A Guidebook for Teachers

Pedagogical and Instructional Use of Digital Tools

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Hello!

It is our great pleasure and satisfaction to share this guidebook, prepared within the scope of the "Empower Digi Teach (Empowering Digital Competences of Teachers with Designing Digital Learning Materials Through Gamification)" project (Project number: 2022-1-TR01-KA220-HED-000089215), aimed at strengthening teachers' digital competencies. We would like to express our sincere gratitude to our project team members who provided invaluable contributions to the creation of this guidebook. Before introducing the content and structure of the guidebook, we wish to provide background information about the project and its partners.

The Empower Digi Teach project aims to enhance teachers' digital competencies. Aligned with this broad objective, the project seeks to improve teachers' digital skills through learning units designed based on the European Union's Digital Competence Framework for Educators (DigCompEdu). These units are presented through an innovative Learning Management System (LMS) supported by gamification and micro-credentialing components. The project includes four higher education institutions and one non-profit organization from four different countries: Dokuz Eylül University and Kastamonu University from Turkey, University of Minho from Portugal, Open University of Catalonia from Spain, and The Center for Promoting Lifelong Learning from Romania.

This guidebook represents the fourth intellectual output of the Empower Digi Teach project. Other intellectual outputs of the project include the development of a gamification-based LMS supporting effective use of digital technologies in teaching, online learning materials for enhancing teachers' digital competencies, and integration of a micro-credentialing system within the LMS. Each intellectual output is specifically designed to empower teachers' digital competencies.

Purpose of the Guidebook

The main purpose of preparing this guidebook is not merely to provide technical information about Project' LMS, digital technologies and tools, but rather to show teachers how to effectively integrate digital tools into educational environments by enhancing their digital competencies. To achieve this, the guidebook provides a pedagogical perspective on students' interaction with digital tools and presents a roadmap for teachers on integrating these tools into classroom teaching processes. Scenario-based content is utilized to support teachers' pedagogically effective use of digital tools and materials in lesson planning, thereby helping them harness technological opportunities more efficiently.

Although the use of digital technologies can vary according to classroom dynamics and teachers' individual needs, this guidebook aims to provide general direction and guidance to teachers and educators on how to utilize these tools more effectively and efficiently.

Target Audience and Areas of Use

This guidebook will be useful not only for teachers, teacher candidates, and educators but also for school administrators, researchers working in the field of education, educational NGOs, associations, and other stakeholders in education. The guidebook is designed to be used in both schools and universities. Additionally, the guide's alignment with the European Union's Digital Competence Framework for Educators (DigCompEdu) ensures it meets the standards necessary for teachers to transfer their digital competencies effectively into classroom practices.

Beyond developing teachers' digital competencies, this guidebook is also expected to serve as an important resource on how to effectively use digital tools pedagogically. Each teacher can discover the potential of digital technologies in their teaching processes and learn how to integrate these technologies into their own teaching methods.

Structure and Content of the Guidebook

The guidebook consists of three main chapterss:

Chapter 1: This chapter allows teachers and educational stakeholders to discover how to enrich their teaching processes using the gamification-based LMS developed within this project. This section includes information on how users (teachers, educators, school administrators, teacher candidates, etc.) can register for the LMS (https://lms.empowerdigiteach.eu/education), manage and monitor their learning processes, and provides general information about the LMS structure, gamification elements, assessment and evaluation processes, micro-credentialing, and certification.

Chapter 2: This chapter covers the concept of micro-credentialing, the structure of the micro-credential system at the unit and course levels, badges awarded through micro-credentialing, and processes related to obtaining micro-credentials and certificates.

Chapter 3: This chapter provides pedagogical and technical guidance to teachers on how to plan and conduct their lessons, which digital tools to use, and how to self-assess their progress to enhance their digital competencies. Specifically, this chapters includes:

Digital Mastery Lab Guide for Teachers: Focuses on selecting, creating, and adapting digital resources. Under this main guide, four sub-guides have been created:

- Digital Visuals and Presentations for Teachers: Tools and Strategies
- Digital Content and Multimedia for Teachers: Animation, Video, and Audio Usage in Teaching
- Guide to Using Artificial Intelligence in Education
- Guide to Using 3D Materials in Education

Assessment Analytics Lab Guide for Teachers: Concentrates on digital assessment strategies, analytics, and feedback competencies. It presents digital tools for assessment and recommendations for their pedagogical effectiveness.

Learner Empowerment Lab Guide for Teachers: Emphasizes enhancing students' participation in learning processes through digital tools and creating more accessible and inclusive digitally supported learning environments. It includes two sub-guides:

- Effective Use of Remote Education Tools: Video Conferencing
- Making Digital Teaching Accessible and Inclusive

Pedagogical Excellence Lab Guide for Teachers: Centers on using digital tools for collaborative learning, offering information on digital tools that support collaborative learning pedagogies.

Each guide includes information on the competencies covered within the Digital Competence Framework for Educators and provides instructions on accessing relevant materials within the Empower Digi Teach LMS. Additionally, digital tools and their features relevant to each guide's competency area are introduced, along with concrete pedagogical and technical suggestions for lesson planning and implementation. Reflective and evaluative questions and rubrics are provided to help teachers critically assess and continuously improve their teaching practices with digital materials. At the end of each guide section, videos are recommended to further support teachers' skills and knowledge acquisition.

Conclusion and Acknowledgment

We hope this guidebook significantly contributes to enhancing teachers' and educators' digital competencies. Again, we sincerely thank the Empower DigiTeach project team for their dedicated efforts. We believe this guide will serve as an essential resource supporting the digital transformation in education.

Prof. Dr. Ercan AKPINAR
Project Coordinator

Contents

Chapter 1

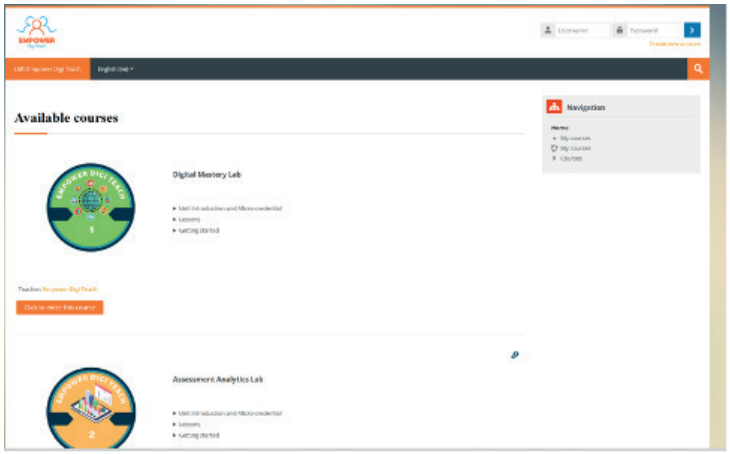
The use of the gamification-based Learning Management System (LMS)

1. 1. The use of the gamification-based Learning Management System (LMS)

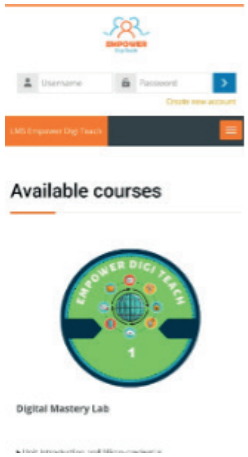
This chapter provides a user-friendly guide on how to register and navigate the learning management system (https://lms.empowerdigiteach.eu/education). It covers the general structure of the system, gamification elements, measurement and evaluation, and the process of obtaining micro-credentials and certification.

The general structure of LMS

The Empower Digi Teach LMS (https://lms.empowerdigiteach.eu/education) is a versatile learning management system that seamlessly integrates various types of learning materials. It features gamification elements with clearly defined criteria, and it enables the awarding of micro-credentials and certificates. The platform has a flexible and responsive interface, ensuring compatibility across various device screens.



Desktop View



Mobile View

Figure1.1 Mobile and Desktop Views of LMS

LMS has five language interfaces (English, Turkish, Romana, Spanish, and Portuguese). All designed lessons are available in all languages. The learners can choose the language in which they want to use the system.

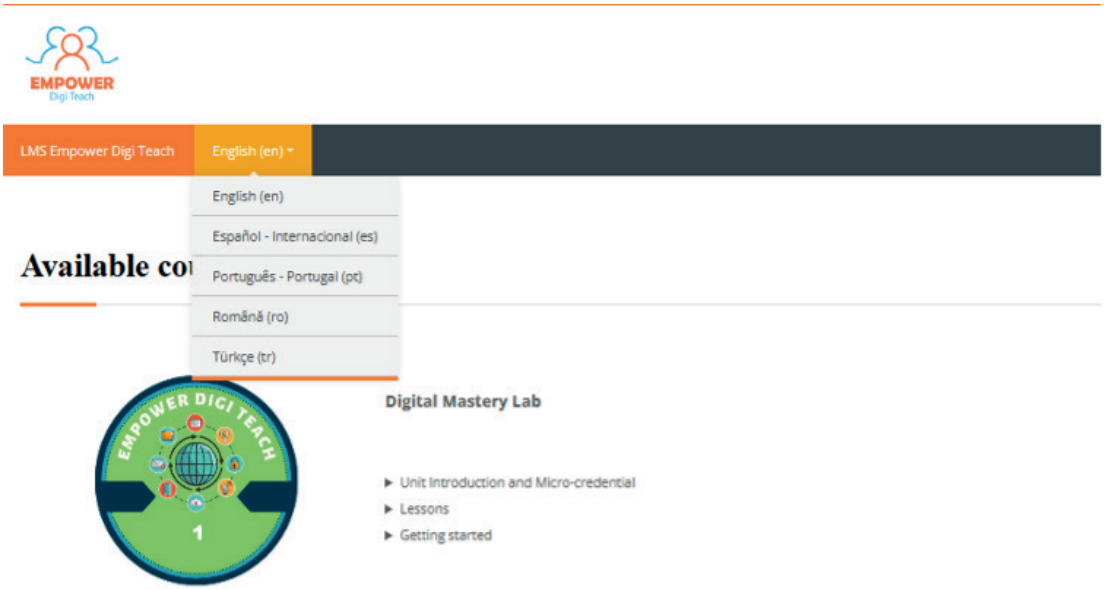


Figure1.2 Five Language Interfaces

The LMS offers five language interfaces (Figure 1.2): English, Turkish, Romanian, Spanish, and Portuguese. All lessons are available in each language, allowing learners to select their preferred language for using the system.

Figure 1.3 An Accessibility Options Panel

The LMS includes an accessibility options panel on the screen's right side upon user login. This panel allows users to customize various features-such as font type, font size, text color, background color, dictionary access, text-to-speech functionality, and color or style overlays-according to their individual needs (Figure 1.3).

1.2. LMS registration and course enrolment

Learners can easily register for the LMS and enroll in courses. The registration page at https://lms.empowerdigiteach.eu/ is user-friendly. To register, you should provide a username, password, email address, first name, and surname. While entering your national ID is optional, we recommend including it, as it will be displayed on your personalized micro-credential page.

Course enrollment in the LMS is straightforward. Learners can click on a course they are interested in to enroll automatically, without requiring additional steps or passwords. However, if learners wish to remove their course data or unenroll from a course, they can do so by clicking the settings button on the right and selecting 'Unenroll me from the course.' This action permanently removes all personal course data, logs, and information from the LMS.

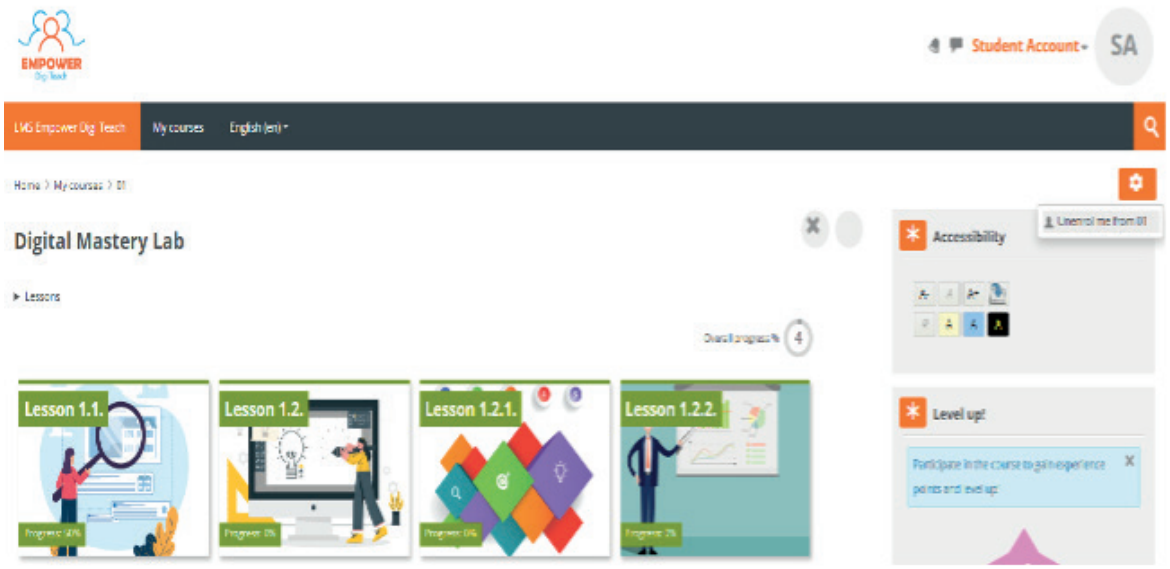
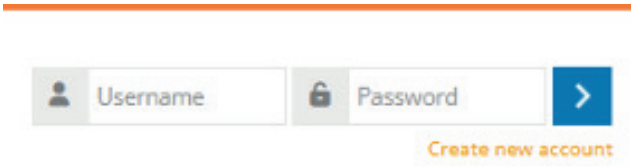


Figure 1.4 Enrolled Student Account Homepage

Learners can log in either from the top-right corner of the site or by clicking on any course, which redirects them to the login screen. This screen provides options for new registration, language selection, and user login. Once logged in, users can update their profile details and access badges, certificates, course information, and activity history.



1.3. LMS navigation, the meaning of symbols, and gamification tools

Each course includes a dedicated course information section and lesson pages that feature lesson titles, visuals, and progress indicators. When learners click the "Enter this course" button, they are automatically enrolled. Every course contains a unique set of lessons tailored to its content.

