaches. Think of these as practical information to help you navigate the choices you need to make, and to respond to the challenges that DEC can pose.

While the primary audience for this document is teachers and school leaders, it is also relevant to wider audiences, as outlined below. These guidelines aim to support greater collaboration among all of the actors in the DEC ecosystem, and to provide a common language to support the many uses of DEC within schools across Europe. Such actors include:

- People who create DEC (publishers, teachers or EdTech providers)
- People who disseminate DEC (ministries of education, regional education authorities, school leadership teams, or teacher networks)
- People who procure DEC (national or regional procurement bodies, municipalities, or school leaders/boards)
- People who provide technical and pedagogical support to schools (school IT coordinators, professional development services or digital champions)

Primary audience

Teachers/School leaders

Other audiences

CREATORS:

including publishers,
edTech providers

DISSEMINATION ACTORS:

including Ministries of
Education, regional
education authorities,
etc

PROCUREMENT ACTORS:

including National or
regional procurement
bodies, municipalities, or
school leaders/boards

TECHNICAL AND PEDAGOGICAL SUPPORT TEAM:

including school IT
coordinators, professional
development services or
digital champions

To ensure these guidelines are easy to understand, and to help develop a common vocabulary, a glossary of key terms is included at the end of the document.

The guidelines are organised into three sections:

1

SECTION 1 looks at how DEC can be used in classrooms.

2

SECTION 2 offers a list of eight criteria to guide teachers and school leaders in how to select, use and review DEC critically and effectively.

3

SECTION 3 recognises that teachers and school leaders make multiple decisions about DEC every day. It therefore presents a series of steps and practical tips, as well as key questions to ask when making decisions.

As you read through these guidelines, you will notice the guidance is relevant to many roles within your school. Because teachers, school leaders and other roles involved with DEC have distinct needs, perspectives and responsibilities, we have included simple icons to help you quickly identify which parts of the guidance might be most relevant to your specific role or area of focus.



Look for these icons:



Teacher/educator:

This guidance is particularly relevant for teachers and teaching staff in their classroom practice.



School leader:

This guidance is particularly relevant for school leaders and support staff overseeing strategy, infrastructure, professional development and procurement.



Whole school:

This guidance is relevant to considerations that affect the whole school community or institution.

Also note that these guidelines have been deliberately designed to be modular. As such, you can:

- Read them all the way through;
- Dip in and out to find and use relevant sections;
- And even modify them to suit your own context.

Disclaimer

These guidelines are non-binding and are intended to support teachers, school leaders and education authorities in promoting safe, inclusive and trustworthy digital education environments, in line with European values and applicable EU legislation.

This text includes examples of digital tools, resources and initiatives, along with the names of the companies or organisations that provide them. These references are for illustrative purposes only, and do not imply endorsement by the European Commission. The authors have aimed to include freely accessible, widely used and diverse examples – especially those from Europe – wherever possible.



Section 1: What can digital education content offer schools?

What is digital education content?

An ever-increasing amount of digital education content (DEC) is now available to teachers and school leaders. This content may be created and distributed by educational publishers, educational technology (EdTech) companies, cultural and scientific organisations, ministries of education, or by teachers/educators themselves. Such content can be used alongside non-digital educational resources to support teaching, learning and assessment activities in your classrooms. In recent years, schools have invested in a range of digital technologies that enable educators and learners to make use of DEC. These include digital devices (e.g. laptops and tablets), digital tools (e.g. word processors, music creation software, etc.) and digital platforms (e.g. online spaces where content is stored and accessed).

Definition



Digital education content (DEC) can be defined as learning, teaching and assessment material that is aimed at addressing pedagogical objectives, and is made available in various formats using digital tools and platforms. DEC is created by educational publishers, EdTech companies, cultural and scientific organisations, ministries of education, or by teachers and learners.

This is a simplified version of the definition given in a recent study entitled “Digital education content in the EU”¹, which highlighted several key characteristics of DEC:

- DEC typically includes a combination of different digital formats, such as text, video, audio and interactive elements. This enables the creator to use it in innovative ways to produce a wide range of materials for education.
 - An example could be a digital textbook that contains text, images, videos and interactive assessments/exercises.
- The primary purpose of DEC is educational. This includes content that is designed specifically to support educational activities (e.g. a serious educational game), or pre-existing content that has been repurposed or reapplied to support an educational activity (e.g. an online video on the natural world, used by a teacher to support lesson learning objectives).
- DEC is distinct from but intertwined with a) the environment within which it is used (i.e. the devices and/or online platforms used to access it), and b) the pedagogical approaches that it serves.
 - For example, a teacher could select an online simulation of a science laboratory learners work in teams or use virtual reality content to solve a range of real-world problems. This DEC is accessed via the school’s digital learning platform.

¹ European Commission: Directorate-General for Education, Youth, Sport and Culture, ECORYS, EIESP, H2 Learning, Day, L. et al., Digital education content in the EU – State of play and policy options – Final report, Publications Office of the European Union, Luxembourg, 2023, <https://data.europa.eu/doi/10.2766/682645>.

What is digital education content used for?

DEC can support and enrich many aspects of education. It is particularly useful when designing and implementing teaching approaches, learning activities and assessment practices.

Supporting teaching approaches

Before introducing a topic, teachers usually plan how best to teach it. This often aligns with a whole-school planning approach. You might consider the learning goals, your learners' age and ability, the learning resources you have available, and your classroom environment. You can then choose the most suitable content available for the task, which may include DEC.

Specifically, you might use DEC to:

- **SUPPORT** whole-class direct instruction by using a video or a presentation to introduce a new topic to the entire class.
- **USE** differentiated teaching approaches with small groups of learners, who interact with DEC at their own reading and ability levels.
- **WORK** individually with a learner by using an interactive reader to develop their literacy skills.

Supporting learning practices

Teachers and educators have many options for using DEC to support learning. To illustrate this, we have drawn on Diana Laurillard's recognised framework² for categorising types of learning activities. Below, we provide examples of how different forms of DEC can be used to enhance various kinds of classroom learning experiences.

| Learning activity | Example of activity | Possible use of digital education content |
|-------------------|---|---|
| Acquisition | Learning by listening and/or watching about a topic | Learners watch an online video tutorial that guides them through a scientific experiment, before going to the laboratory where they conduct a physical experiment. |
| Discussion | Learning by engaging in questioning and discussion | Learners work in small groups to learn about the daily life of a Viking using a digital game. Afterwards, in teams, they compare and contrast their daily activities with those of young Vikings, using a range of sources including books, online historical resources, etc. |
| Practice | Learning by practising skills on their own and adapting them on the basis of feedback | Learners use a virtual reality kit to practice welding skills in a simulated digital environment. |
| Production | Learning by creating artefacts that consolidate learning | The teacher provides access to a list of websites that relate to a classic novel (e.g. links about the author, the characters and locations referenced in the book). Learners then collaborate to create a digital story map. This visual artefact charts the progression of the narrative alongside key thematic elements. |
| Collaboration | Learning with others to consolidate and deepen their learning | Learners access a digital archive filled with scanned primary documents, photographs and interactive timelines on a particular historical event. In groups, they discuss the themes, motives and cultural contexts that the content illustrates, before compiling a group report. |
| Investigation | Learning by exploring, comparing and critiquing | Learners interact with their digital textbook to investigate how climate change impacts the environment in different parts of the world. In groups, they then create an infographic summarising the evidence they have found and proposing possible solutions, citing their textbook as a source. |

Supporting assessment practices

Teachers can also use DEC to assess learning during a lesson (i.e. formative assessment) in the following ways:

- They can use/create an online multiple-choice quiz on a topic they are teaching, and then ask learners to select the right answer. Such assessment activities are often presented in the form of a game.
- Learners can create their own digital portfolios in which they reflect on their learning experiences and capture the development of a digital project from idea to final product.
- Learners can use virtual reality to design and interact with a 3D model of a building or structure, which provides an authentic assessment of their ability to apply theoretical concepts in a practical context.

In the examples above, learners are using DEC in different ways – often engaging in a variety of learning activities within a single lesson. These examples represent just a few of the many possibilities for how educators and learners can work with digital education content.



Key benefits of using digital education content

DEC offers a number of advantages over traditional teaching materials. From making learning more accessible to enabling it to be more personalised, DEC can help teachers to better support their learners and enhance their classroom practice. Some of its key benefits include:

ACCESSIBILITY AND INCLUSION: DEC has the potential to make classrooms more inclusive by accommodating all learners, especially those with additional learning needs. These learners can benefit from features such as text-to-speech, speech-to-text, subtitles and translation tools.

- For example, learners with dyslexia can read an adapted form of a text using a range of tools that simplify the layout of words and images to make the task more accessible.

CONTENT CREATION: Teachers have always created their own content, and digital tools allow them – and their learners – to create a wide variety of DEC. In this way, DEC can complement existing content from textbooks or other sources in order to better meet the needs of learners.

- For example, a school could subscribe to a set of eBooks in which learners can read a passage of text on a particular topic at their specific reading level. This can be achieved using a tagging system or AI components to enable adaptive learning. As a result, all learners can read about the same topic, but at a reading level and in a manner that is most appropriate for them.

FEEDBACK AND ASSESSMENT: Using DEC for (formative or summative) assessments can provide immediate feedback to both teachers and their learners.

- For example, teachers can create quizzes and interactive tests to gather and provide real-time feedback on learners' progress or understanding/engagement.

DIFFERENTIATION: Schools must cater to a wide range of abilities. Teachers can use DEC to provide differentiated learning materials for individual learners.

- For example, a school could subscribe to a set of eBooks in which learners can read a passage of text on a particular topic at their specific reading level. This can be achieved using a tagging system or AI components to enable adaptive learning. As a result, all learners can read about the same topic, but at a reading level and in a manner that is most appropriate for them.

REGULAR UPDATES: DEC is flexible and can be easily updated by its creators, depending on its nature and the licences associated with it. This allows quick and cost-effective updates in order to reflect new scientific insights and discoveries, as well as curriculum updates or new teaching approaches that better meet learner needs.

- For example, after European, national or local elections, digital content could be immediately updated through the use of an up-to-date and verified online source, to reflect the new political landscape, helping learners stay informed with up-to-date, relevant information.

DATA COLLECTION AND ANALYTICS: When learners interact with DEC on a learning platform, the system can provide information or "learning analytics" on a dashboard. When used appropriately, this data can help in making informed decisions about teaching practice and learner behaviour.

- For example, learners could use an online mathematics and reading platform. This system would share data with the teacher, via a dashboard, about learners' levels of engagement in set tasks. These data can then be carefully used to identify those learners who require additional support.

A broad spectrum of sources

There are many creators of DEC, which gives schools and educators more choice – but can also make it more complex to choose the right DEC for their context. Schools and educators typically access and acquire DEC from the following sources:

Commercial suppliers

Educational publishers, cultural organisations and EdTech companies specialise in creating digital education content for schools. This content is usually provided for a subscription fee, and is subject to certain licensing terms.

Open educational resources (OERs)

Under their licensing terms, OERs can be used free of charge by schools. Such resources are typically made available to schools by ministries, regional authorities, or other providers (e.g. universities and cultural organisations such as Europeana).

Public websites

Educators might use cultural, historical and/or scientific DEC from public websites such as those of libraries, museums, archives or art galleries, often free of charge under the content's licensing terms.

Online platforms

Some schools subscribe to online platforms that offer digital teaching and learning resources created by educators for educators. Such platforms provide DEC ranging from worksheets to lesson plans to curriculum-aligned teaching resources. A fee is often charged for access to these resources.

Educator-created DEC

Teachers may develop their own DEC that is more relevant to their learners' specific needs and contexts, sometimes using a range of tools including AI. This can be done individually and/or collaboratively within schools, or through a professional association (e.g. through a history teachers' association). Typically, such content is shared freely but requires the use of appropriate licences.



Getting started: First steps for teachers and school leaders

Taking your first steps with DEC does not mean having all the answers from the beginning. What matters most is starting with the right mindset: building your confidence, engaging with others and making use of the support and resources already available in your school and across Europe.

With those conditions in place, even small actions can lead to meaningful impact for your school and your learners. So, if you are just beginning to explore DEC, or are looking to broaden your expertise, provided below are some ways for you to get going, whatever your starting point.

DEC can provide valuable resources and data, but it is your professional judgement that gives DEC meaning: interpreting the information, adapting it to students' needs, and combining it with other approaches and materials.

Build your confidence through action

Engaging with DEC is not about getting everything right first time. It is about trying, learning, adapting and trying again. Whether you are experimenting with new types of DEC or co-creating resources with colleagues, taking **small, reflective steps will lead to real classroom impact.**

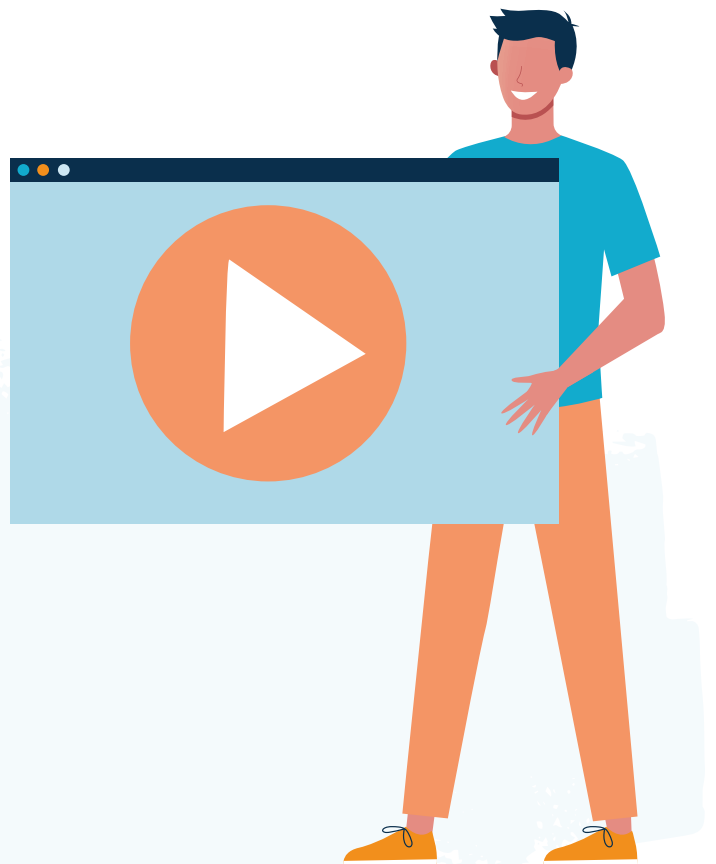
School leaders have a key role to play in this. So, think about how you can create space for experimentation by encouraging teachers and educators to try new approaches with DEC. And do not forget to celebrate your successes and lessons learned!

With the rise of AI, digital education is evolving quickly and there is no "one size fits all" model that everyone must follow. What matters most is being open to exploration and focusing on learning as you go – both individually, and as a whole-school team.

Explore existing national and European opportunities

Importantly, there is no need for you to work from scratch as many initiatives and resources are already available to help you get started. So, as a first step, find out what exists where you work and check out the following for inspiration.

- A great place to begin is with national and regional digital education platforms that share DEC created by educators and other creators. Ireland's [Scoilnet](#) and Spain's [INTEF](#), for example, provide content, guidance and training that is tailored to local classroom needs.
- At European level, resources such as the [European School Education Platform](#) and the European [Digital Education Hub](#) offer excellent opportunities for collaboration and shared learning on a host of issues connected with DEC.
- Programmes such as [Erasmus+](#) provide funding and support for collaborative projects, teacher exchanges and innovation partnerships. Many of these focus on DEC and digital education.



Use frameworks to build your skills

It is important to keep building your DEC experience so that you can keep up and remain confident as technology and teaching evolve. Many of the decisions associated with the selection and use of DEC in schools require a whole-school approach that goes beyond individual teachers. European Frameworks can help you to assess where you are at, as well as helping you to plan your next steps and promoting a shared language with colleagues:

- [DigCompEdu](#) (the European Framework for the Digital Competence of Educators) is a crucial framework designed to help teachers and school leaders develop their digital competences. It outlines 22 clearly defined competences and offers self-assessment tools.
- [DigCompOrg](#) (the European Framework for Digitally Competent Educational Organisations) helps schools to reflect on how they strategically integrate digital technologies to support learning.
- [DigComp](#) (the European Digital Competence Framework for citizens), now in its fifth edition (DigComp 3.0), describes the knowledge, skills and attitudes needed in five competence areas (information and data literacy; communication and collaboration; content creation; safety, wellbeing and responsible use; and problem identification and solving). The newly updated content of DigComp 3.0, particularly in the competence area of content creation (Area 3) may help to inspire the teaching and learning of relevant knowledge, skills and attitudes when using DEC.
- The [SELFIE for Schools](#) diagnostic tool further supports this by enabling schools to assess their current level of digital maturity, and to identify specific needs they have for further development in digital education.
- The [SELFIE for Teachers](#) tool allows teachers and educators as individuals to self-assess their digital competences across six different areas. The tool can be used by individual teachers or by a group of teachers working together.

Some countries also offer micro-credentials or national certifications that align with these frameworks, such as [PIX](#) in France or [Edupass](#) in Luxembourg. These can help you to recognise your progress, and they support school-wide development planning.

Learn and lead together

Professional learning communities can be an effective way to learn about DEC. So, wherever possible, look for or help to build communities of practice that support the use of DEC and encourage shared experimentation and improvement.

- Join or launch teacher/school leader networks that share DEC strategies, successes and challenges. This could be within your school, your region or across borders via platforms such as the [European School Education Platform](#), the [eTwinning](#) community and EU Code Week.
- Explore collaboration through informal school groups such as digital champions or lead educator teams. Models such as [France's référents numériques](#) are great examples of what is possible.
- Try to find time and space to talk with your colleagues and peers about what works, what doesn't, and what you can try next.
- For school leaders: support and sustain DEC-focused professional communities by allocating time, recognising lead roles and linking their work to whole-school goals.

Help to shape better content

As teachers and educators, you are not just users of DEC – you are also co-creators, evaluators and advocates. There are many initiatives out there that already recognise this, and invite teachers and school leaders to shape DEC developments through feedback and collaboration.

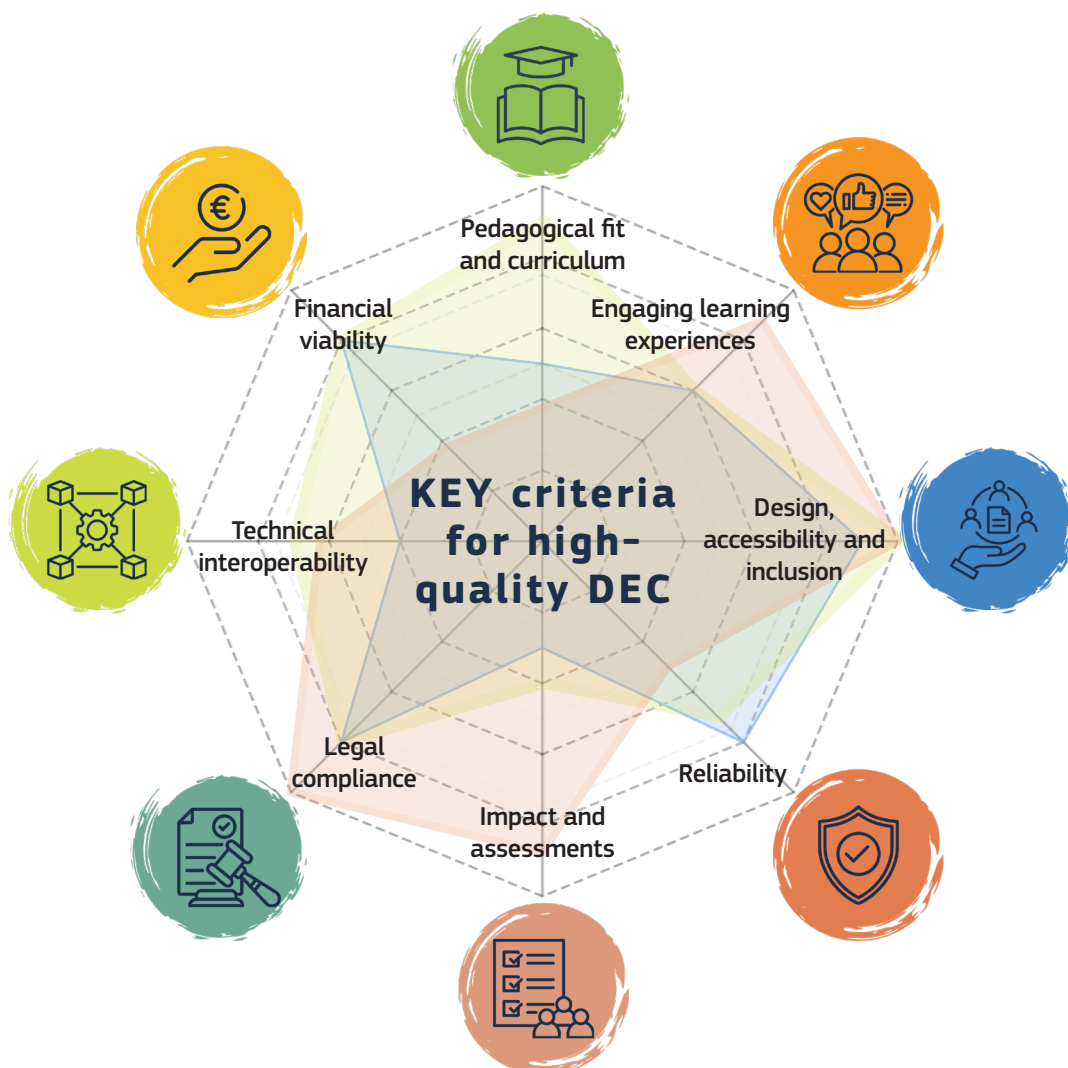
- Get involved in DEC pilot projects or testbeds like the [Swedish Edtest](#) or [Helsinki's EdTech Testbed](#), which connect schools with creators to test and improve new content.
- Take part in classroom-based research or action learning projects. These are often run in partnership with local/national universities or research centres.
- Where possible, provide feedback on European and national DEC policies and resources. Highlight what is working in your classroom – and what does not.



Section 2: Key criteria for high-quality digital education content

To design effective, equitable and future-ready learning experiences, teachers and school leaders need high-quality DEC that fits both their pedagogical goals and the realities in their classrooms. But with an increasing volume of DEC from so many providers, in so many formats and options, including the ability to create or adapt content themselves – how can teachers and educators make more confident and informed decisions?

This section of the guidelines introduces **eight quality criteria** to help teachers and school leaders make decisions about DEC. When these choices form part of school-wide planning and are linked to whole-school goals such as inclusion or digital transformation, DEC can create a lasting impact in classrooms across the school. It is important to stress that you do not need to be an expert to make an accurate assessment of DEC. The guidance below is intended to support teachers in making a selection that suits their needs. The eight criteria for high-quality DEC are:



These criteria can be used to assess ready-made DEC, whether purchased or OERs, but are just as helpful when creating or adapting your own materials. The criteria are based on a systematic analysis of 65 quality frameworks and academic papers, bringing together previously scattered standards into a single, unified model. However, these are not rigid rules, but guiding principles. They are highly adaptable to different education systems, curricula and teaching contexts. In some situations, you may need or wish to refer to all of the criteria; in others, one or two may be particularly relevant. Generally, teachers and educators will start by prioritising those criteria that are most directly related to the classroom experience. School leaders, meanwhile, will start by ensuring that a DEC solution is financially viable, technically robust and secure, and compliant with legal and data privacy regulations. However, all actors involved will need to consider the eight criteria and decide together on the choices and priorities that will enable the safe and effective use of DEC across the whole school.