1.4. Lessons, materials and content types

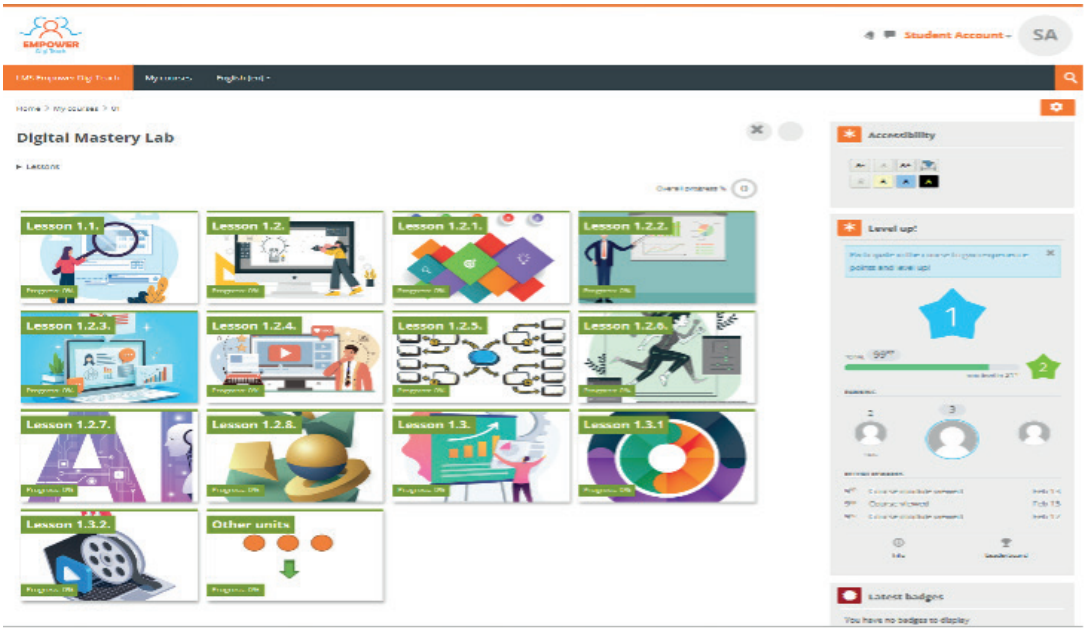


Figure 1.5 Some lessons in LMS

If learners click on a lesson, they can access the content, which includes learning outcomes, the lesson syllabus, videos, reading materials, presentations, and assignment pages. Examples are provided below (Figures 1.6, 1.7, 1.8,, 1.9, 1.10 and 1.11).

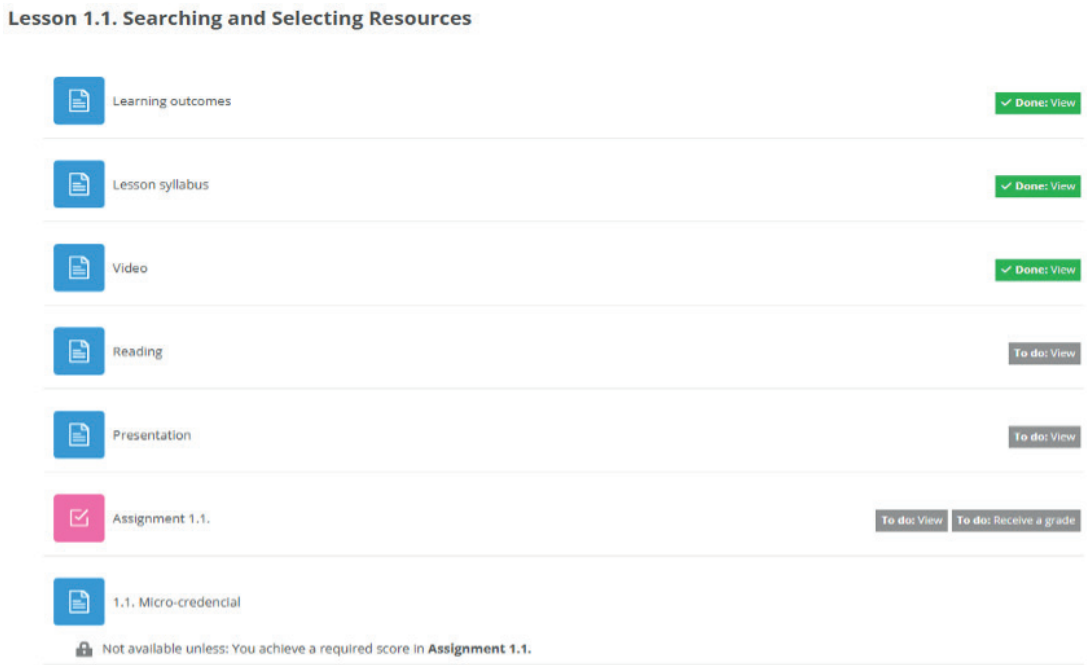


Figure 1.6 Searching and selection lesson (course) content

Learning outcomes: Every lesson starts with the lesson outcomes page

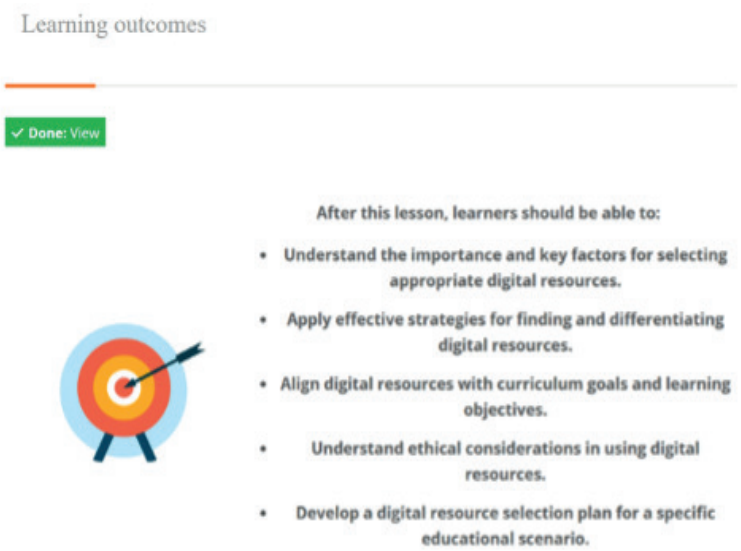
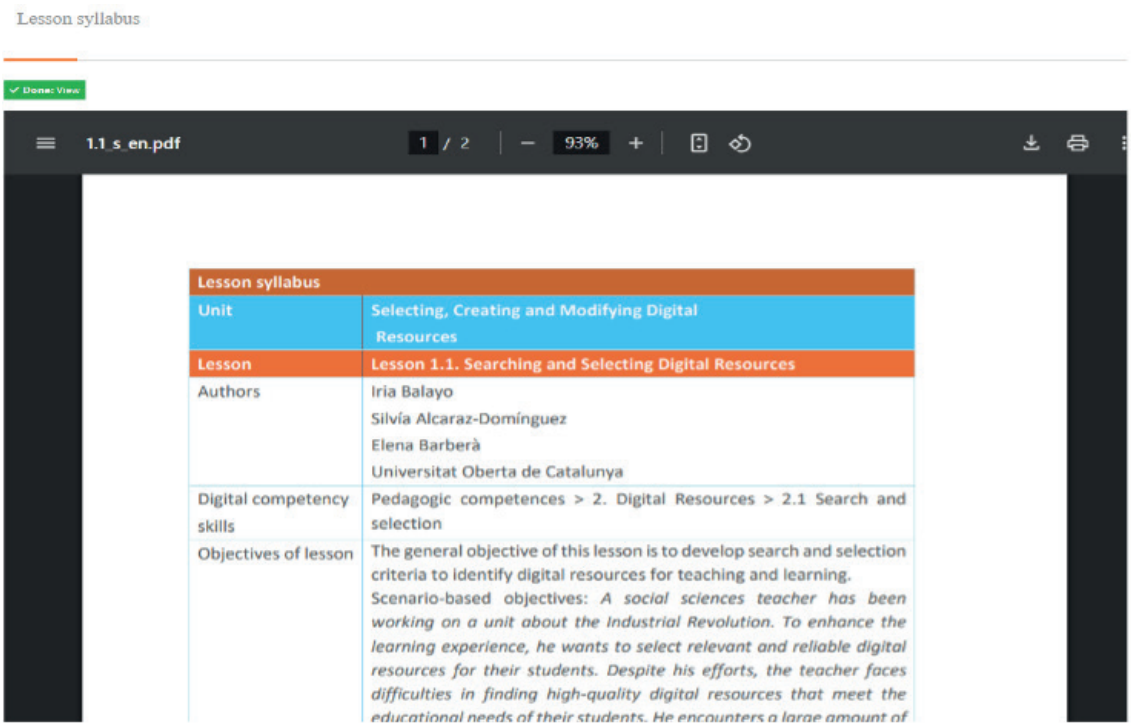


Figure 1.7 Example of learning outcomes

Lesson syllabus: This page includes detailed information about the lesson (Figure 1.8)



Lesson syllabus	
Unit	Selecting, Creating and Modifying Digital Resources
Lesson	Lesson 1.1. Searching and Selecting Digital Resources
Authors	Iria Balayo Silvia Alcaraz-Domínguez Elena Barberà Universitat Oberta de Catalunya
Digital competency skills	Pedagogic competences > 2. Digital Resources > 2.1 Search and selection
Objectives of lesson	The general objective of this lesson is to develop search and selection criteria to identify digital resources for teaching and learning. Scenario-based objectives: *A social sciences teacher has been working on a unit about the Industrial Revolution. To enhance the learning experience, he wants to select relevant and reliable digital resources for their students. Despite his efforts, the teacher faces difficulties in finding high-quality digital resources that meet the educational needs of their students. He encounters a large amount of*

Figure 1.8 Example of Lesson syllabus

Video: Every lesson has a scenario-based video content (Figure 1.9)

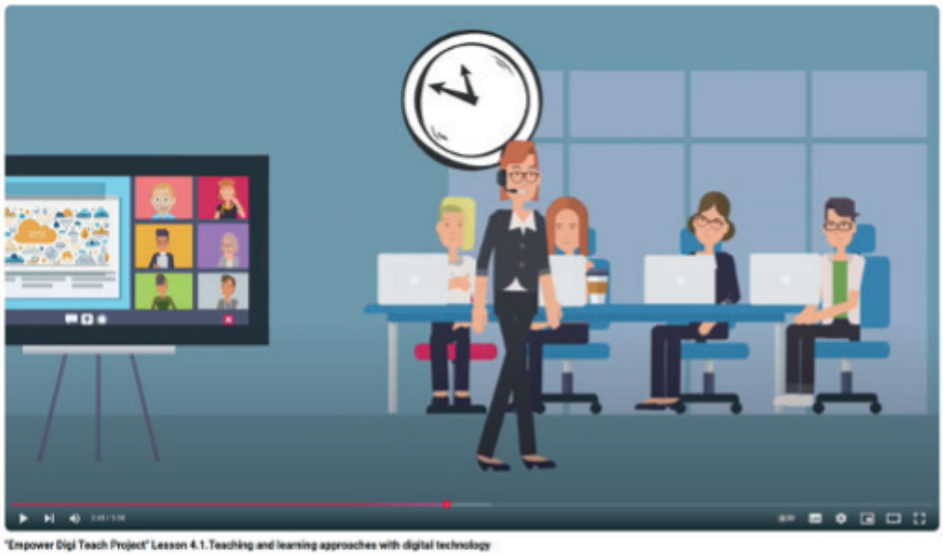


Figure 1.9 A scenario-based vide

Reading: This page has detailed lesson content (Figure 1.10)

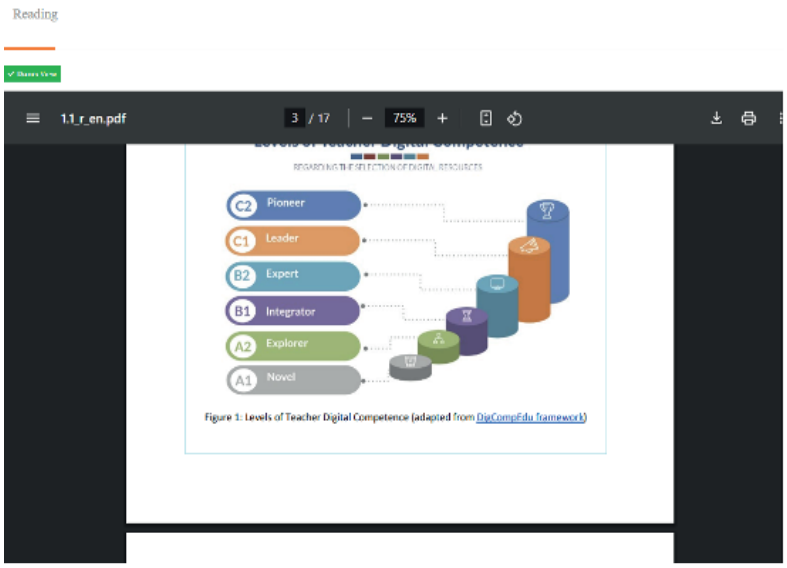


Figure 1.10 Lesson Content Overview

Presentation: This page has a visual and infographic-based presentation regarding the lesson content.

Figure 1.11 A visual and infographic-based presentation

1.5. How is learning assessed, and how are micro-credentials obtained?

Each lesson features an evaluation page with various assessment questions—such as multiple choice, matching, fill-in-the-blank, and true/false—to evaluate learners' understanding of the lesson content. Some example questions are presented in Figure 1.12 below.

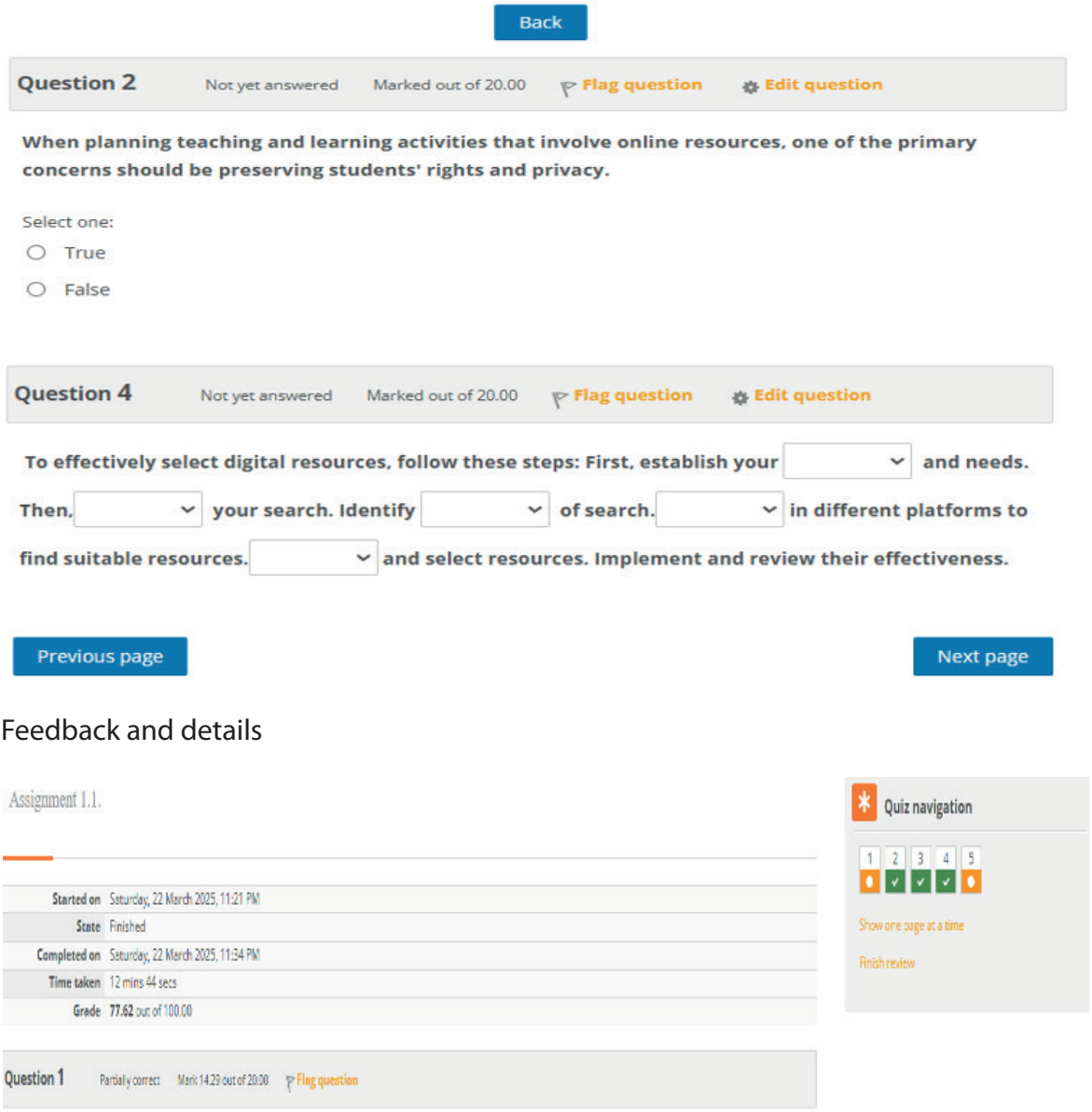


Figure 1.12 Some example questions

Learners who achieve a score of 70 points or higher on the assignment are awarded a micro-credential document that includes their personal information. An example of this document is shown in the next page.