To help you visualise how to combine these criteria in practice, we suggest using a simple radar chart (see figure) to assess the strengths and weaknesses of a piece of DEC, its quality, and those areas that can be improved. The results of this analysis can then be used to support reflection, guide institutional decision-making, and foster a more joined-up approach to DEC across the whole school.

Crucially, these are not rigid boundaries but starting points for a conversation. Criteria such as “Impact and assessment” and “Reliability” sit centrally, signifying that they are a shared responsibility. After all, the most successful implementation of DEC occurs when school leaders appreciate the pedagogical needs of the classroom, and when teachers are aware of the school’s wider strategic and infrastructural considerations

The sections that follow look at each criterion in detail, providing tips and insights to help you maximise the impact of DEC in your school. Reflection questions have also been included to help ensure that the DEC you use supports the progress of learners, aligns with curriculum goals, and meets your specific needs..



Pedagogical fit and curriculum alignment

High-quality DEC should always support and enhance your teaching, learning and assessment practices. It is not enough for DEC to simply present information – it must add real value to the classroom experience. That means helping learners grasp complex topics more clearly, engaging them in ways that traditional content might not and promoting deeper understanding through interaction, reflection and skill-building.

The best DEC also supports teachers by aligning with curriculum goals and strengthening lesson design. Ideally, it should clearly communicate the pedagogical principles it follows, the specific learning goals it targets, and the types of interaction and adaptivity it offers. This transparency makes it easier for schools to select materials that match their needs.



What to look for In your classroom:

- 👁️ Good DEC is typically developed with clear instructional and curriculum goals in mind, supporting different forms of lesson delivery including whole-class tasks or individual study exercises. (See Laurillard's framework in subsection 1.2.)
- 👁️ Look for DEC that follows a structured and progressive approach to delivery, which allows learners to learn logically as they work through the curriculum content.
- 👁️ DEC should be linked with expected learning goals for learners. Use built-in quizzes or analytics from your learning management system (LMS) to track learners' mastery of each objective.
- 👁️ High-quality DEC often offers real-time feedback, differentiated instruction and customisable pathways to help you meet diverse learner needs. These could be based, for example, on differences between prior and current knowledge or competence levels.

✓ From the Netherlands, [Go-Lab](#) helps teachers to create interactive, enquiry-based STEM lessons using ready-made templates and virtual labs. It supports active learning and can be adapted to different classroom contexts. Are there similar tools in your country?



What to look for In your school:

- 👁️ Do you have a list of approved DEC resources that align with curriculum objectives? If not, it's time to start building one.
- 👁️ Ensure that staff prioritise content which clearly outlines its learning objectives, pedagogical rationale and expected impact.
- 👁️ Check that this content supports your school's teaching approach and staff training priorities. You could also set shared milestones for the use of DEC, making its adoption highly strategic.
- 👁️ Choose DEC that supports your school's wider mission to develop future-ready learners, and which helps them to apply their knowledge in relevant ways that apply to the real world.

Putting it into practice

Quick check Does this DEC help learners to achieve their key outcomes, or is it a distraction?

Tip Focus on content that builds knowledge progressively and offers different pathways to success.

Shortcut Explore how built-in assessment or analytics functionality can help you to monitor learning and adjust your teaching accordingly.

Ask yourself:

- Does this content clearly align with my/our curriculum goals?
- Can it be adapted to suit learners with different needs or starting points?
- Does it help in building essential skills such as critical thinking and creativity?



Engaging learning experiences

Meaningful and motivating learning does not happen by accident. High-quality DEC helps learners to connect with their studies in ways that are genuinely engaging and relevant. When content captures the interest and supports the participation of learners, they are more likely to understand complex ideas and remember what they have learned. Over time, this kind of engagement can help to improve learning outcomes and sustain learners' motivation.



What to look for In your classroom:

- 👁️ High-quality DEC can bring learning to life in ways that traditional materials cannot. Look to see if it provides opportunities to collaborate, simulate real-world situations or explore interactive environments that deepen understanding.
- 👁️ Equally, the best digital resources do not just present facts. They ask learners to think, do, discuss and reflect. Prioritise DEC that encourages questioning, experimentation and dialogue.
- 👁️ Check if your DEC allows learners to select topics and task formats or to propose different ways to demonstrate their understanding by creating multimedia outputs such as video diaries or podcasts.
- 👁️ For some learners, badges, challenges and leaderboards can make learning using DEC feel more rewarding. However, always ensure that badges complement, not replace, intrinsic motivation.
- 👁️ Look for opportunities that allow learners to become content creators (e.g. using [Luanti](#), a free multiplayer, open-source game, or through generative AI tools), and give them the chance to describe their own perspectives and experiences.
- 👁️ See if the DEC includes adaptive learning functionality. Here, smart pathways adjust the difficulty of the DEC based on the learner's performance. This helps to keep learners in their zone of proximal development.



What to look for In your school:

- 👁️ Consult platform analytics or quick learner surveys to verify sustained engagement and (hopefully) improved learning outcomes.
- 👁️ Think about how messaging tools and digital feedback loops could help to build the engagement of learners and their parents AND give learners opportunities to learn from their mistakes.

Putting it into practice

Quick check Are learners actively engaging with this content, or just clicking through it?

Tip Choose DEC that offers a variety of content formats (e.g. video, interactive games, etc) that encourage discussion and illustrates progress.

Shortcut Engagement increases when learners learn together. So why not prioritise DEC that supports interaction?

Ask yourself:

- Do my learners enjoy using this DEC? Ask them what they think.
- Does the content promote curiosity and sustain interest?
- Does it support social and collaborative learning?
- Does it help my learners to exceed their learning targets?



Design, accessibility and inclusion

When you prioritise inclusivity in the DEC you choose and use, this helps to create equitable learning experiences that reflect the diversity of your classrooms. For example, some DEC may be designed specifically for learners with additional needs. High-quality DEC must therefore be accessible and inclusive so that all learners, regardless of their ability, background, location or device, can engage with learning.

Making sure that DEC is inclusive is also about ensuring that every learner sees themselves represented and can participate fully. Teacher, educators and school leaders can play a vital role in prioritising DEC that supports this goal and promotes a fairer, more inclusive digital learning environment.



What to look for In your classroom:

- 👁️ Any DEC must be accessible to all learners. Can they access and use it – and is it useful for learning?
- 👁️ Is the DEC you are working with available on all of the different devices you use (laptops, tablets, etc., and their various operating systems)? Does it include features that meet the needs of learners with special needs, such as text-to-speech, font/contrast adjustment and subtitles?
- 👁️ Does the DEC allow learners to interact with content in different ways? For example, through videos, interactive activities or text-based tasks.
- 👁️ Does your DEC support multilingual learning? Check whether it includes different language options or built-in translation features for learners who need them (such as persons displaced by a crisis).
- 👁️ In subjects such as history or politics, it is important that teaching materials avoid stereotypes and represent different backgrounds and cultures. Carefully review all images, case studies and scenarios to ensure that they promote inclusion.



What to look for In your school:

- 👁️ Always be aware of and follow key accessibility regulations. Check that any DEC meets local and [European standards such as EN 301 549](#), which requires digital tools to be accessible to all learners, including those with disabilities.
- 👁️ Conduct periodic audits to ensure your digital resources continue to meet diverse learner needs. Don't forget to ask your staff how accessible a piece of DEC is, and how it could be improved.
- 👁️ Provide professional development sessions on inclusive teaching strategies and best practices for incorporating [Universal Design for Learning \(UDL\) principles](#).

Putting it into practice

Quick check

If a particular resource only works with a high-speed internet connection, consider exploring an offline alternative or a low-speed version to maximise access.

Tip

Ask, "Is this working for all of our learners?" and "Which learners might struggle to access this content?" Adjust your choices and plans accordingly.

Shortcut

Always ask learners, "Does this material help you to learn better?"

Ask yourself:

- Does this content work for learners with different abilities or needs? Can it be adapted to support differentiated instruction?
- Is it compatible with the devices and internet access my learners have?
- Do learners see themselves reflected in the content and have a voice in shaping it?



Reliability

Reliability is a critical criterion when working with DEC. Learners rely on DEC to provide accurate, high-quality and up-to-date materials for learning. Teachers also need classroom resources that work time and time again, without crashes or glitches. The good news is that you don't need to be an IT expert to make informed and confident choices. The easy-to-follow guidance below will point you in the right direction.



What to look for In your classroom:

- 👁️ Ensure that any content comes from reputable publishers/EdTech providers, accredited institutions, peer-curated OER repositories or recognised national educator resource portals.
- 👁️ AI-generated DEC can be valuable, but should always be clearly labelled as such and used with care. You need to know where their content comes from and how it has been shaped. Also consider whether it reflects your school's values and goals.

✓ Try exploring recognised national educator resource portals, which include examples such as Germany's [WirLernenOnline](#) or Greece's [Photodentro](#). In some countries, publishers have created national portals where educators and learners can easily find a wide range of professionally produced resources in one place. Search online to find one in your country.



What to look for In your school:

- 👁️ Encourage your team to share their experiences and reviews of DEC across the school community.
- 👁️ Schools, school groups and national education systems could develop a process to report issues, suggest improvements and flag up unreliable/unsuitable resources. Revisions could be easily tracked through a visible version history.
- 👁️ Many independent reviews of DEC by educators are available via institutional websites, professional associations or peers who share their teaching scenarios. A new crop of digital platforms (e.g. [EdTech Impact](#) from the UK) host independent reviews by educators of the DEC they have used. Use this feedback to inform your thinking and support your staff's procurement decisions.
- 👁️ Regularly assess whether AI-generated materials provide reliable, unbiased content. Always bear in mind the risk-based rules for the use of AI, as set out in the [EU AI Act](#).

Putting it into practice

Shortcut

If the DEC you are using requires significant troubleshooting or frequently crashes, it is probably not worth your time or budget.

Tip

Using AI sandboxes (i.e. isolated test areas), such as the one developed by LIST in Luxembourg, helps to improve the trustworthiness of AI models and reduces the risks for users.

Ask yourself:

- Does this content come from a source that I recognise and trust?
- Is the content I am using accurate, current and appropriate?
- Does it work reliably on our school's existing IT infrastructure?
- If AI is involved, is the process clear and trustworthy?



Impact and assessment

DEC should lead to measurable improvements in learning – not just engagement. To ensure this, you need to evaluate whether a solution can show real evidence of impact. This means focusing on how well it tracks learners' progress, and whether it provides meaningful insights into understanding and helps to develop broader skills such as independent learning and collaboration. Prioritising DEC that demonstrates proven impact helps schools to improve their teaching practice and make better use of their investments.



What to look for In your classroom:

- 👁️ Look for DEC that is backed by research or validated through classroom trials. Learning from the experiences of others can help you to determine whether a particular DEC will have a positive impact in your classroom.
- 👁️ Consider what key facts or concepts learners should be able to recall or explain after using the content. Also reflect on whether learners can use the DEC to demonstrate deeper learning through collaborative projects or independent tasks that require them to transfer skills and ideas?
- 👁️ Does your DEC offer insights into learner performance and understanding? These can be a useful way to guide your teaching and address individual or collective knowledge gaps.
- 👁️ Look for DEC that prompts learners to reflect and plan. This builds confidence and supports self-regulated learning.
- 👁️ Will the DEC support formative assessment approaches? Digital quizzes, polls and interactive exercises can all help you to monitor learner understanding in real-time.