Visuals and Infographics

Identification of the learner

Full Name: Empower Digi Teach

Identification Number:

Learning Outcomes

- Define the concepts of visuals and infographics,
- Explain the differences among the types of visuals and infographics,
- Discuss the benefits of using visuals and infographics in educational environments,
- Create visuals and infographics for teaching and learning with the help of the digital tools

Specifications

Country	Awarding Body	Form	Duration	National Workload
Türkiye	Dokuz Eylul University	Online	5 hours	0.2 ECTS

Integration/Stackability

Standalone

Micro-credential

Part of a "Digital Mastery Lab"

Course Grading

Type of Assessments

-Formative (interactive video questions) and quiz questions

-Online exam

Level of the learning experience leading to the micro-credential

-European Qualifications Framework: Level 3

-Higher Education National Level (TYÇ): Level 4

Grade achieved

-Completion of all learning activities

-Grade: Exam success rate (%70 and above)

Competition progress

If the learner has completed a course, there is a tick mark on the course icon. If it is an ongoing course, the percentage of the course completed is displayed on the icon.

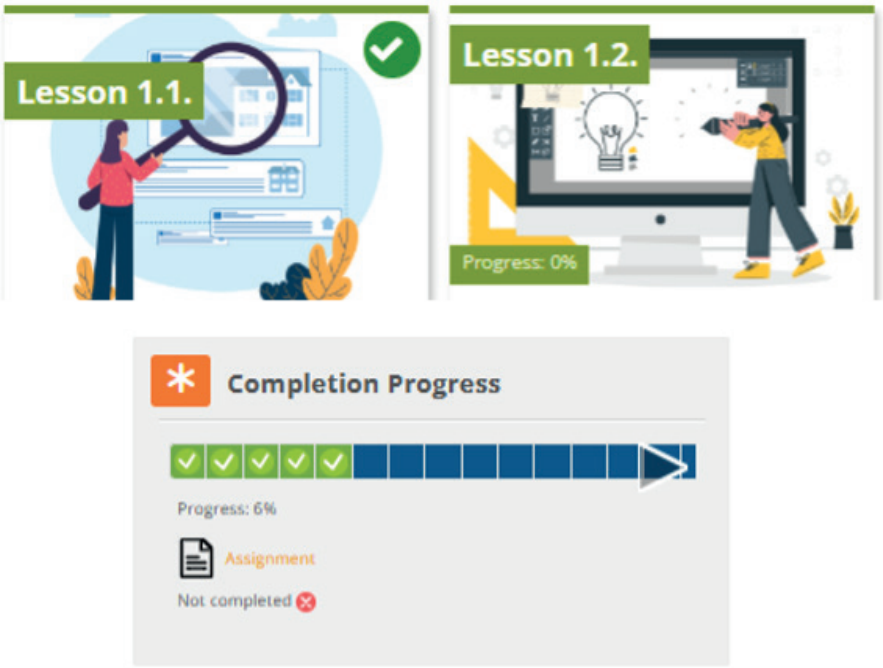
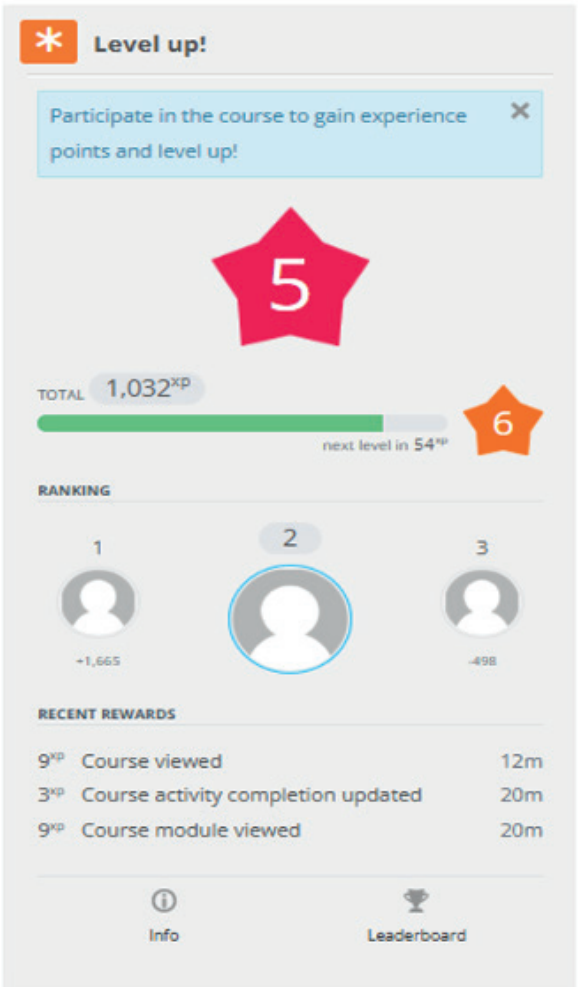
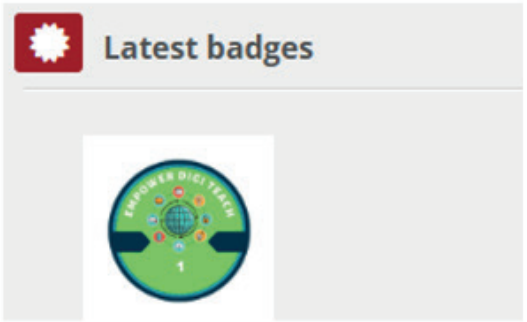


Figure 1.13 The percentage of the lesson (course) completed

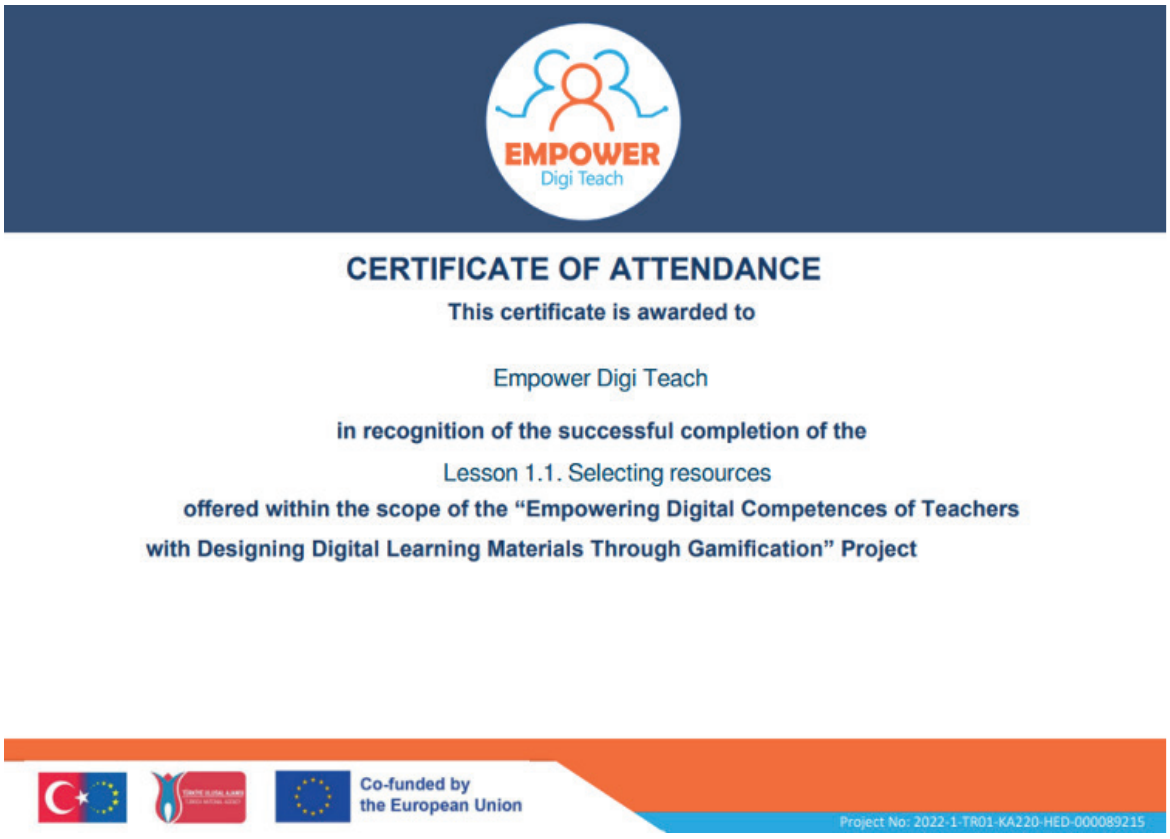
1.6. Gamification, Awards, and Certificates Examples

In the Empower Digi Teach Learning Management System, learners can earn awards, badges, and certificates based on course completion and performance in end-of-course assessments. Progress can be continuously tracked within the LMS, with earned badges serving as visual indicators of achievement.





Those who successfully complete the courses will receive a certificate, as shown below.



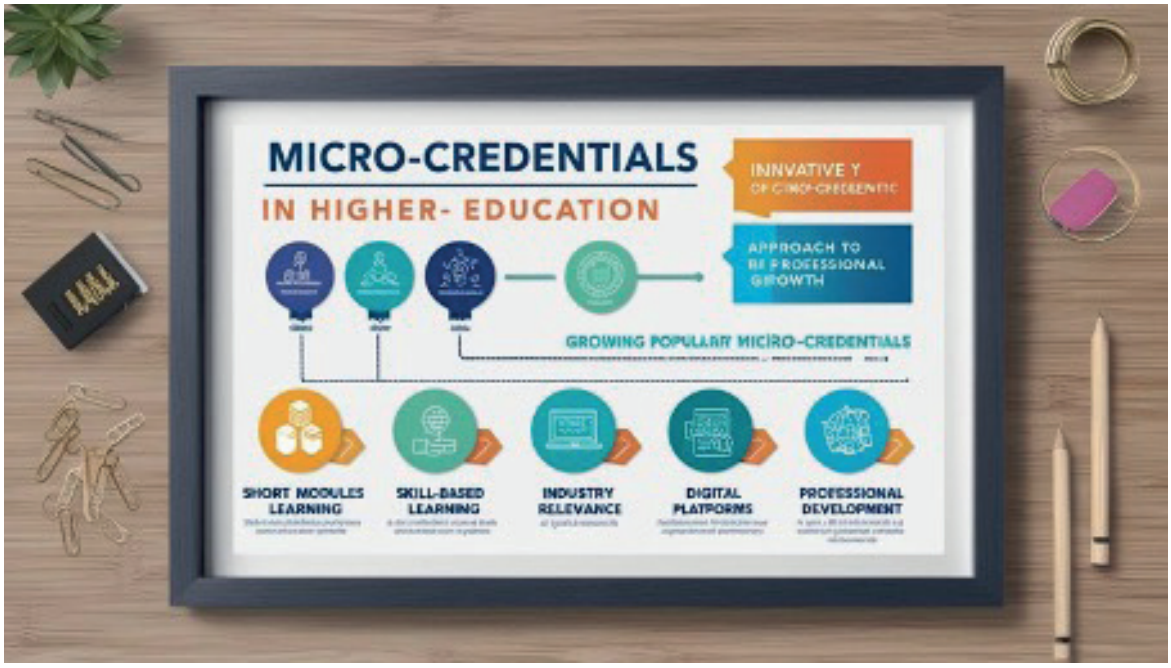
Chapter 2

Micro-Credentials and Certification Process

2.1. Introducing the Micro-Credentials and Certification Process

The micro-credentialing and certification processes presented in this guidebook are currently awaiting approval from official institutions and authorized organizations. The information shared at this stage of the project aims to introduce the general framework and fundamental principles of these processes.

We will now provide comprehensive information about the structure of the micro-credentialing system, assessment methods, digital badges, and certification processes developed within the scope of the Empower DigiTeach project. The aim of this information is to enable our leaners to effectively manage their digital competency development and successfully acquire micro-credentials.
The entire lesson has been specifically structured around the micro-credential approach, emphasizing the enhancement of teachers' digital competencies through a gamification-based learning management system (LMS). You can find detailed information about each micro-credential and the related digital competencies on each lesson page in LMS. Upon completing all courses successfully, participants can earn up to 21 micro-credentials, along with 4 badges and 4 certificates.



2.2. Micro-Credential

Micro-credentials represent a modern trend in higher education, offering an alternative pathway to traditional study programs for obtaining formally recognized qualifications. They consist of short, skill-based learning modules closely aligned with industry needs,

allowing learners to demonstrate expertise in specific areas or competencies (Oxley & van Rooyen, 2021). Compared to traditional courses, micro-credentials offer more detailed and precise documentation of individual achievements, capturing skills and learning outcomes that might otherwise remain unnoticed in conventional academic settings. Additionally, they are increasingly used to showcase ongoing professional development and skill enhancement (Clausen, 2022). With growing popularity in higher education, digital platforms significantly facilitate the delivery and management of micro-credentials (Wheelahan & Moodie, 2022). These credentials are valuable tools for improving educators' skills, providing targeted information, encouraging flexibility in learning pathways, and effectively evaluating mastery of competencies. They also play an important role in post-COVID-19 recovery efforts by promoting innovation and adaptation in educational institutions (Tamoliune et al., 2023). Overall, micro-credentials represent an innovative, customized approach to professional growth, easing transitions from education to employment and meeting evolving industry skill requirements (Hunt et al., 2020).