In Estonia, [OpigStat](#) gives schools data on what DEC is being used, how often and by whom. This helps guide decisions on training, curriculum and investment. Check if similar tools exist where you are.



What to look for In your school:

- 👁️ Analyse learner progress data at scale by looking for DEC that offers insights that are compliant with [GDPR](#), the EU's data privacy legislation. This helps school leaders to track learning trends, spot gaps and support data-informed decisions and interventions.
- 👁️ If your DEC includes learning analytics, consider more than just test scores. Encourage staff to use all of the available data to identify where learners may need greater support or more challenges.

Putting it into practice

Shortcut

If a resource claims to be “research-based”, check and review references to actual studies or examples of its use in other schools.

Tip

Before you introduce a new piece of DEC, clarify its intended learning outcomes. Ask yourself: “What should learners be able to do, and how will I recognise meaningful progress?”

Ask yourself:

- Have colleagues had success with this content in similar contexts?
- What does success look like for learners after they use this content?
- Are outcomes clearly defined, and can I measure them in a meaningful way?
- Does the DEC’s built-in assessment or analytics functionality help me to adapt my teaching, or does it just report scores?



Legal compliance

All DEC used in schools must comply with relevant EU and national laws, including the General Data Protection Regulation (GDPR), the AI Act, and copyright and intellectual property legislation. While data protection officers (DPOs) and school leaders carry key responsibilities here, as a teacher you can play your part in making informed decisions. Respecting the law helps to keep learners safe, protects their personal data and ensures the fair and responsible use of DEC. These legal requirements are not barriers – they are the foundation of a respectful digital learning environment. Better understanding of intellectual property rights, for example, can open up a world of high-quality content designed for legal and creative use in schools. (*See also our guide to navigating DEC copyright in subsection 3.3 below*)



What to look for In your classroom:

- 👁️ Before using any new DEC, check with the person responsible in your school that it aligns with your school's privacy policy and data protection standards. Request a Data Processing Agreement (DPA) from the provider.
- 👁️ Ensure that AI tools have safeguards to avoid reinforcing bias and that they provide transparency about the data used to train the model. To help you to better understand what to look for, try out examples such as Luxembourg's [EduAI](#) – a website which, with the support of the ministry, enables teachers and students over 13 years old to create images in their teaching and learning activities.
- 👁️ Be cautious with DEC that requires access to webcams and chat functions, or links to unknown third-party websites. Always ensure that features are safe, necessary and age appropriate.
- 👁️ Always carefully check the terms of the licence for any DEC. You cannot always freely copy, adapt or distribute content just because it is being used in a school setting.
- 👁️ Look for compliance with the European strategy for a better internet for kids ([BIK+ Code](#)). This ensures that DEC features are age appropriate, support children's rights online and include protections against harmful content and contact.



What to look for In your school:

- 👁️ Don't forget about resources provided by your local or national government. France's Gestionnaire d'Accès aux Ressources ([GAR](#)), for example, helps to streamline and secure access to DEC for learners and educators. What is the equivalent where you work?
- 👁️ The protection of learners' data is a priority. Define clear roles and permissions for staff and families, enforce strong passwords, and schedule regular security updates.
- 👁️ Clarify licensing terms to ensure that any DEC created remains the property of teachers and learners. The terms that cover the use, reuse and sharing of content should also be easy to understand.
- 👁️ Encourage ongoing review to ensure that DEC continues to meet security, compliance and data protection standards. Empower staff through training.

Putting it into practice

Quick check:

If you are not sure where a DEC solution stores learner data, or the provider cannot give you a straight answer, pause and investigate further.

Tip

You do not have to navigate this alone. Talk to your data protection officer, IT team or school leader if you are unsure about data protection, licensing or copyright issues.

Ask yourself:

- Is this DEC in line with our school's privacy and data protection policies?
- Is learner data secure, both in storage and in transit?
- Are staff using or sharing content in a way that respects the creators' rights?
- Is everyone confident that learners' work and personal information will remain protected?



Technical interoperability

DEC can enhance teaching and learning, but only when it is compatible and works well with your school's existing IT systems. Choosing DEC that follows common standards and fits with other services helps you to stay in control and avoid being locked into a single provider. So whether you are selecting new DEC or reviewing existing content, technology should always support your teaching, not add complexity. The steps below will help you ensure a safe, seamless digital experience for learners and colleagues.



What to look for In your classroom:

- 👁️ DEC should integrate easily with any other digital systems you have in place (e.g. your learning and learner management systems).
- 👁️ Prioritise DEC that is interoperable and platform independent. This means it should work across different devices and operating systems without the need for complex workarounds. To ensure this, ask for help from your school's IT coordinator or experienced colleagues. If you are creating DEC, make sure your content works on all of the devices your learners use.
- 👁️ Choose DEC solutions that allow easy data export/import and follow open standards.



What to look for In your school:

- 👁️ Encourage regular discussion between teachers, educators and expert IT staff to help identify interoperability challenges when assessing new DEC.
- 👁️ Take inspiration from the area of higher education, in which a recent [European Commission Framework](#) emphasised that DEC should be “easily presented on various platforms and provides information on how to operate that may be useful”.
- 👁️ Look for DEC that follows internationally accepted and open standards such as [1EdTech](#) or [xAPI](#) to ensure easy content sharing.



[eTorba](#) from Slovenia is a national OER platform that uses open standards such as xAPI to allow content to flow easily between systems. Its tools for reading and creating interactive textbooks have all been designed with simple technical integration in mind. Search online to see if your country offers a similar solution.

Putting it into practice

Quick check:

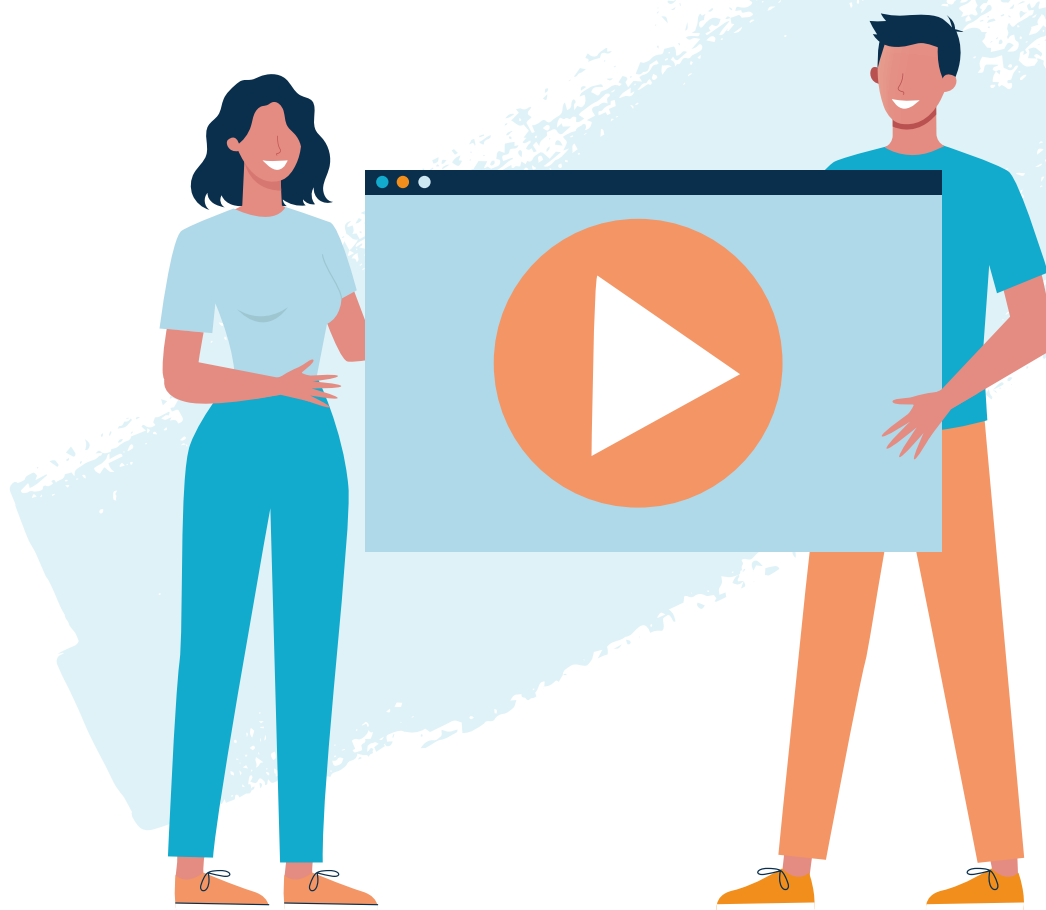
If a tool forces you to use a specific operating system or requires lots of additional tech knowledge or work, it may not be the best fit for your school. Think carefully about the pros and cons before moving forwards.

Tip

Whether you are a teacher, an IT specialist or a school leader, take the time to check the quality of vendors on the basis of the elements mentioned above. If you do not receive clear or satisfactory answers to your questions, keep looking!

Ask yourself:

- Do our DEC tools work smoothly with our current systems?
- Are we regularly reviewing the DEC we use and seeing how it aligns with open standards?



Financial viability

DEC can make a real difference to learner outcomes, but not all resources offer the same long-term value. With tight budgets and growing demands on your time, it is essential to think beyond price alone. Sustainable DEC choices can deliver meaningful learning impact over several school years, adding value to what your school already has in place. Be aware that even free DEC can come with hidden costs, whether in terms of your workload, learner data, or the need for future upgrades. Think strategically, as the best DEC usually balances quality, longevity and responsible investment, whether in terms of your time or your budget.



What to look for In your classroom:

- 👁️ Think about the lifespan of your DEC. A product should remain relevant beyond a single academic year. If it does not, is the investment worth it?
- 👁️ Beware of “free” DEC that aims to monetise user data, relies on advertising or requires in-app purchases to unlock its full functionality.
- 👁️ Ensure the long-term availability of the DEC you use. Free resources might disappear if their funding ends, so check carefully before you build them into your planning.
- 👁️ Always test before you commit. Free trials, pilots and demos can help you to assess the usability and impact of a piece of DEC before you invest.



What to look for In your school:

- 👁️ Understand what is included in the price of the DEC, taking into account the provider and the multiple competences and expertise needed. Usually, the cost will include initial development, maintenance and ongoing updates.
- 👁️ Compile a total cost of ownership (TCO) table that includes the cost of the licence, training, support and eventual phasing out of the DEC.
- 👁️ Be aware of hidden costs. Limited features, paid-for add-ons or restrictions on exporting learners' work can lead to unexpected upgrades and additional expense.
- 👁️ Look for clear pricing structures (typically per site or per user) and avoid resources with hidden fees or unclear licensing terms. Push providers to give you the clarity you need.

Putting it into practice

Quick check:

As part of your school planning process, review what DEC is already being used in the school and see if it is having a positive impact on your colleagues' workload and learners' outcomes.

Tip

Look for OER that is developed by active educator communities or national authorities.

Shortcut

If a resource is free, ask: "How is it funded? What trade-offs are involved?"