The European Council Recommendation on micro-credentials outlines several key objectives:

Support individuals in acquiring, updating, and expanding their knowledge, skills, and competencies essential for success in a rapidly changing labor market and society. This approach helps people benefit equitably from recovery efforts and transition smoothly into sustainable, digitally-driven economic environments, preparing them for current and future challenges.

Assist providers of micro-credentials in enhancing the quality, transparency, and flexibility of their educational offerings. This empowerment enables learners to shape individualized education and career development pathways.

Advance inclusion, accessibility, and equal opportunities, contributing to societal resilience, equity, and prosperity. These objectives are particularly vital given demographic changes and varying stages of economic cycles.

2.3. Empower Digi Teach Project Perspective About Micro-Credential

The Empower Digi Teach project adopts the European approach to micro-credentials, aligning with the Council Recommendation on micro-credentials for lifelong learning and employability. According to this recommendation, micro-credentials should clearly include a set of common European standards to describe credentials effectively. These standards serve as practical guidelines, supporting educators and institutions in the implementation process to ensure clarity, consistency, and widespread recognition. Some standards is presented in the table below.

Mandatory elements:	Identification of the learner :
	Title of the micro-credential
	Country/Region of the issuer
	Awarding body
	Date of issuing
	Learning outcomes
	Notional workload needed to achieve the learning outcomes (in ECTS credits, wherever possible)
	Level (and cycle, if applicable) of the learning experience leading to the micro-credential (EQF, QF-EHEA), if applicable
	Type of assessment
	Form of participation in the learning activity
	Type of quality assurance used to underpin the micro-credential
Optional elements, where relevant (non-exhaustive list)	Prerequisites needed to enrol in the learning activity
	Supervision and identity verification during assessment (unsupervised with no identity verification, supervised with no identity verification, supervised online, or onsite with identity verification)
	Grade achieved
	Integration/stackability options (standalone, independent micro-credential/integrated, stackable towards another credential)
	Further information

2.4. Lesson Unit Introduction and Micro-credential

Under this heading, the relationship between the lessons in the units and micro-credentials/micro-competencies is explained.

Digital Mastery Lab

Unit Introduction and Micro-credential

Digital Mastery Lab aims to develop teachers' digital competency such as:

- To identify, assess and select digital resources for teaching and learning.
- To create or co-create new digital educational resources.
- To modify and build on existing openly-licensed resources and other resources where this is permitted.

The entire course process is designed considering the micro-credential structure. In addition, learners will be able to learn lessons with a gamification-based learning management system. If learners complete all courses successfully, the learner can get a "Digital Mastery Lab" micro-credential certificate and badge together.

If learner wants one of the micro-credential certificates such as "Mind maps and word cloud", learner should just complete the course which is titled "1.2.5. Mind maps and word cloud".

Lessons

Learner who wants to get "Digital Mastery Lab" Badge and Certificate needs to complete thirteen micro-credentials below:

- 1.1. Searching and Selecting Resources
- 1.2. Creating Resources
- 1.2.1. Visuals and Infographics
- 1.2.2. Presentations
- 1.2.3. Digital stories
- 1.2.4. Videos
- 1.2.5. Mind maps and word cloud
- 1.2.6. Animations
- 1.2.7. AI based content Lesson
- 1.2.8. 3D models
- 1.3. Modifying Resources
- 1.3.1. Visuals
- 1.3.2. Audio and video

Assessment Analytics Lab

Unit Introduction and Micro-credential

Assessment Analytics Lab aims to develop teachers' digital competency such as:

- To use digital technologies for formative and summative assessment. To enhance the diversity and suitability of assessment formats and approaches.
- To generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress, in order to inform teaching and learning.

The entire course process is designed considering the micro-credential structure. In addition, learners will be able to learn lessons with a gamification-based learning management system.

You can find additional information about micro-credential certificates, badges, assessment methods etc. on a lesson page.

Lessons

Learner who wants to get "Assessment Analytics Lab" Badge and Certificate needs to complete two micro-credentials below:

- 2.1. Assessment Strategies
- 2.2. Analysing Evidence, feedback and planning

If the learner wants one of the micro-credential certificates such as "Analysing Evidence, feedback and planning", the learner should complete the course which is titled "2.2. Analysing Evidence, feedback and planning".

If the learner completes all courses successfully, the learner can get "Assessment Analytics Lab" micro-credential certificate and badge together. You can find additional information about micro-credential certificates, badges, assessment methods etc. on a lesson page.

Learner Empowerment Lab

Unit Introduction and Micro-credential

Learner Empowerment Lab aims to develop teachers' digital competencies such as:

- To use digital technologies to foster learners' active and creative engagement with new technologies such as online project management, video conferencing and learning management systems.
- To ensure accessibility to learning resources and activities, for all learners, including those with special needs.

The entire course process is designed considering the micro-credential structure. In addition, learners will be able to learn lessons with a gamification-based learning management system.

You can find additional information about micro-credential certificates, badges, assessment methods etc. on a lesson page.

Lessons

The learner who wants to get the "Learner Empowerment Lab" Badge and Certificate needs to complete four micro-credentials below:

- 3.1. Online Project Management
- 3.2. Video Conferencing
- 3.3. Learning Management Systems
- 3.4. Accessibility and Inclusion

If a learner wants one of the micro-credential certificates such as "Learning Management Systems", the learner should complete the course which is titled "3.3. Learning Management Systems".

If the learner completes all courses successfully, the learner can get a "Learner Empowerment Lab" micro-credential certificate and badge together.

Pedagogy Excellence Lab

Unit Introduction and Micro-credential

Pedagogy Excellence Lab aims to develop teachers' digital competencies such as:

- To plan for and implement digital devices and resources in the teaching process, so as to enhance the effectiveness of technology integration in education.
- To experiment with and develop new formats and pedagogical methods for instruction.
- To use digital technologies to foster and enhance learner collaboration.

The entire course process is designed considering the micro-credential structure. In addition, learners will be able to learn lessons with a gamification-based learning management system.

You can find additional information about micro-credential certificates on a lesson page.

Lessons

A learner who wants to get the "Pedagogy Excellence Lab" Badge and Certificate needs to complete the micro-credentials below:

- Lesson 4.1.Teaching and learning approaches with digital technology and technology integration in education
- Lesson 4.2. Collaborative Learning with digital technolog

For more information, please watch our introduction video:
https://www.youtube.com/watch?v=aumEEJGelac

Chapter 3

3.1. Digital Mastery Lab Guide for Teachers

3.1.1. Digital Visuals and Presentations for Teachers: Tools and Strategies

Objectives of the Guidebook:

- To enhance teachers' understanding of when and why to integrate digital resources to enhance student engagement and support effective learning.
- To help teachers in creating and modifying digital visuals and presentations by selecting the right tools, ensuring accessibility, and incorporating interactive design strategies.

Competency the Guide Address based on DigiCompEdu Framework:

- Using searching and selection criteria to identify digital resources for teaching and learning.
- Modifying existing digital resources to support and enhance teaching and learning aims, respecting copyright and licensing rules.

Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

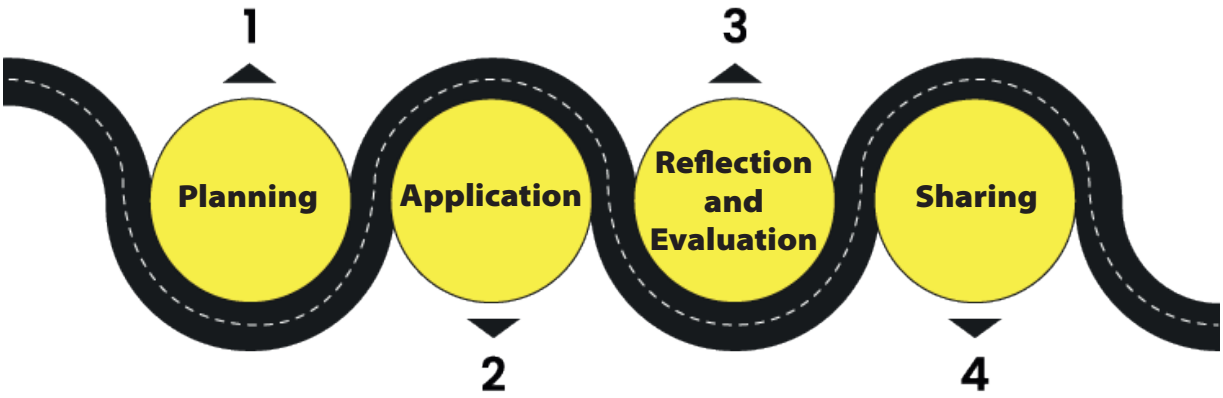
Type of Learning Material	What can you find? How can you use?
 Reading Materials	✓ Why should we use digital materials in the teaching process? How to effectively search for a digital material for our instruction? How to decide the selection of digital materials based on the purpose of our instruction? ✓ What guidelines should you follow for effective digital material creation? ✓ When and how to modify digital resources? What guidelines should you follow for effective modification of a digital material? **Where can you find?** **Unit 1 Lesson 1.1. Searching and Selecting Resource** **Unit 1 Lesson 1.2. Creating digital resources** **Unit 1 Lesson 1.3. Modifying digital resources**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in generally presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ How to implement the LORI method for selecting and evaluating high-quality digital resources that align with your learning objectives? ✓ What tips and suggestions could you consider for creating digital content? ✓ What ethical considerations should you consider supporting reliable content access, inclusivity, and privacy protection? ✓ What tools are available for modifying digital resources? How to use them effectively?

 Presentation Materials	**Where can you find?** **Unit 1 Lesson 1.1. Searching and Selecting Resource** **Unit 1 Lesson 1.2. Creating digital resources** **Unit 1 Lesson 1.3. Modifying digital resources**
 Video Materials	In the videos How to use specific tools for searching, selecting, creating and modifying a digital resource?

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, basic information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when searching/ selecting/using digital visual educational resources

Name of digital tool	Properties	Link
Storyboard	Storyboard tools help you visually organize content, integrate multimedia, plan interactive lessons.	www.storyboarder.ai
Canva	Canva helps you easily design engaging visuals, presentations, infographics, worksheets, interactive content, collaborative projects, and professional-quality educational resources efficiently.	www.canva.com
Kahoot	Kahoot allows you to create engaging, interactive quizzes and learning games, encouraging active participation, immediate feedback, collaboration, and formative assessment.	www.kahoot.com

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating digital visuals in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

First, the learning outcomes in the curriculum should be carefully considered, and criteria for selecting digital materials must be defined. Customized searches can be conducted using key terms aligned with these outcomes, such as specific file types (e.g., "pptx" for presentations, "pdf" for written documents, or particular formats for videos). To increase student engagement, topics can be enhanced with relevant visuals, carefully selected and edited to match students' levels and the subject matter, removing any unnecessary elements. When examining visuals, students can be prompted with targeted questions to stimulate critical thinking. Next, students should be presented with a problem scenario to encourage them to make predictions about potential solutions. Afterwards, a related video or animation can be shown to facilitate students' exploration and problem-solving. For example, students could be asked, "What happens when you squeeze a water-soaked sponge in space?" After recording their predictions, a video demonstrating the outcome can be shared, enabling students to become active, reflective participants rather than passive viewers. Alternatively, existing videos can be transformed into interactive materials by embedding questions at key points, prompting students to answer before continuing to watch, making them useful both within and beyond classroom settings. To consolidate learning at the end of the lesson, gamification tools like Kahoot can be utilized. Existing gamified activities may be adapted to align with the students' proficiency level. Throughout the entire process, attention must be paid to copyright and licensing rules; sources for any pre-existing materials must be properly cited, and permissions verified before modifying content. Additionally, reviewing the school's available technological resources and ensuring that selected digital materials align effectively with instructional strategies and objectives will positively influence the entire educational process.

Application

In the application phase of your teaching, consider the following questions for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.

You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using visual based digital materials.

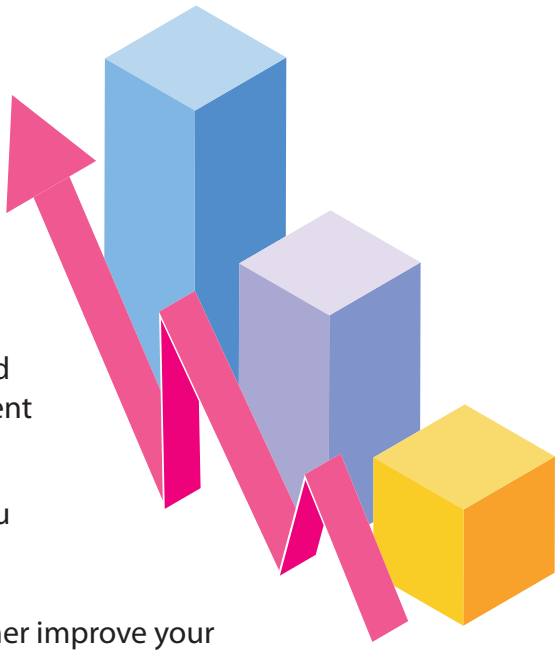
When to use digital visuals and presentations	Suggestion
At the Beginning of the Lesson	A captivating visual or a short video can be used to introduce the topic. For example, in an ecosystem lesson, an image of a forest fire can be shown, followed by the question, "How does this event affect the ecosystem?" Additionally, before starting the lesson, a brief PowerPoint presentation outlining key topics and learning objectives can be displayed.
During the Lesson	Experiment videos or course videos can be played and paused at critical moments to ask questions like, "What do you think will happen next?". Relevant simulations and animations can also be incorporated, supported by worksheets. Tools like Mentimeter or Kahoot can be used during the lesson to collect instant feedback from students.
After the Lesson	Students can be encouraged to create infographics or mind maps using tools like Canva. Gamification platforms (such as Kahoot or Quizizz) can be used to assess and reinforce key concepts.
Outside of the Classroom	Discussion platforms like Padlet or Google Classroom can facilitate student engagement by allowing them to share their thoughts on the topic. Verified videos, articles, or supplementary reading materials can be provided, enabling students to access lesson content anytime, review key concepts, and deepen their understanding at their own pace.

Reflection and Evaluation

Once you complete your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of visual digital materials, and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

How to Design Learning Presentations

The video offers practical advice on enhancing the visual appeal and effectiveness of educational presentations. It provides ten actionable tips to transform cluttered slides into impactful visuals, aiming to improve audience engagement and knowledge retention.

Link to video (17:55) :
https://www.youtube.com/watch?v=fv4kebcK_Jg

Using Infographics in the Classroom

The video introduces key concepts through infographics, serving as a valuable tool to enhance visual literacy skills among students.

Link to video (02:36) :
https://www.youtube.com/watch?v=Z_I3SHaw_rw

3.1.2. Digital Content and Multimedia for Teachers: Animation, Video, and Audio Usage in Teaching

Objectives of the Guidebook:

- To equip teachers with practical pedagogical strategies for effectively integrating animation, video, and audio-based digital materials into their lessons, enhancing student engagement, motivation, and conceptual understanding.
- To guide teachers in selecting and designing multimedia resources aligned with learning objectives, ensuring that animations, videos, and audio materials meaningfully support instructional goals and accommodate diverse learning styles.

Competency the Guide Address based on DigiCompEdu Framework:

- Using searching and selection criteria to identify digital resources for teaching and learning.
- Modifying existing digital resources to support and enhance teaching and learning aims, respecting copyright and licensing rules.

Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

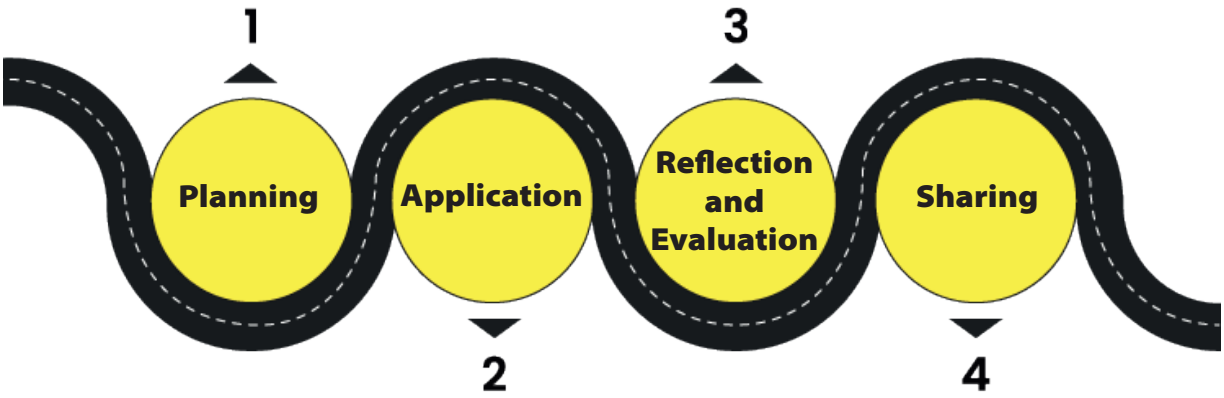
Type of Learning Material	What can you find? Where can you find it?
 Reading Materials	✓ Pedagogical and technical aspects that need to be taken into account when creating visual based digital resources such as videos, animations or audios. ✓ Why do we use videos in our instruction? What tools are available for creating videos? How to add interaction to videos? ✓ Why do we use digital storytelling in teaching? What types of storytelling are available? What tools do I need to use to create storytelling for my students? **Where can you find?** **Unit 1 Lesson 1.2. Creating digital resources** **Unit 1 Lesson 1.2.4. Videos** **Unit 1 Lesson 1.2.3. Digital Stories**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in general presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ A practical case showcasing the application of design principles in creating digital materials. ✓ Concrete steps of creating digital storytelling.  ✓ Tips and suggestions for how to create and use videos in classrooms. **Where can you find?** **Unit 1 Presentation 1.2. Creating digital resources** **Unit 1 Presentation 1.2.4. Videos** **Unit 1 Presentation 1.2.3. Digital Stories**

Video Materials	In the videos ✓ In the videos you will find hands-on practical applications regarding how to create videos or audios for your instruction. ✓ Link:

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, basic information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when creating and using animationsvideos and audios for instruction.

Name of digital tool	Properties	Link
Powtoon	Powtoon can be used to create engaging animated videos for explaining complex concepts in a visually appealing way. It allows you to design interactive presentations that enhance student engagement and comprehension. Additionally, it can be used for storytelling, tutorials, and digital assessments to make learning more dynamic.	www.powtoon.com
Storyboard That	Storyboard That can be used to create visual storyboards that help students understand complex topics through sequencing and storytelling. It allows you to design comic strips, historical timelines, and scenario-based learning activities. Additionally, it can enhance digital lesson plans by promoting creativity and critical thinking through visual representation.	www.storyboardthat.com
Audacity	Audacity can be used to create high-quality audio recordings for educational podcasts, lectures, or storytelling activities. It allows you to edit and enhance sound for clear and engaging learning materials. Additionally, it can be used for language learning, student projects, and interactive audio-based assessments.	www.audacityteam.org

Planning

Considering the stages below will help you to conduct an effective lesson, when creating and using animations, videos and audios for instruction in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

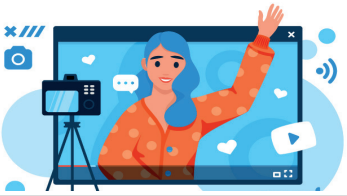
3.Stage: Plan your own lesson.

In the planning phase of a lesson, it is crucial to carefully select and purposefully integrate video, animation, or audio-based digital resources to ensure they effectively support your instructional objectives. Begin by clearly defining your lesson's learning goals, then identify multimedia materials that directly align with and enrich these aims. Consider the prior knowledge, interests, and diverse learning styles of your students to choose appropriate multimedia formats—such as short animations to visualize abstract concepts, videos to contextualize complex real-world scenarios, or audio clips to enhance listening skills and comprehension. Strategically plan moments within your lesson when these resources can maximize student engagement, stimulate curiosity, and encourage active learning, while leaving space for reflection, discussion, and deeper understanding. In addition to those, you should also think about support mechanisms which increase the effectiveness of these digital materials on your students' learning.

Application

In the application phase of your teaching, consider the following questions for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.



You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using animations, videos and audios for instruction.

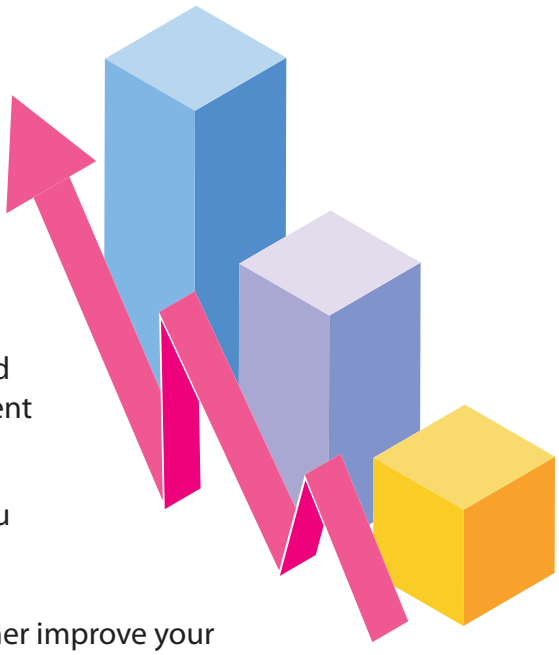
When to use animations, videos and audios	Suggestion
At the Beginning of the Lesson	At the beginning of a lesson, integrating audio, video, or animation-based digital resources is pedagogically beneficial for capturing students' attention, stimulating curiosity, and activating prior knowledge. Additionally, multimedia introductions can create meaningful contexts, preparing students cognitively and emotionally for deeper engagement throughout the lesson.
During the Lesson	During a lesson, integrating audio, video, or animation-based digital resources is pedagogically beneficial for clarifying complex concepts, providing concrete examples, and maintaining student engagement. These multimedia resources offer diverse ways of presenting information, supporting students' varied learning preferences, and enhancing their comprehension. Additionally, they can break the monotony, renewing attention and promoting active participation, critical thinking, and meaningful discussions.
After the Lesson	After the lesson, integrating audio, video, or animation-based digital resources can be pedagogically beneficial for reinforcing key concepts, facilitating reflection, and supporting students' review and consolidation of learning. Multimedia resources provide opportunities for learners to revisit critical ideas at their own pace, enhancing retention and deeper understanding. Additionally, these resources can serve as engaging prompts for assessment tasks, further discussion, or extension activities, fostering independent and collaborative learning beyond the classroom.
Outside of the Classroom	Outside of the classroom, integrating audio, video, or animation-based digital resources is pedagogically beneficial for supporting independent learning, reinforcing lesson content, and fostering student autonomy. These multimedia resources enable learners to access instructional material flexibly, at their own pace, helping to accommodate diverse learning styles and individual needs. Additionally, they provide opportunities for flipped learning, where students engage with core content beforehand, thus maximizing classroom time for active, collaborative activities and deeper exploration of concepts.

Reflection and Evaluation

Once you completed your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the creating and using animations, videos and audios for instruction and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

Make short educational videos for the classroom fast and free with Canva

This video provided a demonstration how teachers can utilize Canva's free tools to create engaging digital classroom videos.

Link to video (6:46) :
https://www.youtube.com/watch?v=CtoVR5ZByoM

3.1.3. Guide to Using Artificial Intelligence in Education

Objectives of the Guidebook:

- Introduce AI tools that assist in educational content creation, such as generating text, images, and audio.
- To support deeper understanding of complex concepts by visualizing Provide pedagogical approaches and methods for effectively using AI tools in the classroom to support instruction. them in 3D.

Competency the Guide Address based on DigiCompEdu Framework:

- Using searching and selection criteria to identify digital resources for teaching and learning.
- Modifying existing digital resources to support and enhance teaching and learning aims, respecting copyright and licensing rules.

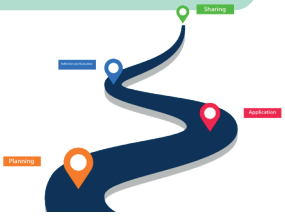
Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

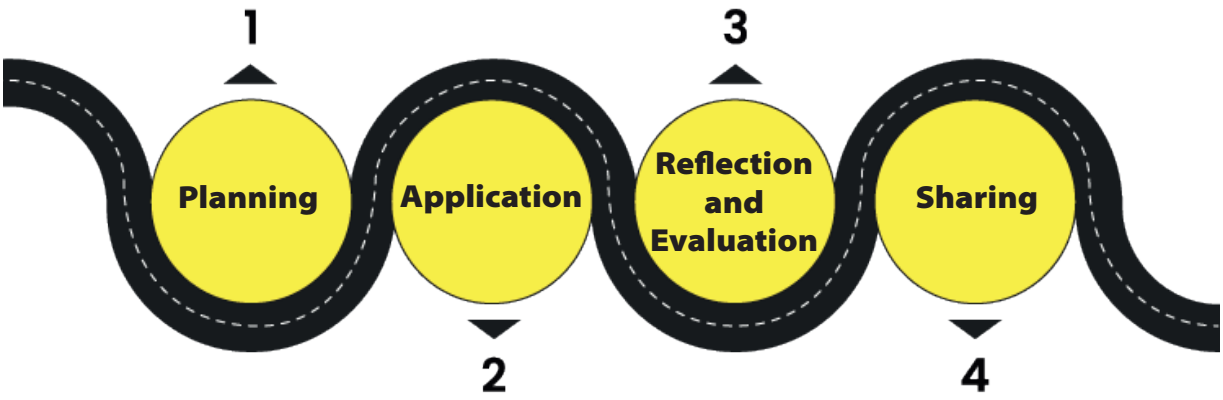
Type of Learning Material	What can you find? How can you use?
Reading Materials	✓ Introduction of AI-powered tools and resources to help teachers create engaging multimodal content, such as generating text, images, and audio. These tools include platforms like ChatGPT for drafting lesson plans and DeepL for translating and localizing educational materials. ✓ Teachers can use these resources to design personalized and accessible educational materials and address ethical considerations in content creation. **Where can you find?** **Unit 1 Presentation 1.2.7. AI How to Create Artificial Intelligence Based Content**
Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in generally presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ How to define AI and understand its core concepts? ✓ How is AI being used in education today? ✓ How to approach ethical considerations when using AI in education? **Where can you find?** **Unit 1 Presentation 1.2.7. AI Based Content**
Video Materials	In the videos ✓ This video explores practical tools and platforms that leverage AI in education, providing insights on how they can enhance teaching and learning.

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice



In this section, essential information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used, and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when using AI in education.

Name of digital tool	Properties	Link
ChatGPT	AI-driven language model that assists in generating and refining educational content. Teachers can use ChatGPT for brainstorming, creating lesson plans, and quizzes.	www.chat.openai.com
Canva	An online graphic design tool that uses AI to assist in creating visually engaging educational content like presentations, infographics, and posters.	www.canva.com
Kahoot! Kahoot	Kahoot! is a game-based learning platform and app that will make your learning and teaching awesome.	www.kahoot.com

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating AI tools in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

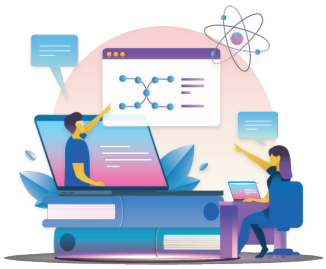
3.Stage: Plan your own lesson.

When planning a lesson that integrates AI tools, it is important to begin by setting clear, measurable learning objectives that will guide the use of these technologies. Before using AI tools, ensure you are familiar with the available resources or seek guidance from experienced educators. Once you have the necessary knowledge and experience, you can encourage students to interact meaningfully with these tools.
You can enhance your presentations, concept maps, infographics, videos, and games with AI tools, or ask students to develop these materials during and after the lesson. Additionally, you can use AI tools to assess student activities both in and outside of class and provide feedback. For example, you can use Canva to present key concepts visually, ask ChatGPT to create prompts for developing presentations or videos, and then use appropriate AI tools (Gemini, Canva etc) to input those prompts and develop learning materials.
To make this more tangible, consider a lesson on the water cycle and water conservation. Start by defining clear learning objectives. Integrate AI tools by using AI-generated avatars and videos to explain complex concepts like the water cycle. Tools like D-ID (see our video suggestions) can create interactive avatars that explain processes such as evaporation, condensation, and precipitation, making the lesson more engaging and memorable. You can use Minecraft Education Edition to create a virtual simulation of the water cycle, where students can observe different stages and experiment with various scenarios, reinforcing their understanding of the topic.
Additionally, you can use Kahoot with AI to create interactive quizzes that provide instant feedback, helping you gauge how well students have learned the material. AI tools like Deepseek can be used to upload texts and presentations on water topics, which can then be used to prepare open-ended or multiple-choice questions for in-class or flipped learning activities. Students can also create their own questions using AI tools, and later, you can facilitate class discussions on these questions. Furthermore, by posing some questions to both students and AI model (Gemini), you can encourage the exploration of different perspectives during class discussions.
These tools not only allow you to track student progress but also provide personalized feedback. For example, you can ask AI model (ChatGPT, Gemini or Deepseek) to evaluate students' written responses to open-ended questions based on a rubric you provide and generate a PDF of the evaluations.
Finally, while AI tools can assist in quickly producing learning materials, it is crucial to address ethical concerns and discuss these issues in the classroom. Remind students to use AI-generated materials as a supplement to their own creativity and ideas, ensuring that they verify the accuracy of these resources before relying on them. Finally, AI tools can be integrated with different teaching methods and techniques to enhance the learning experience. For brainstorming, ChatGPT can help students generate and organize ideas. Tools like Canva can visually create concept maps. In the 5E model, AI can support the exploration and elaboration phases by providing content. In collaborative learning, AI helps organize and unify ideas during group projects, while in active learning, tools like Kahoot or Minecraft Education increase student engagement.

Application

In the application phase of your teaching, consider the following question for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.



You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using AI tools in selecting, creating and modifying a digital resource.