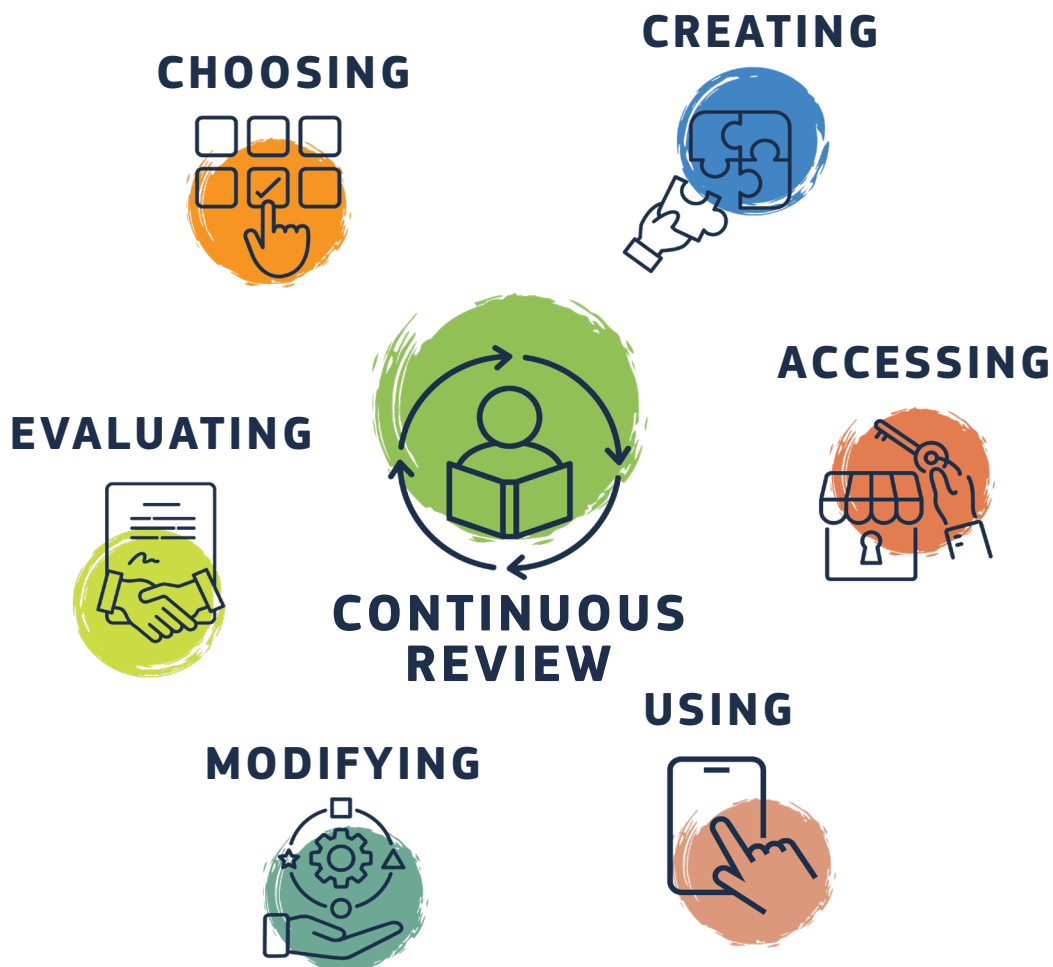
Ask yourself:

- Do I understand the total cost, including time, support, licensing, etc.?
- Are we spending budget (or time) on tools that are not being used?



Section 3: Making everyday decisions about digital education content

Teachers and school leaders engage with DEC in a wide variety of ways. In this section, we highlight six key activities, from “Choosing” to “Evaluating”. For each activity, we present a typical cycle of actions you might follow. Throughout each of these, we encourage ongoing reflection and regular fine-tuning of your approach to maximise impact. This section primarily applies to structured or ready-made DEC used with learners, rather than smaller chunks of content such as individual images or videos. Depending on which of the six activities you wish to engage in, you can dip in and out of each section. All six subsections follow a similar structure: a brief introduction, a series of typical steps or considerations you might follow, a scenario to illustrate the process and, where appropriate, key questions to support your decision-making as a teacher, educator or school leader.



Before you embark on your search for right DEC, consider the digital technologies available that are in your school (devices, network, existing DEC, etc.), as well as existing digital policies (covering internet use, data collection and use, copyright, etc.) and your own digital competences. As a minimum, ask your school leader or another digital leader in your school for information about any existing DEC licences that the school already has, and how others are using these materials with their learners.

Don't be afraid to try DEC out with your students – particularly if you are searching for a new approach to teaching a lesson. If things do not go as you expect them to, try reusing the DEC in a different way and see if it works better the next time. Remember: there is no right or wrong way to use DEC; what matters is to find an approach that works for your learners. So be persistent.



Choosing

Choosing the right DEC can support teaching and learning, making lessons more engaging, accessible and effective. However, with so many resources available, it can be challenging to know where to start. The structured approach outlined below will help you to ensure that the content you choose meets your learners' needs while being practical, high-quality and financially viable.



Where to start?

Step 1: Finding the right content

Define your learning and teaching goals and consider where and how DEC could best support these. Search key content repositories (e.g. Malta's [Eskola](#)), the websites of subject-related associations (e.g. [Scientix](#) for STEM, or the [European Centre for Modern Languages](#)) as well as the websites of digital content providers for curriculum-aligned resources. Ask colleagues, and check national repositories, educator networks or ministry guidelines.

Tip

Use search filters to narrow down results by subject, age group, accessibility features or resource type. This saves time and helps to surface the most relevant options.



If you cannot find exactly what you need, it might be a good idea to adapt existing materials and/or consider creating your own content. Whichever option you choose, you will need to consider copyright and licensing issues. (For more information, see subsection 3.3 below, "Creation".)

Step 2: Evaluating

Once you have found resources that might meet your needs, it's time to assess their educational value, usability and potential impact. Shortlist DEC that aligns with the criteria highlighted in Section 2 of these guidelines. Don't forget to think about assessment! Consider how you might use the DEC to measure progress across a range of learning outcomes. This includes not only content knowledge and understanding, but also the development of essential skills such as critical thinking, creativity, collaboration and problem-solving. These can help you to gauge learners' comprehension, track their skills development, and adapt your teaching strategies accordingly.

Quick check:

Are there any case studies available from similar schools that you can review? Have colleagues used the same dec and posted reviews?

Step 3: Building confidence and skills

Choosing the right DEC gets easier with practice and support. Building your digital competences and confidence through continuing professional development is key to making more informed choices. Check out the courses and support provided by your local and national government as well as teacher training organisations. Further advice and guidance are also available within the [DigCompEdu](#) Framework – specifically Part 2.1, which looks at selecting digital resources.

Action

Share your experiences with colleagues. What worked, and what didn't? Subject associations, advisory bodies and unions can also offer additional support, helping you feel more empowered in your decision-making. For example, France uses [the Elea platform](#) and the [designers' network of educators](#). Does something similar exist in your country?



A typical scenario



Meet Emma.

Emma is a teacher in a primary school, working with a mixed-ability class of 6-year-olds. Her school embraces digital education, combining traditional teaching with digital tools. One of her key priorities this term is to build core numeracy skills. However, she is finding it difficult to locate high-quality DEC that meets the needs of her learners, many of whom are multilingual and require additional support with mathematical concepts. Accessibility and inclusivity are therefore critical factors in her decision-making, and her budget is tight, so any DEC she chooses must be cost-effective and deliver real value. Here's how Emma chooses suitable DEC for her learners.



1) Finding the right content



Emma starts by defining her specific teaching goals for maths and considers how the DEC can support them:

- Does this resource align with my maths curriculum goals?
- Is it engaging and developmentally appropriate for 6-year-olds?
- Can it be used flexibly? Will it work on the interactive whiteboard for whole-class teaching and on tablets for small-group practice?

She also reviews her school's existing DEC to avoid duplication and ensure consistency of approach and quality.

2) Evaluating quality and relevance



With clear goals now in her mind, Emma begins to research potential DEC options. She reviews trusted content platforms, reads reviews and examines provider case studies and product claims. She filters out resources that:

- Are too complex or not designed for early-years maths teaching;
- Lack accessibility features for learners with diverse needs;
- Show no evidence of educational impact; or
- Are difficult to integrate into her school's existing systems, or face usability issues.

Instead, she focuses on and pilots high-quality, curriculum-aligned DEC that is developmentally appropriate and supported by research on improving early childhood numeracy.

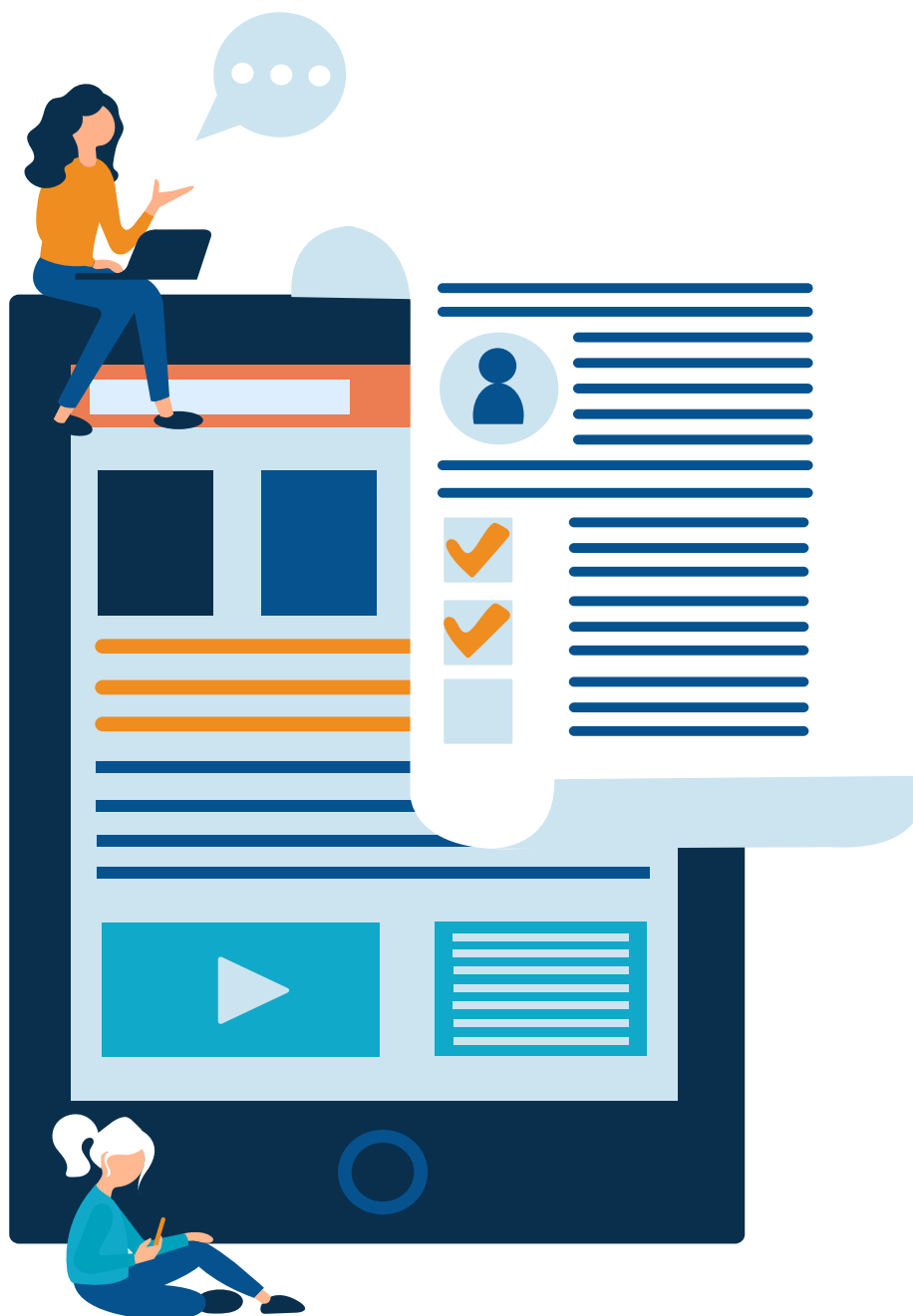
3) Building confidence and skills



Before rolling out the new DEC she has selected, Emma ensures that she, her learners and her colleagues are fully prepared. Among other considerations, she checks:

- Does it integrate smoothly with existing school technology?
- Will additional training be required for her, her colleagues and learners?
- Is technical or pedagogical support easily available from the DEC provider?