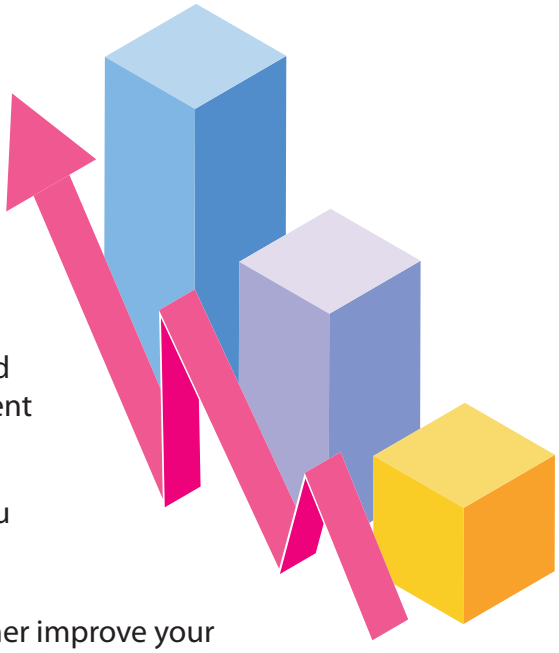
When to use AI tools	Suggestion
At the Beginning of the Lesson	Use AI tools to set clear learning objectives and create engaging materials like presentations or videos.
During the Lesson	Use AI tools for interactive discussions, generate real-time questions, and assist with problem-solving activities.
After the Lesson	Use AI tools for assessments, feedback, and analyzing student progress; use ChatGPT to help students review content and summarize lessons.
Outside of the Classroom	Encourage students to use AI tools for self-paced learning by asking questions, conducting research, or receiving feedback on assignments and drafts.

Reflection and Evaluation

Once you complete your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of AI based contents and materials, and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

AI in Education - What Educators Need to Know

Covers the fundamentals of AI in education. It explains what AI is, how it can be applied in educational contexts, and what educators need to know to effectively integrate AI into their teaching practices.

Link to video (00:42:04) :
https://www.youtube.com/watch?v=rFCSUf-nc7c

Leveraging ChatGPT for Educators

This video provides an introduction to ChatGPT's capabilities, showcasing how educators can use the AI tool for lesson planning, content creation, and more. It also covers the basic operation of ChatGPT and how to integrate its insights into teaching practices.

Link to video (01:04:16) :
https://www.youtube.com/watch?v=O_t0lI54CjY&ab_channel=CloverParkTechnicalCollegeTeaching%26Learning

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Create Talking AI Avatar For Free

D-ID is an AI-powered tool that turns static images into talking avatars. Users can upload an image and add text or voice input to make the avatar speak. In education, teachers can use D-ID to create virtual narrators, making lessons more engaging for students.

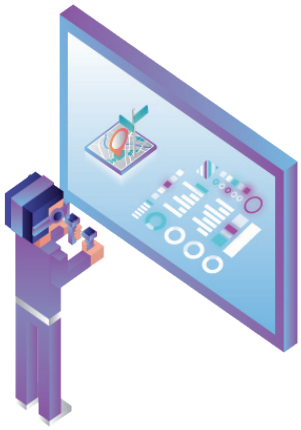
Link to video (00:07:35) :
https://www.youtube.com/watch?v=fSsh88mDjc0&t=74s

How to generate Kahoot! questions with AI

This video explains how the Kahoot! platform integrates with artificial intelligence and how teachers or someone can create high-quality content with just a few clicks.

Link to video (00:02:09) :
https://www.youtube.com/watch?v=mZb6CE3gpQU

3.1.4. Guide to Using 3D Materials in Education



Objectives of the Guidebook:

- To provide teachers with strategies for integrating 3D materials into their lessons.
- To support deeper understanding of complex concepts by visualizing them in 3D.

Competency the Guide Address based on DigiCompEdu Framework:

- Using searching and selection criteria to identify digital resources for teaching and learning.
- Modifying existing digital resources to support and enhance teaching and learning aims, respecting copyright and licensing rules.

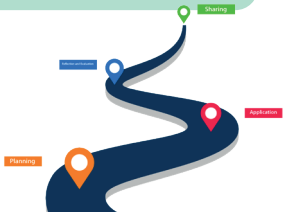
Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

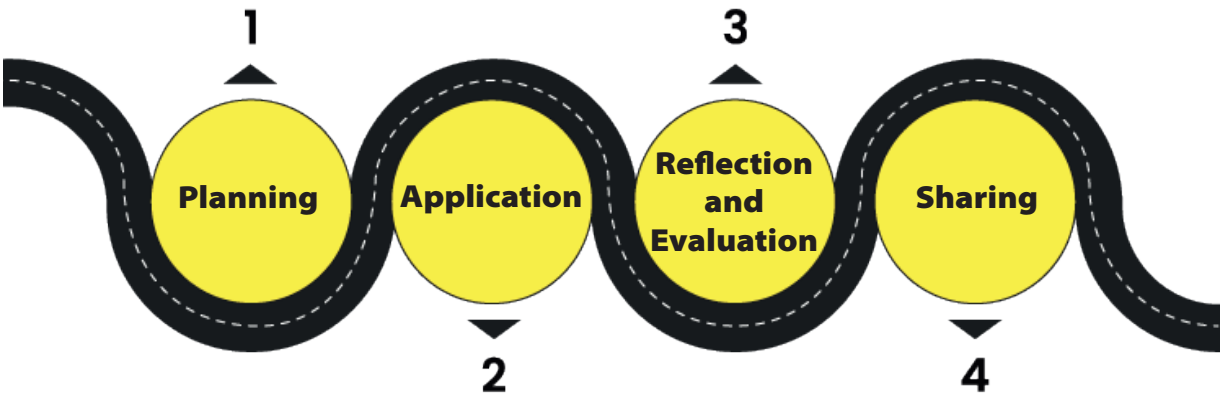
Type of Learning Material	What can you find? Where can you find it?
Reading Materials	✓ The role of 3D models in concretizing abstract concepts, enhancing critical thinking, and fostering interactive learning (3D Models in Teaching and Learning). ✓ Digital and Printed 3D Models ✓ Digital tools for creating 3D Models
Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in general presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ 3D models in teaching and learning (Virtual Reality (VR), Augmented Reality (AR), Mixed Reality (MR), 3D Printed Model) ✓ The importance of 3B models in teaching and learning **Where can you find?** **Unit 1 Lesson 1.1.8 Presentation**
Video Materials	In the videos ✓ In this video, you can find some information and application software about the areas of use of 3D environments in education and especially the process of creating 3D models. ✓ Link:

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice



In this section, essential information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used, and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when designing/creating/modifying/using 3D materials.

Name of digital tool	Properties	Link
Tinkercad	Simple 3D modeling tool; helps teachers create interactive models to explain abstract concepts visually.	Tinkercad www.tinkercad.com
SketchUp	Easy 3D design software; allows teachers to design realistic models for lessons in architecture or geometry.	SketchUp www.sketchup.com
Blender	Advanced modeling and animation; enables teachers to visualize complex ideas and create engaging learning materials.	Blender www.blender.org

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating 3D materials, application or tools in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

When planning your lesson, start by deciding what you want students to achieve, whether it's understanding key concepts, increasing motivation, gaining hands-on learning experiences, or grasping difficult ideas. Consider the pros and cons of using 3D materials and prepare worksheets that encourage problem-solving rather than simply providing answers. These materials should help students gather information for later activities like making predictions and drawing conclusions. You should use 3D tools in a way that encourages active exploration and independent thinking. Avoid giving students direct answers; instead, guide them to find solutions themselves. You can use ready-made digital resources or create your own with a 3D printer. Ensure these tools are accessible to all students, including those with special needs. At the end of your plan, you should explain how you will assess students' progress and understanding, observing how they interact with 3D materials and solve problems. When selecting 3D materials, you should choose tools that align with your teaching goals. Ensure both you and your students can easily use them. You should take appropriate safety measures when using 3D materials, as well as virtual and augmented reality applications. For example, consider the potential health effects of prolonged use of VR applications and set time limits to minimize risk.If there is a limitation in materials or tools like 3D glasses, you can ensure students use them in groups by planning effectively. Lastly, make sure to organize the group work in a way that allows all students to actively participate and benefit from the experience. In summary, effective use of 3D materials in education requires careful planning, ensuring that students use these tools not just as a source of entertainment, but as a means to support and enhance their learning processes.

Application

In the application phase of your teaching, consider the following question for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.

You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using 3D materials, tools and applications.

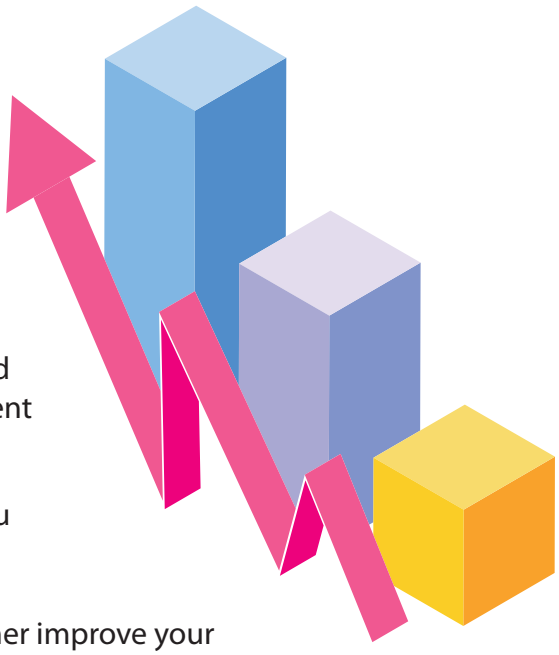
When to use 3D materials, tools and applications	Suggestion
At the Beginning of the Lesson	Use 3D tools to introduce and visualize new concepts and also used to draw students' attention to a lesson or topic, to arouse curiosity, and to inform them about the concepts to be taught.
During the Lesson	Allow students to create or explore models as part of problem-solving tasks. To enable us, the students, to feel the emotion of doing and experiencing in the learning environment. For example, to examine a water treatment plant or a museum in a virtual reality environment and test the hypotheses.
After the Lesson	Have students reflect on or present their models to summarize learning.
Outside of the Classroom	The teacher can assign students a problem that they can solve using data gathered from visiting a 3D museum or by collaboratively developing a 3D model. This approach encourages students to work together, engage with real-world data, and apply their learning to solve meaningful problems.

Reflection and Evaluation

Once you complete your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of digital classroom assessment materials, and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

Tinkercad 3D Design Training

This video provides teachers with simple instructions on how to create 3D models. It introduces easy-to-use 3D modeling tools and offers step-by-step guidance for creating 3D materials..

Link to video (00:07:54) :
https://www.youtube.com/watch?v=__Tj1sX0fIE

3D Modeling and Artificial Intelligence

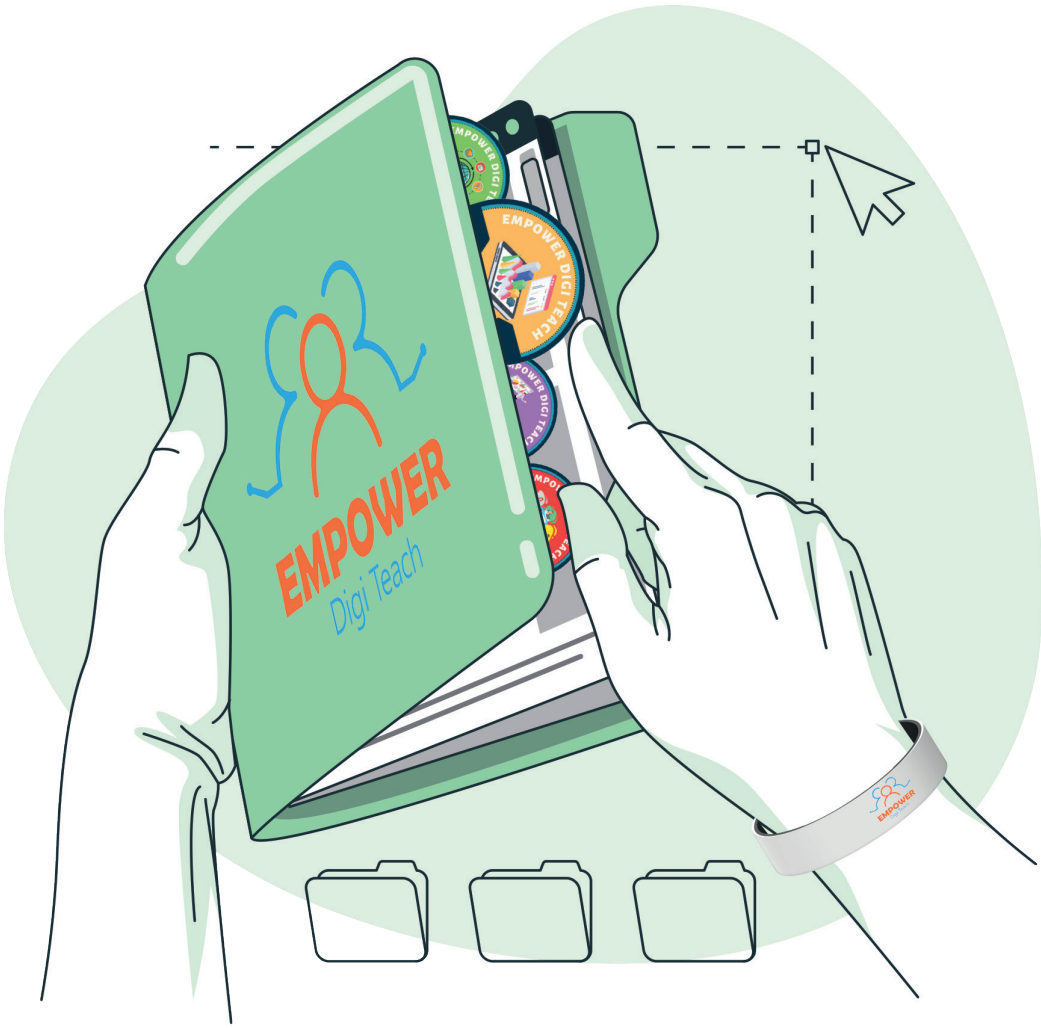
This video provides step-by-step instructions on how to design realistic 3D models for geometry and architecture. It guides teachers through the process of creating detailed models.

Link to video (00:22:00) :
https://www.youtube.com/watch?v=0CMCFDeGOnI

Blender Basics for Educators

This video, "Blender Basics for Educators," provides detailed information on how to use Blender for creating 3D models. It covers essential tools and techniques, helping educators learn how to design and customize models for various subjects.

Link to video (04:14:26) :
https://www.youtube.com/watch?v=DSsq7ilaHiA



EMPOWER
Digi Teach

ASSESSMENT ANALYTICS LAB

Chapter 3

3.2. Assessment Analytics Lab Guide for Teachers

Objectives of the Guidebook:

- To empower teachers with the knowledge and skills necessary to select and utilise appropriate digital tools for designing, delivering, and evaluating classroom assessments.
- To enhance teachers' pedagogical understanding of how digital tools can support formative and summative assessment practices, foster student engagement, provide real-time feedback, and improve learning outcomes through data-driven decision-making.