Once she starts using the resource, she monitors learner engagement, measures improvements in maths skills and shares her findings with colleagues. This will help her school to make more informed decisions in the future.



Creating

Teachers and educators have always created content for their learners, usually combining together many different formats. These may range from an image or video to more structured/developed content that compiles multiple elements into a coherent piece of DEC. Despite the availability of many resources today (such as e-textbooks, EdTech content products and resources created for specific educational purposes by various stakeholders), you may still need or want to create, adapt and customise DEC to meet the specific needs of your learners.



Where to start?

Step 1: Do you need to create DEC?

When deciding whether or not to create content, here are some key questions you might want to consider.

Why am I creating this content, and what added value do I expect it will provide for my learners?

- Will it be used to teach/introduce a topic for the whole class?
- Will learners use the content on their own (i.e. independent learning), in groups, or as part of whole-class teaching?

What format should the content take?

- Will the content be static, such as a word-processed document that you print out?
- Will it be multimedia (videos, screencasts, audio, etc.) that is played on a screen in class or on digital devices?
- Will learners interact with the content? If so, how?

Step 2: Respecting copyright and intellectual property (IP)

Another important question to ask is where you will source the content assets (text, images, videos, etc.) that you will use to create the DEC. In this context, you need to ensure you comply with copyright and IP laws. Check whether any of the text, images, audio or video you want to use are protected by copyright. If they are, ensure that you use them in compliance with copyright regulations, and that you have any necessary permissions.

Know your copyright

Digital technologies have radically changed the way creative content is produced, distributed and accessed. Copyright ensures that authors, composers, artists, film makers and other creators receive recognition, payment and protection for their works. It also rewards creativity and stimulates investment in the creative sector.³ Make sure you familiarise yourself with copyright rules and consider how they apply to the DEC you select and use with your learners.

³ Shaping Europe's digital future. "EU Copyright Rules", 2025. <https://digital-strategy.ec.europa.eu/en/policies/copyright>

A guide to navigating DEC copyright for teachers and school leaders

The EU provides a copyright exception that allows educational institutions to use protected digital works for non-commercial teaching purposes without the need to obtain prior permission, if the use is under the institution's responsibility. This includes using materials on-site, off-site or through secure online platforms that are accessible only to teachers and learners. Note that the way this exception is applied varies significantly between Member States. For detailed guidance on how these rules apply in your country, first consult your national regulations. The European Union Intellectual Property Office (EUIPO) offers valuable resources for schools, including "[FAQs on Copyright for Teachers](#)" to help you navigate these specifics.

Creative Commons licences and other similar services

[Creative Commons \(CC\) licences](#) provide a flexible way for creators to share their work while retaining certain rights. These licences allow others to use, share and sometimes modify the material, depending on the permissions set by the creator. There are six main types of CC licences, ranging from the most permissive (allowing free use and modification) to the most restrictive (limiting use to non-commercial purposes or prohibiting modification). EUIPO has published a Creative Commons infographic that teachers might find useful.

Tips for teachers and educators who create digital education content

- 👁 Always ensure that you are properly credited for your work. Consider using Creative Commons or similar licences to retain your rights while allowing others to use your content under certain conditions.
- 👁 Use the © copyright symbol to clearly indicate that your work is protected by copyright.
- 👁 Look for openly licensed content on platforms such as [Wikimedia Commons](#) and [Europeana](#), or use public domain resources from libraries such as [Project Gutenberg](#). While these resources are free to use, it is still good practice to give credit where it is due.

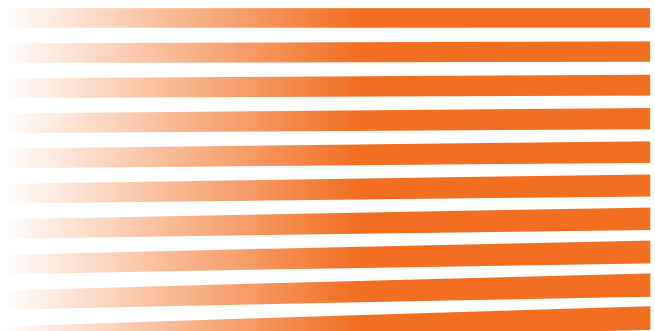
Step 3: Share and repurpose your DEC

Creating your own DEC requires an investment in time and energy. Consider how you might make the most of it by sharing it with others and/or repurposing it for future use.

- Will you share it with colleagues in your school, or with others beyond your school? If so, ensure it is copyright compliant.
- Will you post it on national or regional groups in which teachers and educators, share DEC with each other?
- Will you reuse the content?
- Will you repurpose the content, based on learner feedback or other suggestions?
- Will you develop support materials for other teachers, such as written instructions or interactive videos, to showcase how they might use the content in their own contexts?

Action

Consider how you can continually enhance the quality of your DEC and the impact it can have on learners across the education system. Don't be afraid to share your content with others!



Making critical use of generative AI (GenAI) to create content

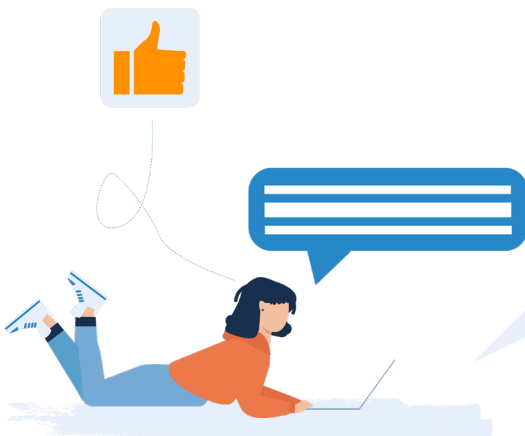
Many teachers and learners use GenAI tools to create their own content. Such tools offer the potential to create DEC such as text, images (including photographs, digital paintings and cartoons), videos, music, which can then be incorporated into lesson plans, learning activities, presentations, quizzes and more. You can also use GenAI tools to create new DEC from existing resources, such as old lesson plans, essays or worksheets. This may be even more useful to you and your learners. There is no limit to the types of DEC that GenAI tools can create in the hands of creative teachers and learners – so start exploring its potential. However, bear in mind there is an energy cost associated with the use of GenAI tools, due to the large amounts of computing power they use in remote data centres. Quick check: while GenAI tools might create or generate content that looks good, they cannot be fully relied upon to be accurate. Using GenAI in this way will probably save you time and give you new ideas/resources that you can use in your teaching. In particular, note that there is an ever-increasing list of European-created GenAI tools, such as [Mistral](#), [Curipod](#) or [Humy](#), that can help you to create new DEC. When doing so, make sure you are aware of copyright rules (see above) and the necessity to check, verify and discuss the quality of the content with your learners and peers.

What copyright rules apply to AI-generated text and images?

- 👁️ Works created entirely by AI, with limited human input, are generally not eligible for copyright protection.
- 👁️ Make sure you do not feed copyright-protected content into generative AI tools, as this could lead to copyright violations.
- 👁️ To avoid confusion, any AI-created or modified content should be clearly labelled as such. This is important in education, where clarity regarding the source and nature of content is essential for trust and responsible use. Providers of DEC are required to be transparent by providing users with information that enables them to clearly identify when they are interacting with an AI system ([AI Act, article 50 \(2\)](#)).

In addition, you will also need to consider the following points:

- 👁️ **SCHOOL POLICY:** check if your school allows the use of GenAI in creating classroom content, such as differentiated DEC (i.e. content on the same topic that is adapted for different reading abilities and/or levels of understanding) and/or chatbots that learners engage with.
- 👁️ **APPROVED TOOLS:** find out which GenAI tools are recommended in your school and if there are any guidelines for their use. Also, consider reviewing the [European Commission's Guidelines on the ethical use of artificial intelligence and data in teaching and learning for educators](#).



TIP

Encourage your learners to create their own DEC using GenAI tools. These tools can help learners – either individually or collaboratively – to produce content that deepens their understanding. Just remind them to consider content licensing and usage rights when doing so!

A typical scenario



Meet Manuel.

Manuel is a primary school teacher who has used digital technologies in his classroom for more than 10 years. He is very interested in how technology can improve his teaching and has begun to explore the use of GenAI to enhance creativity and engagement in his lessons. He teaches a group of 10–12-year-olds with varying abilities. When Manuel writes prompts to create content using AI, he uses the CARDS mnemonic, in which each letter stands for a specific action:



- C:** Give the GenAI tool a **CLEAR** role.
- A:** Tell the tool who the **AUDIENCE** is (his learners).
- R:** **REVIEW** the content for inaccuracies.
- D:** Use **DETAILED** and unambiguous language.
- S:** Ensure the prompt is **SPECIFIC** and focused.

1) Defining goals and finding the right tool

Manuel uses DEC to enhance learners' descriptive writing skills while they are reading the book *Charlotte's Web*. He uses a generative AI tool (such as DALL-E) to create images of a character from the novel, applying the CARDS mnemonic to craft effective prompts. Manuel then integrates these AI-generated visuals into a whole-class lesson, which he shares via the interactive whiteboard to support a multimodal learning approach.

2) Refining prompts for better results

Manuel and the children discuss the image that DALL-E has generated, based on his initial prompt. They are not very impressed with the initial output. They consider whether providing more details in their prompt might create a clearer image of the character in the reader's mind. In groups, the learners refine their prompts by incorporating more descriptive elements, such as texture, colour and emotions.

3) Enhancing classroom engagement

Manuel then takes the revised prompts and inputs them into DALL-E. The children immediately see that the images generated are much improved, and they understand the benefits of using more descriptive language. The activity generates lots of discussion about the types of images created and how different prompts produce different images. Inspired by this activity, learners apply their enhanced descriptive skills in independent

Accessing

Many schools, ministries and public authorities now provide online platforms for teachers and learners to access DEC. These platforms, often referred to as “online spaces”, serve as centralised repositories or gateways for approved DEC from publishers, EdTech companies, public bodies and educators. Such spaces typically provide easy access to curated materials via a secure location and can be integrated into a school’s learning management system (LMS) or virtual learning environments (VLEs). These platforms can facilitate seamless access to DEC in school and potentially at home. To make it even easier to access DEC, some schools have adopted platforms that allow users to log in securely using their existing username (i.e. their email address) and use their existing username (i.e. email address) and password (i.e. used to access the school network) he password they use to access the school network, a process known as “single sign-on” (SSO).⁴



Where to start?

Not all schools have an online space from which DEC can be accessed. If yours doesn’t, this might be something to consider in the future. The following steps might help if your school decides to do this, or if your authorities suggest it.

Step 1: Should/can we create an online space for our school to access DEC?

- Has your school selected or created DEC from a range of different providers, and would it be easier to locate that content in one place for easy access?
- If yes, then consider where you might locate it, or at least direct teachers and learners to it.
 - 👁️ Can you locate this material in a secure online space (i.e. a school LMS or VLE)? Here, you may need to check your licence agreement with the DEC publisher or content creator to see if this is allowed.
 - 👁️ If you are unable to upload the content to your LMS or VLE, can you link from this school space to external DEC (e.g. copyrighted materials) that is housed on other platforms (i.e. by a publisher or EdTech)?
 - 👁️ If this is possible, can you utilise SSO so that teachers and learners can access the content using their school login details? This will provide a gateway that enables everyone to easily find and use the DEC your school has procured or identified as relevant.

⁴ Single sign-on (SSO) is an identification method that enables users to log into multiple applications and websites using one set of credentials. SSO offers numerous benefits, including: (1) Providing easy access to DEC for all school staff and learners; (2) Ensuring greater use of the DEC selected and/or purchased by the school; (3) Fewer passwords for school staff and learners to remember; and (4) Improved cybersecurity approaches within the school.