Competency the Guide Address based on DigiCompEdu Framework:

- To use digital technologies for formative and summative assessment. To enhance the diversity and suitability of assessment formats and approaches.
- To generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress in order to inform teaching and learning.
- To use digital technologies to provide targeted and timely feedback to learners. To adapt teaching strategies and provide targeted support based on the evidence generated by the digital technologies used.

Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

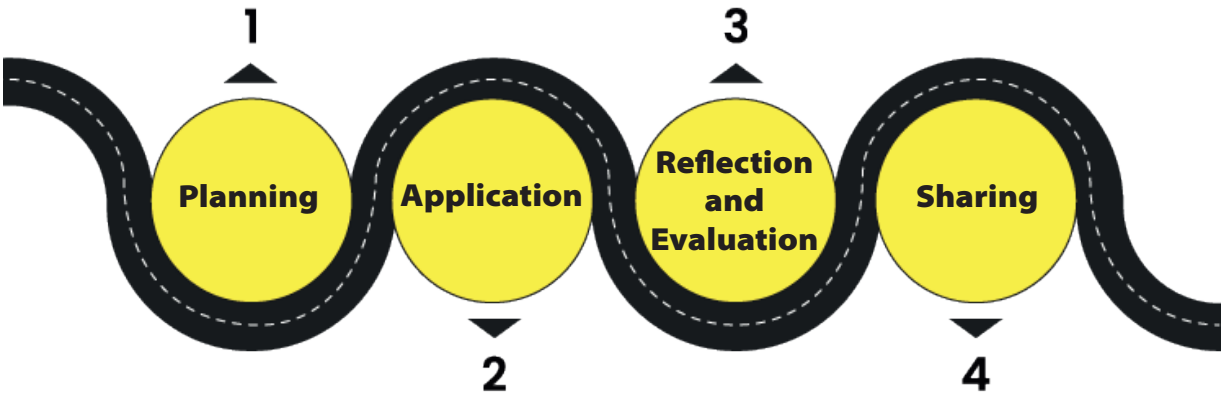
Type of Learning Material	What can you find? Where can find?
 Reading Materials	Digital assessment is the use of technology-based tools and platforms to evaluate, measure, and provide feedback on students' learning and performance in an interactive and often real-time manner. Types of classroom assessment that you can implement with digital tools in your classroom. Digital tools make it possible to integrate various content types as well as question types in which you can assess higher order thinking skills. **Where can you find?** **Unit 2 Lesson 2.1 and Unit 2 Lesson 2.2**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in general presentations also include suggestions on how, why where, when and who digital tools should be used. How to design and implement digital classroom assessment How to evaluate and make sense of student learning and give feedback How to modify instruction based on student data **Where can you find?** **Unit 2 Lesson 2.1 and Unit 2 Lesson 2.2** **Presentations**

Video Materials	In the videos ✓ In the first video, the focus is on understanding the utility of digital tools in the classroom assessment process. ✓ Link: ✓ In the second video, you can find very effective technological use of AI in interpreting student responses to open ended classroom assessments. ✓ Link:

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, essential information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used, and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when incorporating digital classroom assessments.

Name of digital tool	Properties	Link
Formative	Formative is an online platform that allows educators to create, distribute, and assess interactive assignments and quizzes in real-time, providing instant feedback to students and tracking their progress.	www.formative.com
Poll Everywhere	Digital tool for quickly capturing students' ideas, reflections and feelings about an issue or content.	www.polleverywhere.com
NotebookLM	AI based notebook tool that can be used for interpreting students' responses to open-ended assessment questions.	https://notebooklm.google.com/

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating digital classroom assessment in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

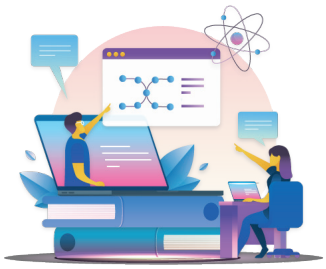
The first step when you are planning to develop a digital classroom assessment is to decide your purpose: With what purpose do you plan to design and implement a digital assessment task in the classroom? Once you determine your purpose of digital assessment, it is now time to think about the type of content as well as the type of questions you want to incorporate into your digital assessment. With the affordances of digital tools, you can use various content types, including longer texts, web sources, audio and video etc. Similarly, the type of questions is also very diverse when it comes to using digital tools for classroom assessment. When deciding the type of content and question you want to use in your digital assessment, you need to consider the depth and scope of your learning outcomes carefully. In other words, what specific cognitive processes, as well as the depth of content understanding your learning outcomes, require students to demonstrate? Once you decide the type of assessment as well as type of questions, it is now time to think about what digital tools you are going to use to digitally assess your student learning. In this stage of the instruction, it is important to consider the familiarity of your students with the digital tool that you are going to use. If it is their first time to use the tool, then it would be beneficial to provide a technical tour of the tools to showcase its specific properties that the students would use.

Once you are ready to administer your digital assessment, now you should focus on collecting valid evidence of student learning. To do so, you need to make sure that your students understand the questions or assessment task as it is intended. In this stage of the assessment, you can provide scaffolds to make sure that your students are really showing their knowledge and competences without any barrier in the assessment task. When planning lessons involving digital classroom assessments, it's essential to carefully analyze and interpret student artifacts collected through digital platforms or tools. Begin by clearly defining criteria or rubrics aligned with your learning objectives to help you consistently assess student work. Look closely at students' digital submissions—such as written responses, multimedia presentations, or interactive assignments—to identify patterns, misconceptions, strengths, and areas for improvement. Use these insights to provide specific, timely, and actionable feedback that guides students toward deeper understanding. Additionally, regularly reviewing student artifacts allows you to reflect critically on your teaching strategies and make informed adjustments to future instruction, such as clarifying instructions, introducing new scaffolds, or selecting alternative digital tools that better support student learning and engagement. can you shorten it?

Application

In the application phase of your teaching, consider the following question for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.



You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using digital classroom assessment.

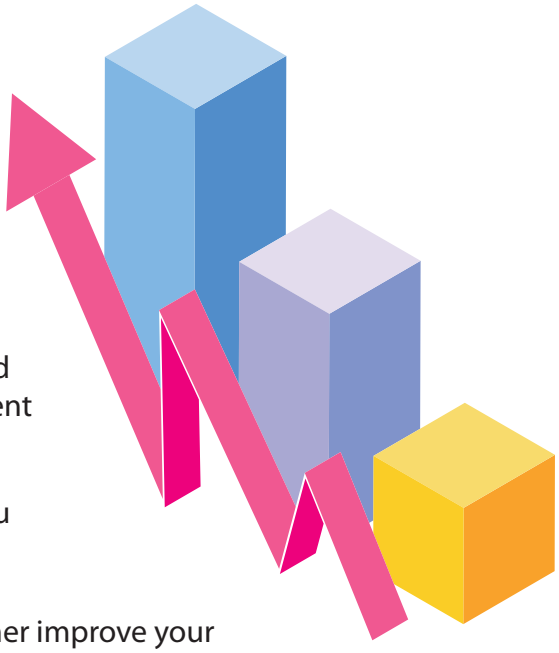
When to use digital assessment	Suggestion
At the Beginning of the Lesson	You can use digital assessment to activate prior knowledge, gauge student readiness, or set learning objectives at this phase of a lesson.
During the Lesson	You can use digital assessment to monitor student understanding and provide real-time feedback to enhance their learning at this phase of a lesson.
After the Lesson	You can use digital assessment to provide additional feedback to increase learning and measure student achievement compared to lesson learning outcomes.
Outside of the Classroom	You can use digital assessment to create self-paced learning levels and encourage student productive engagement with materials outside of the classroom.

Reflection and Evaluation

Once you complete your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of digital classroom assessment materials, and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

How to choose digital tools for learning and assessment

The video discusses strategies for selecting effective digital tools in educational settings, emphasising alignment with learning objectives, user-friendliness, and the importance of data privacy.

Link to video (00:51:02) :
https://www.youtube.com/watch?v=RL_vlKAFK2c

Digital Tools to Collect Evidence of Student Learning

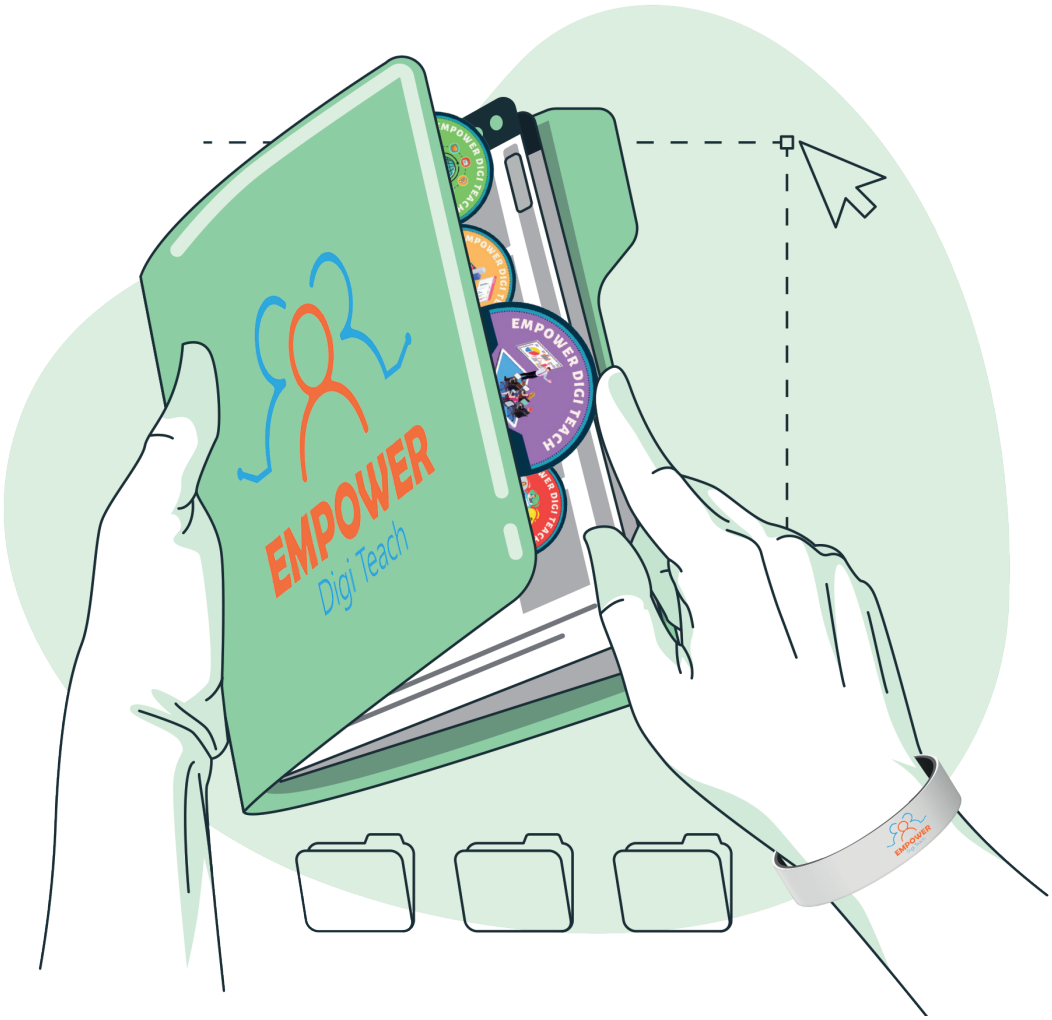
The video provides a step-by-step guide on converting video content into text. The process involves uploading your video file, selecting desired add-on features, and receiving the transcribed text via email. This service supports various video formats and offers accuracy and turnaround time options.

Link to video (00:50:15) :
https://www.youtube.com/watch?v=P_eRmHfV8TE&t=4s

Creating AI/ChatGPT-Resistant (and Assisted) Assignments & Assessments for Students

The video discusses strategies for designing educational tasks that either resist or incorporate AI tools like ChatGPT, aiming to enhance academic integrity and leverage AI for improved learning outcomes.

Link to video (00:59:11) :
https://www.youtube.com/watch?v=bfV207_YxMI



EMPOWER
Digi Teach

LEARNER EMPOWERMENT LAB

Chapter 3

3.3. Learner Empowerment Lab Guide for Teachers

3.3.1. Effective Use of Remote Education Tools: Video Conferencing

Objectives of the Guidebook:

- To empower teachers with effective strategies for organizing and managing virtual classrooms using videoconferencing tools, enabling them to design, deliver, and evaluate classroom assessments effectively.
- To deepen teachers' understanding of how interactive features in video conferencing platforms can be leveraged to support formative and summative assessments, foster student engagement, provide real-time feedback, and enhance learning outcomes through data-driven approaches.

Competency the Guide Address based on DigiCompEdu Framework:

- Organizing digital content, enabling easy and secure access for students, parents and teachers, while protecting sensitive and personal data. Sharing digital content with respect to intellectual property and copyright rules.

Related Content in the Learning Management System

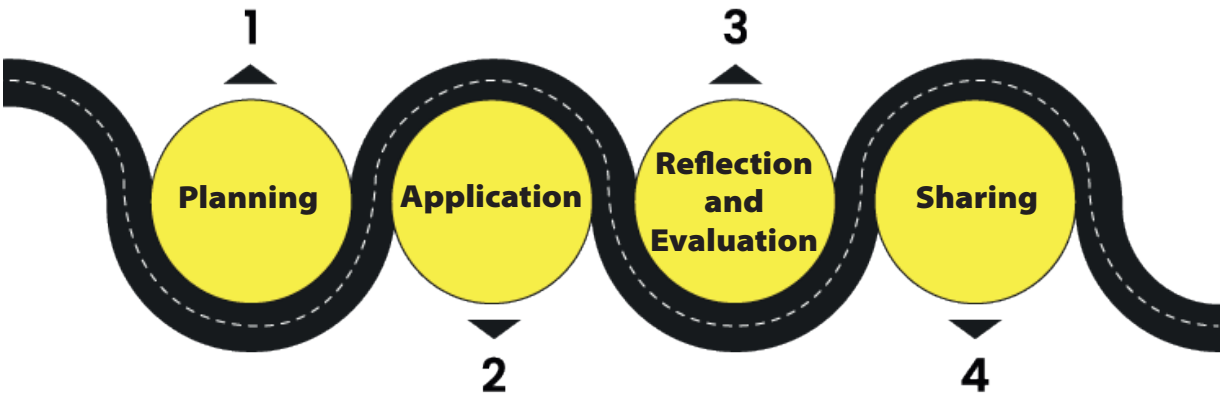
In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach from the relevant sections of the LMS.

Type of Learning Material	What can you find? How can you use?
 Reading Materials	✓ Video conferencing tools and their technical properties ✓ Things to consider when setting up a video conferencing call ✓ Overcoming technical issues **Where can you find?** **Unit 3 Lesson 3.2. Video Conferencing**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in generally presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ Practical information about the video conferencing tools and their features **Where can you find?** **Unit 3 Presentation 3.2. Video Conferencing**
 Video Materials	In the videos ✓ In the video, you will learn how to use Google Meet and Microsoft Teams for video conferencing. It provides an overview of their features, guides you through the setup process, and offers tips for hosting effective virtual meetings and collaborative sessions.