Step 2: Making access to the content as easy as possible

Having located or provided a gateway to a range of DEC, it is important that everyone can log in easily to access the content. At school level, ensure that:

- All staff and learners have access to the shared online space and can easily access the DEC. Test this and make sure it works for everyone.
- Is your school's wi-fi robust enough to enable all learners in a class to log on at the same time and use the content?

In addition, check the following:

- Is it possible to download or access some of the content offline? For example, can a digital textbook be downloaded onto a learner's device? What about other resources that may be used regularly by learners (e.g. supplemental videos or interactive materials)?
- Are learners able to access and use some or all of the DEC at home?

School leaders should strive to establish the following:

- Clear policies on how to use LMS/SSO and how content should be accessed and used.
- Robust IT infrastructure that supports seamless access to DEC.
- Professional development training and support for teachers on how to use the LMS effectively.

The example below shows how one school can use an LMS and SSO to allow access to DEC for teachers and learners.



A typical scenario



Meet Tomaso.

Tomaso is a school leader in a large secondary school with more than 100 teachers. The school provides teachers and learners with their own personal email address and a username to access the school's LMS. Each learner has their own space on the LMS to access material that their Assignments, online tests etc.). The school has just procured a new set of DEC resources for the languages department, and Tomaso needs to ensure that all the teachers and learners have access to this content.



1) Check what DEC can be stored on your LMS

Tomaso's first step is to ensure that all colleagues and learners can access the LMS, both in school and from home, to use this new content. He asks the head of the languages department to work with IT support to create a space for the new resources online. This is where staff and learners will go to access the material.

2) Assemble the DEC in one central area

Having created a central space, Tomaso now identifies which content can be stored on the central LMS, and which content will need to be accessed via this space using SSO. He asks IT to speak to the publisher regarding the licensing agreements for their content to see if it can be stored on the school's LMS. If this is not possible, the school will need to access the DEC from the publisher's servers, so their IT contact will implement an SSO login, ensuring it complies with GDPR and national guidance on data protection.

3) Enabling single sign-on (SSO)

Once SSO has been set up (either for the school's LMS or the publisher's servers), teachers and learners can access the new DEC in one place, using a single set of log-in credentials.

Using and adapting

Teachers and learners have many choices when it comes to using and adapting DEC. Using means employing the DEC unchanged without modifying it, in line with the terms of use defined by a licence; adapting means editing, remixing or re-contextualising it – again, where this is permitted under the terms of a licence. Thus, *using* DEC might entail using a digital textbook with learners as is, without making any changes to the content. Adapting might involve editing an existing open educational resource (OER), or reworking content from a digital textbook whose licence allows modifications, in order to better suit learners’ needs. Both the DigCompEdu⁵ and the DigCompOrg⁶ frameworks describe the useful skills that educators and learners need to develop in order to use and to modify/adapt existing digital materials for their classroom, and thus meet their needs and those of their learners.



Using digital education content

There are many ways to use DEC with your learners. A range of these are included in subsection 1.2 of these guidelines, with a list of possible scenarios for its use to support your teaching, learning and assessment practices. Using Laurillard’s framework, that subsection also outlined some ways in which DEC might support classroom delivery.

Make use of opportunities to inform parents about the use of DEC in the classroom. It is good practice to explain to parents why a particular piece of DEC was chosen, and why it is being used in school or at home. This might be best done as a whole-school activity that outlines the school’s policy regarding the selection and use of DEC.

But most of all – have fun exploring ways in which you can use DEC to design new and engaging learning experiences for all of your learners!

Adapting digital education content

Teachers and learners also have the option to adapt DEC to better meet their needs. They have lots of options here, depending on their own levels of digital competence and their context.

Teachers can:

- Use productivity applications (e.g. presentation applications or word processing tools) to modify a worksheet or pre-existing quizzes.
- Adapt existing materials to better meet the additional learning needs of learners, by including accessibility features such as text-to-speech.

- Adapt their digital presentations using new text, images and/or other resources
- Modify and combine existing digital resources to create learning activities that are tailored to a concrete learning context and objective.
- Adapt an existing computer game for educational purposes (e.g. creating a world in an online gaming or virtual environment for learners to explore).



Call to action

Learners can also use productivity applications, authoring tools or generative AI – where this is allowed – to modify and combine existing DEC to create reports, presentations and other documents.

5 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:10.2760/17838 (print), 10.2760/159770 (online), JRC107466.

6 Kampylis, P., Punie, Y. & Devine, J., Promoting Effective Digital-Age Learning – A European Framework for Digitally-Competent Educational Organisations, Publications Office of the European Union, Luxembourg, 2015; doi:10.2791/54070

Where to start?

Step 1: Adapting DEC for your purposes

As always, consider your learning context and objectives and decide if off-the-shelf DEC (i.e. DEC that is ready-made and available for immediate use) meets your needs, or if you need to make some adaptations.

If you do need to make changes, consider the following:

- Am I allowed to adapt the DEC I have selected? (Check the licence agreement to make sure.)

If yes, what I am allowed to change or modify?

- What kinds of modifications are needed to make the DEC more relevant to my setting?
- Can I make these adaptations myself, or do I need assistance from colleagues or a third party? If assistance is required, you might speak to your school leader or other colleagues to see if these adaptations can be outsourced.

Step 2: Try it out and consider how it works

As with any content, try it out and reflect on how it works. Consider if your adaptations have been successful, and if further modifications might be needed in the future.

Step 3: Helping learners to modify and adapt DEC

Embed digital technologies into your classroom practices and help your learners to modify and adapt existing DEC content where this is allowed or possible. Learners will need to know how to modify and combine existing DEC (e.g. text, images, animations, audio, etc.) into their own digital creations (documents, presentations, projects etc.), and what is permitted within their own settings.

The example below shows how a teacher can adapt DEC to her own context.



A typical scenario



Meet Sylvia.

Sylvia, a history teacher in a secondary school, plans to introduce a new topic featuring an important historical figure. She will use a multimedia presentation incorporating images, video and audio files. Her goal is to make the introduction engaging and to provide context for learners who will later use a mixture of resources, including textbooks, online primary sources and library materials, for in-depth study.



1) Finding engaging content

Sylvia begins by visiting the national online portal for schools, which contains a wide range of OERs that have been curated by the ministry for use in schools. This collection includes lesson ideas, worksheets and primary source materials such as documents, videos and audio files.

- She finds relevant materials on the historical figure and reviews them to see if they are appropriate for her class.
- She finds several lesson plans that include a range of ready-made learning activities.
- Within these lesson plans, she finds links to the original video files of speeches and television interviews.

2) Adapting the DEC for her own context

Much of the content Sylvia has found was created by public broadcasting organisations. It is particularly relevant and can be adapted under its OER (Creative Commons) licence. Sylvia initially tries using the full, unedited video clips in class – but some of them are over 15 minutes in length. She notices learners were getting bored and started chatting with one another. The second time she teaches this lesson; she learns from her earlier experience and decides to adapt the video clips:

- Sylvia now creates three shorter video clips for her classroom presentation. Each of these is no more than 3 minutes in length.
- Having identified which clips she wishes to use, she downloads them, trims the videos to the appropriate length and embeds them in her presentation.
- She also puts these adapted materials in the history department's shared folder on the school LMS so that her colleagues can reuse these resources in future.

3) Using the content with learners

In class, Sylvia uses her multimedia presentation alongside a worksheet. Learners work in small groups, discussing their observations in order to critically consider the impact of the historical figure. They then review the digital clips on their devices at their own pace, as needed.

Evaluating

The idea of teachers and educators as reflective practitioners is not new. It dates back to the work of Donald Schon⁷ in the early 1980s. Numerous reflective practice models⁸ are used by teachers in the course of teaching or after they have finished teaching a lesson. In the case of DEC, it is also important to think critically about its impact on learners' progress and to consider if changes are needed in its future use. Teachers should constantly reflect on the impact on learners of the DEC they have selected and used. This applies across all of the six activities highlighted in this section.



Where to start?

As with other learning materials, you should consider a range of methods to decide how impactful the chosen DEC has been in your teaching.

Step 1: Some questions to consider

Overall, when reflecting on the use of DEC, it is appropriate to revisit why you selected the particular DEC in the first place. As a minimum, consider the following questions:

- Did the DEC help to achieve my intended learning objectives?
- Did the DEC provide value for the time/effort invested?
- Was the content accessible/understandable/easy to use with and by all of my learners?
- Did the material engage learners?
- What further improvements or adaptations may be needed in the future?
- Should I continue to use this DEC in this way in the future?

Step 2: Sharing your experiences more widely

Having used the DEC with your learners and reflected on its impact, it is important to share your reflections with others. This might include:

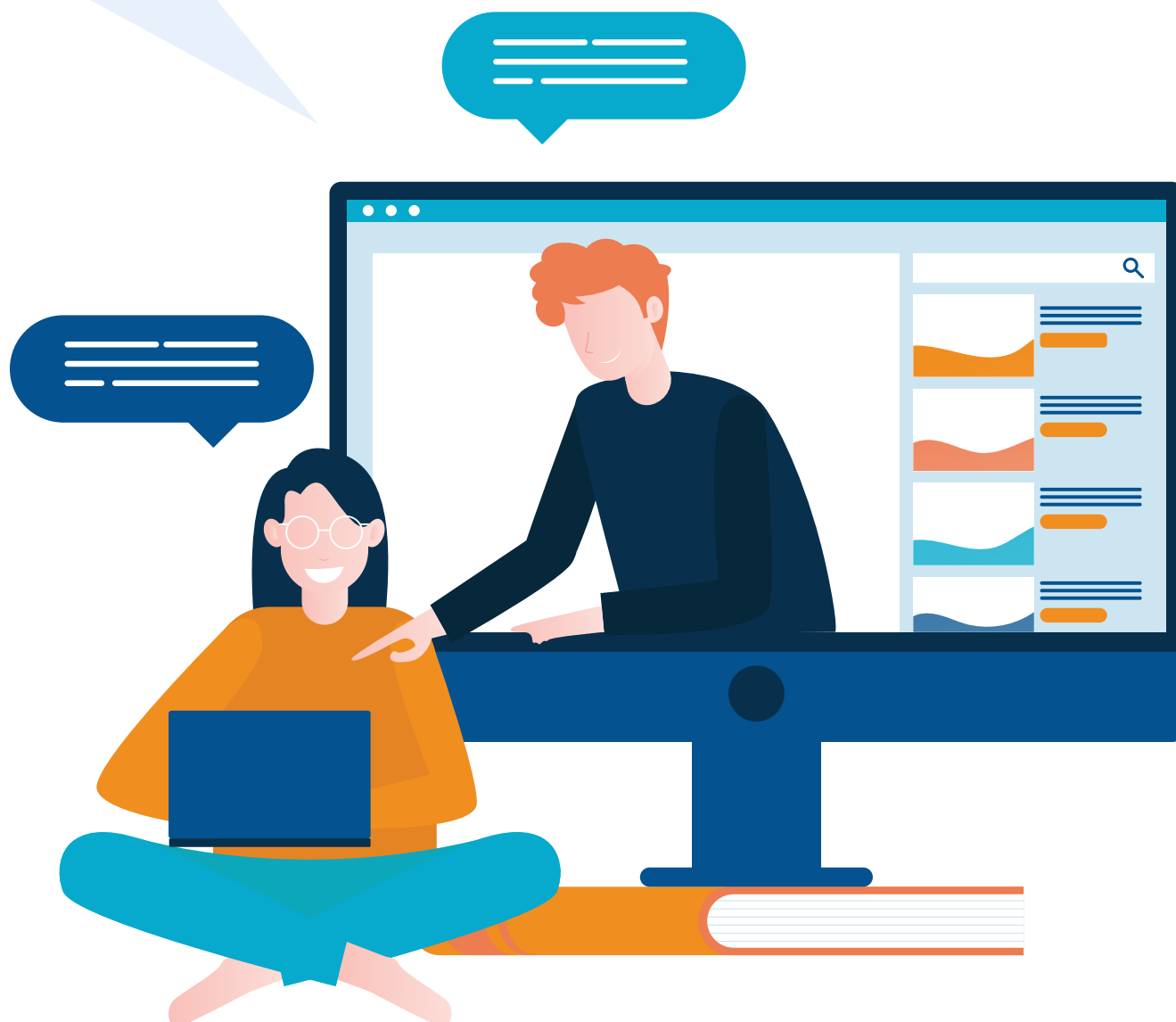
- Discussing it with other staff members in your school or within your subject department.
- Discussing it online with other teachers by writing a review of your experience with the content.
- Providing feedback to the content's creator so they can continue to enhance their DEC.

When they are shared within your school, reflections on DEC can support evidence-based decisions about future use or investment in digital resources.

Tip

Why not share a review of how you used a particular piece of DEC with your colleagues at a staff meeting or subject department meeting, or even on your own blog? You could outline the pros and cons of using that piece of DEC with learners.

Remember, if you are sharing any screenshots of learners using DEC (e.g. examples of dashboards), always anonymise learner data before uploading.



A typical scenario

A science department introduces digital physics simulations to help learners who are struggling with concepts such as waves and electricity. They select simulations based on their curriculum alignment and accuracy. Initially, some teachers lack confidence in using these simulations, preferring traditional lab activities instead.



1) Shared reflections

After using the simulations for several weeks, the science teachers meet to collectively reflect on their experiences. Prior to this meeting, they create a simple rubric that captures some key areas they deem important:

- Levels of engagement
- Appropriateness for all learners
- Learning goals

The teachers who have used the digital tools are very happy with how the DEC has performed in their classrooms. To support these observations, they bring feedback from their learners, which they have gathered via informal check-ins with students. Having listened to their colleagues and discussed their experiences, the less confident colleagues are more open to using the simulations. They gain some new insights into how they might use them in the future and see the meeting as a learning conversation with colleagues. As a result, the Science Department decides to add this DEC to its base of approved materials, creating a usage protocol and organising training to ensure all teachers feel confident about using it with learners.

2) Sharing their reflections more widely

Due to the success of the programme, the teachers also decide to share their use of the simulations more widely by:

- Searching for an eTwinning a STEM project that focuses on the use of DEC in physics teaching;
- Sharing their use of the simulations with a national science educators' community of practice;
- Participating in a STEM Discovery campaign, sharing their experience at regional, national and international level; and
- Sharing their observations with the creators of the simulations, along with some suggestions for new features and additional training materials.

Conclusions

These guidelines provide a framework to support decisions relating to digital education content (DEC). Their true value, however, is only fully realised when they are put into practice. We hope this document empowers you to take your next steps with confidence.

In this context, we encourage you to:

- Explore and adapt these guidelines and use them flexibly. Test new approaches in your classroom and adapt these to your specific context. Learning what works best for your learners is a key part of this process.
- Share your experiences – both successes and failures – with your peers and leaders. This collective approach can strengthen decision-making and build a supportive school culture.
- Engage with professional networks or communities (within eTwinning, European Digital Education Hub or Erasmus+, for example). Your practical experience has value beyond your own school, and you can contribute to a broader European dialogue on digital education policy and practice.

Use your experience to build the ecosystem

As you gain confidence and build experience with DEC, you will be in a unique position to influence the wider system around you. What you learn (e.g. what works, what doesn't, and what learners respond to) is exactly the kind of insight that can inform how DEC is developed and supported in the future.

If you are a school leader, use your team's experiences with DEC to align everyday classroom practice with your school's long-term strategy and plans for investment and staff development.

But regardless of your experience or role, why not work to become a driver of change? Your insights can be used to advocate for conditions that make teaching more impactful by prioritising investment in DEC as well as in people, time, training and ongoing support. Ultimately, the future of high-quality, trusted and impactful DEC depends on collaboration between all parts of the ecosystem. With the right structures and support, your insights can help to ensure that DEC becomes not just a teaching tool, but a catalyst for educational improvement and change across Europe.

**So speak up, get involved and help shape
the future of DEC! Your insights matter, and
your leadership can make a real difference.**

Glossary

TERM

DEFINITION

Accessibility

The design and development of educational materials, platforms and systems so they can be perceived, understood, navigated and interacted with effectively by all learners, including those with diverse disabilities.

Adaptive learning

Adaptive learning uses technology to create a personalised educational path for every learner. By analysing a learner's answers and interactions in real time, the system's algorithms can use AI to automatically adjust the difficulty, pace and type of content presented. This ensures that each learner can progress at their own optimal speed within a single classroom.⁹

Artificial intelligence (AI)

A machine-based system designed to operate with varying levels of autonomy, which may exhibit adaptiveness after deployment and which, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations or decisions that can influence physical or virtual environments.¹⁰

Copyright and intellectual property (IP)

Copyright is "a legal term used to describe the rights that creators have over their literary and artistic works. Works covered by copyright range from books, music, paintings, sculpture and films, to computer programs, databases, advertisements, maps and technical drawings."¹¹

"Intellectual property (IP) "refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce."¹²

Data privacy and the GDPR

Data privacy refers to the rights and expectations of individuals (learners, educators and other users) to control how their personal data is collected, processed, used, shared and stored within the digital learning environment. Personal data, as defined by regulations such as the EU's General Data Protection Regulation (GDPR), is any information that relates to an identified or identifiable individual.¹³

DEC ecosystem

The Digital Education Content (DEC) ecosystem describes the complex, interconnected network of all stakeholders involved in the life cycle of digital education materials. This includes the public sector (including ministries of education), the private sector (e.g. publishers and EdTech companies) and end-users (teachers, school leaders and learners). Decisions made by one actor in the ecosystem, such as a government's funding policy or a company's product design, directly impact the choices and tools available to teachers in the classroom.¹⁴

Digital competences

"The confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), and problem-solving."¹⁵

Digital education content (DEC)

Learning, teaching and assessment material that is designed for or created by educational publishers, EdTech companies, cultural and scientific organisations, ministries of education, or by teachers and learners, to address pedagogical objectives, and is made available in various formats using digital tools and platforms.

9 European Commission, Directorate-General for Education, Youth, Sport and Culture, Digital Transformation in Blended Learning Environments – EENEE Analytical Report. Publications Office of the European Union, (Luxembourg, 2024. <https://doi.org/10.2766/061693.9>

10 "Article 3: Definitions," EU Artificial Intelligence Act. Accessed 17 October 2023, <https://artificialintelligenceact.eu/article/3/>

11 World Intellectual Property Organization, "What is Intellectual Property (IP)?", World Intellectual Property Organization, 2020, <https://www.wipo.int/en/web/about-ip>.

12 World Intellectual Property Organization, "What is Intellectual Property (IP)?", World Intellectual Property Organization, 2020, <https://www.wipo.int/en/web/about-ip>.

13 European Commission, "Data Protection Explained". Accessed 17 October 2023, https://commission.europa.eu/law/law-topic/data-protection/data-protection-explained_en.

14 European Commission, Directorate-General for Education, Youth, Sport and Culture, Digital Education Content in the EU – State of Play and Policy Options – Final Report, Publications Office of the European Union, Luxembourg, 2023). <https://doi.org/10.2766/682645>.

15 Vuorikari, R., Kluzer, S., & Punie, Y., DigComp 2.2: The Digital Competence Framework for Citizens – With New Examples of Knowledge, Skills and Attitudes, Publications Office of the European Union, Luxembourg, 2022. <https://doi.org/10.2760/115376>.

| TERM | DEFINITION |
|------------------------------------|--|
| Digital learning platform | A web space or portal for educational content and resources, offering educators and learners access to various digital tools and DEC, such as digital textbooks, videos, documents and more. These platforms often host content in a user-friendly way so that it can be accessed easily, in one place, by schools. |
| Digital tool | Digital tools, such as word processors, spreadsheets, presentation packages, authoring tools, quiz-making tools, assistive technologies and generative AI, are content-free, meaning that they don't come pre-loaded with DEC, but enable users to create or use content. |
| Digital textbook/ eTextbook | An electronic version of a book designed for educational use on devices such as tablets or laptops. Modern eTextbooks have evolved far beyond simple PDF copies of print books. They are increasingly interactive, integrating multimedia elements such as embedded videos, audio clips, animations and self-assessment quizzes. ¹⁶ |
| EdTech | “EdTech, short for educational technology, indicates the industry that combines education and technological advances as well as the scientific field which involves the interdisciplinary knowledge informing the use of technological tools and devices, processes and procedures, resources and strategies to improve learning experiences in a variety of learning settings”. ¹⁷ |
| Generative AI (GenAI) | A specific category of artificial intelligence tools and systems that is designed to not only analyse data, but to generate new content such as text, images, code or music. These systems, which include large language models (LLMs), diffusion models for image generation and multimodal AI tools, are trained on vast datasets and can produce “human-like” outputs based on prompts or instructions. |
| Interoperability | The ability of different digital systems, platforms and applications to connect and share data with each other seamlessly. In a school context, high interoperability means that a new digital resource or tool can easily “talk to” the school’s existing systems such as its learning management system (LMS) or student information system, without requiring complex customised integration. The Interoperable Europe Act ¹⁸ establishes a framework for cooperation to support this goal across the Union. |
| Learning analytics | The measurement, collection, analysis and reporting of data about learners and their contexts for the purposes of understanding and optimising learning and the environments in which it occurs. ¹⁹ |
| Learning management system (LMS) | A web-based solution/software application that allows lecturers and learners to share instructional materials, submit course assignments, communicate with each other and make important class announcements online. ²⁰ |
| Open educational resources (OERs) | Learning, teaching and research materials in any format or medium that either reside in the public domain or are subject to copyright but have been released under an open license, thereby permitting free-of-charge access, re-use, re-purpose, adaptation and redistribution by others. ²¹ |
| Usability | “The extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.” ²² |
| Virtual learning environment (VLE) | An online system or platform designed to support and enhance teaching and learning by providing a digital space for interaction, content delivery and activity management. |

16 Roberts, K., Benson, A., & Mills, J, E-textbook technology: Are instructors using it and what is the impact on student learning?. *Journal of Research in Innovative Teaching & Learning* 26 November 2021; 14 (3): 329–344. <https://doi.org/10.1108/JRIT-04-2021-0028>

17 European Commission, Digital Education Content in the EU – State of Play and Policy Options – Final Report.

18 Regulation (EU) 2024/903 of the European Parliament and of the Council of 13 March 2024 laying down measures for a high level of public sector interoperability across the Union (Interoperable Europe Act), Official Journal of the European Union L, 2024/903, 22 March 2024.

19 Karaoglan Yilmaz, F.G., & Yilmaz, R., ‘Learning Analytics as a Metacognitive Tool to Influence Learner Transactional Distance and Motivation in Online Learning Environments’, *Innovations in Education and Teaching International*, 58, no. 5 (2020): 575-85, <https://doi.org/10.1080/14703297.2020.1794928>

20 Lonn, S., & Teasley, S.D., ‘Saving Time or Innovating Practice: Investigating Perceptions and Uses of Learning Management Systems’, *Computers & Education*, 53, no. 3 (November 2009): 686-94, <https://doi.org/10.1016/j.compedu.2009.04.008>

21 United Nations Educational, Scientific and Cultural Organization, Recommendation on Open Educational Resources (OER), UNESCO, Paris, (2019). <https://unesdoc.unesco.org/ark:/48223/pf0000373755>.

22 International Organization for Standardization, Ergonomics of Human-System Interaction – Part 11: Usability: Definitions and Concepts, ISO 9241-11:2018, ISO, Geneva, 2018).