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, basic information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when designing videoconferencing based lessons.

Name of digital tool	Properties	Link
Google Meet	Google Meet is a video conferencing tool that allows users to easily set up and join secure virtual meetings directly from a web browser or app. It offers key collaborative features such as real-time screen sharing, breakout rooms, live captions, chat functionality, and seamless integration with other Google Workspace tools like Calendar and Classroom. Additionally, Google Meet supports recording sessions, attendance tracking, and interactive features like polls and Q&A to enhance participant engagement.	www.meet.google.com

 **Microsoft Teams**	Microsoft Teams is a video conferencing platform that integrates with Microsoft 365 applications, allowing users to host secure, interactive virtual meetings and collaborative sessions. It provides features such as screen sharing, breakout rooms, live captioning, meeting recording, background effects, and real-time chat, enhancing communication and collaboration among participants. Additionally, Teams supports advanced functionalities like polls, attendance tracking, whiteboard collaboration, and extensive security controls, making it suitable for diverse educational and professional settings.	www.teams.microsoft.com
 **Zoom**	Zoom is a video conferencing tool known for its simplicity, high-quality video/audio, and robust performance. It provides key collaboration features, including breakout rooms, screen sharing, virtual backgrounds, interactive polls, chat, and meeting recordings. Zoom also supports extensive security settings, waiting rooms, and seamless integration with various learning and productivity tools.	www.zoom.com

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating video conferencing tools in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

When integrating video conferencing tools into your teaching, careful planning is essential to maximize student engagement and learning effectiveness:

- Begin by clearly defining your instructional objectives and deciding how video conferencing will specifically support those goals, such as facilitating interactive discussions, collaborative group work, or live demonstrations.
- Select the appropriate tool (e.g., Zoom, Google Meet, Microsoft Teams) based on accessibility, ease of use, and necessary features like breakout rooms, polls, and recording capabilities.
- Establish clear expectations and norms for online participation, including guidelines on interaction, camera use, and online etiquette. Additionally, plan interactive activities, such as collaborative brainstorming or small-group discussions using breakout rooms, and ensure you have contingencies for technical difficulties.
- Finally, incorporate formative assessments within your session (e.g., polls, quizzes) and follow-up activities to gauge student understanding and provide timely feedback.

Application

In the application phase of your teaching, consider the following questions for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.

You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using video conferencing tools.

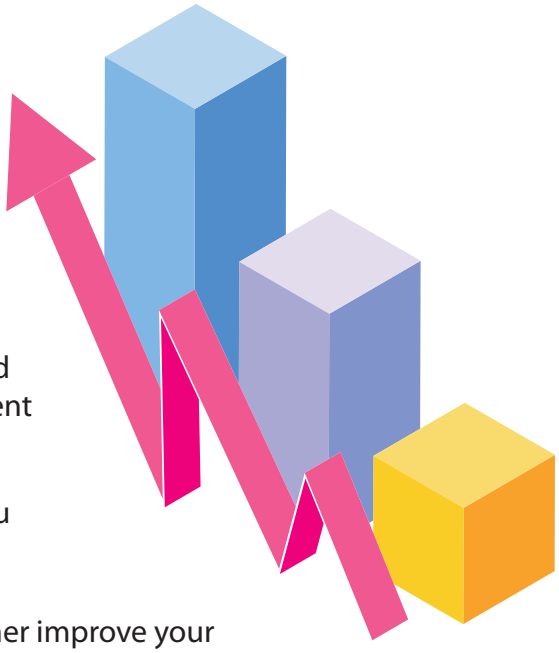
When to use digital assessment	Suggestion
At the Beginning of the Lesson	You can use video conferencing at the beginning of instruction to clearly state learning goals, introduce lesson content, and set expectations for participation. Briefly demonstrate essential tool features (e.g., chat, reactions, breakout rooms), and engage students with a short interactive activity—such as an icebreaker or quick poll—to build rapport and encourage active participation right from the start.
During the Lesson	You can use videoconferencing pedagogically to facilitate interactive discussions, promote collaboration through breakout rooms, provide real-time formative feedback, and address student questions or misconceptions immediately. It enables you to maintain student engagement, check for understanding, and foster active learning through dynamic interactions and targeted scaffolding.
After the Lesson	You can use video conferencing to facilitate reflective discussions, provide personalized feedback, and clarify lingering misconceptions. Additionally, it allows you to conduct small-group follow-ups, support students who need extra assistance, and gather valuable feedback to inform future instructional adjustments.
Outside of the Classroom	You can use videoconferencing pedagogically to facilitate remote group collaboration, host virtual office hours for individualized student support, and engage families in conferences or informational sessions. Additionally, it can help maintain communication, support continuous learning, and foster stronger connections among students, teachers, and parents beyond the traditional classroom setting.

Reflection and Evaluation

Once you completed your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of video conferencing based learning opportunities, and/or learn how to effectively use these tools in and outside the classroom from a pedagogical perspective.

How to Teach Online with Google Meet - A Guide for Teachers

It offers a concise guide for teachers on using Google Meet effectively for online teaching. It covers essential steps such as creating and scheduling meetings, inviting participants, managing attendees, utilizing chat and screen-sharing features, and employing tools to enhance interaction and engagement during online lessons.

Link to video (00:08:54) :
https://www.youtube.com/watch?v=4H3_uhvSncs

Video Conferencing

Technical and pedagogical aspects of effective videoconferencing for instruction.

Link to video (00:06:10) :
https://www.youtube.com/watch?v=i3p1mxvKx0I&t=136s

3.3.2. Making Digital Teaching Accessible and Inclusive

Objectives of the Guidebook:

- Equip teachers with strategies to select and utilize digital tools that support accessibility, ensuring all students, including those with diverse learning needs, can engage meaningfully in instruction.
- Provide pedagogical approaches for designing inclusive digital learning environments, enabling teachers to proactively address potential barriers, foster equitable participation, and promote collaboration among all learners.

Competency the Guide Address based on DigiCompEdu Framework:

- Ensuring access to digital resources and learning activities for all students, taking into consideration any contextual, physical or cognitive constraints to their use.

Related Content in the Learning Management System

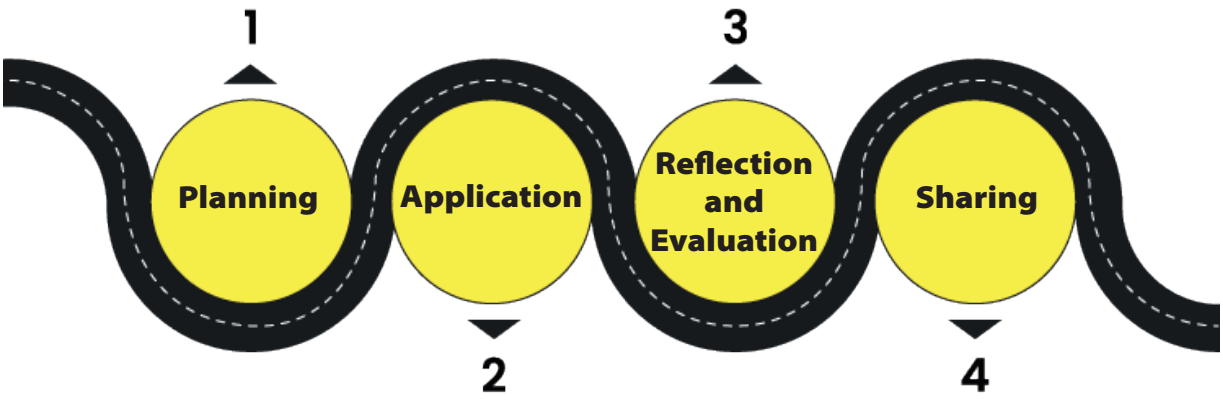
In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach from the relevant sections of the LMS.

Type of Learning Material	What can you find? How can you use?
 Reading Materials	✓ Defining inclusiveness and accessibility ✓ Standards and guidelines for creating accessible and inclusive digital learning materials. ✓ Available tools and their properties for creating inclusive and accessible digital materials. **Where can you find?** **Unit 3 Lesson 3.4. Accessibility and Inclusion**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in generally presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ Inclusive and accessible instruction ✓ Assistive technologies ✓ Standards and guidelines for selecting effective digital materials **Where can you find?** **Unit 3 Presentation 3.4 Accessibility and Inclusion**
 Video Materials	In the videos ✓ The video provides guidelines as well as suggestions regarding how to select and create digital resources in a way that is accessible and inclusive. In addition to that it also provides pedagogical suggestions on how to design inclusive and accessible learning opportunities for students using digital materials.

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, basic information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use to make accessible and inclusive digital materials.

Name of digital tool	Properties	Link
padlet Padlet	Padlet supports accessible and inclusive learning by allowing students to contribute through text, voice, video, images, and drawings, catering to diverse communication needs. It enhances accessibility with real-time translation, text-to-speech integration, and customizable visuals, benefiting multilingual learners and students with disabilities. Additionally, its moderation features, asynchronous participation, and anonymous posting options create a safe, flexible, and inclusive learning environment.	www.padlet.com

Miro	Miro is an interactive digital whiteboard that facilitates multimodal collaboration through text, drawings, sticky notes, and voice recordings, rendering it accessible to a diverse range of learners. It enhances inclusivity with keyboard navigation, screen reader support, and adjustable zoom levels, benefiting students with visual impairments or motor disabilities. Additionally, Miro's real-time and asynchronous collaboration features allow students to contribute at their own pace, fostering an inclusive and flexible learning environment.	www.miro.com
Microsoft Immersive Reader	Microsoft Immersive Reader helps make technology more accessible to everyone by providing text-to-speech, custom fonts, line spacing, and background colors. This helps students with dyslexia, ADHD, and visual impairments. It also includes translation, a picture dictionary, and grammar tools to help multilingual learners and those with reading difficulties. It works with Microsoft products (Word, OneNote, Teams, Edge) and other educational platforms. This makes it so that all students can enjoy an easy and inclusive reading experience.	www.microsoft.com

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating accessible and inclusive digital materials into your instruction.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

Teachers should adhere to Universal Design for Understanding (UDL) principles while creating inclusive and accessible digital lesson plans by giving students different ways to interact with the material, access it, and demonstrate their understanding. Select resources that facilitate multimodal engagement (text, audio, video, and images) that are compatible with assistive devices such as captions and screen readers. To ensure that every student may engage in a method that works for them, for instance, when using Padlet for a brainstorming exercise, let students contribute by utilizing voice recordings, photos, typed comments, or brief films. Use readable fonts, high contrast colors, and alternative text for photos to make sure your goods are aesthetically accessible. Encourage an inclusive classroom culture that recognizes a range of learning requirements while providing flexible participation options for both synchronous and asynchronous engagement. To consistently increase digital inclusivity, test accessibility tools before the course, give clear directions, and get feedback from students.

Application

In the application phase of your teaching, consider the following questions for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.

You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about making digital content accessible and inclusive for students.

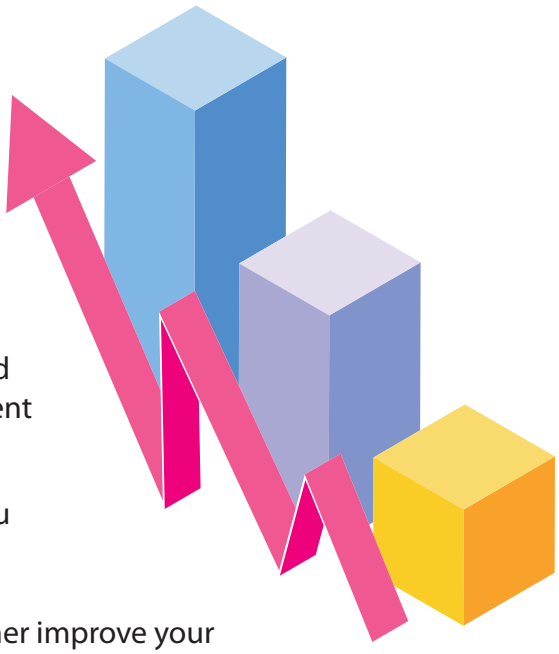
When to use digital assessment	Suggestion
At the Beginning of the Lesson	Make sure that you provide clear instructions regarding how to use digital materials so that students can gain the best experience in an accessible and inclusive way.
During the Lesson	In access for the learning, incorporate Multiple Means of Engagement by providing choice in how to participate (e.g., live discussions, chats, or interactive tools during instruction such as Padlet); gamification (e.g., Kahoot); and self-paced learning (e.g., recorded lessons and digital notes). Things you should do to ensure Multiple Means of Representation include using multimodal content (text, audio, video, images); enabling assistive features (e.g., Microsoft Immersive Reader and captions and transcripts); and providing visual support such as concept maps or infographics. These strategies, if integrated help create responsive, accessible, and engaging digital learning environments that accommodate diverse learning needs.
After the Lesson	After the lesson, you can provide review material in multiple formats (e.g., captioned recorded sessions, transcripts, and summary notes) for all students to review key concepts. You can also seek feedback from students on accessibility and inclusivity, check engagement indicators, and make necessary adjustments to improve future online learning experiences.
Outside of the Classroom	Beyond the classroom, you should make digital content accessible anywhere, anytime by offering content in multiple forms (text, sound, video, and interactive media) and also being accessible by assistive tools like screen readers and subtitles. you should offer flexible learning prospects, e.g., discussion forums, video lectures, and collaborative tools like Miro or Padlet, wherein the learner can contribute according to their needs.

Reflection and Evaluation

Once you completed your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into the development of inclusive and accessible digital materials, and/or learn how to effectively use these materials in and outside the classroom from a pedagogical perspective.

Accessible Content for All: Introduction to Accessible Educational Materials

This video provides pedagogical and technical suggestions regarding making digital learning materials accessible to students.

Link to video (00:56:14) :
https://www.youtube.com/watch?v=Ib9iqlHso-A

How to Create an Inclusive Classroom - Diversity and Inclusion in Education

This video provides suggestions for creating an inclusive classroom environment.

Link to video (00:08:57) :
https://www.youtube.com/watch?v=E7Uj2lzDzH0&t=285s

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PEDAGOGY EXCELLENCE LAB

Chapter 3

3.4. Pedagogy Excellence Lab Guide for Teachers

Objectives of the Guidebook:

- Equip teachers with practical strategies to effectively integrate digital tools into collaborative learning environments, enhancing student engagement, communication, and teamwork.
- Develop teachers' digital competencies by providing step-by-step guidance on selecting, implementing, and evaluating digital tools that foster interactive and inclusive online and blended learning experiences.

Competency the Guide Address based on DigiCompEdu Framework:

- Using digital technologies to foster and enhance learner collaboration for individual and collective learning.

Related Content in the Learning Management System

In this section of the guide book, brief information about the contents of the reading materials, presentations and videos in the learning management system is provided below, and if you need to revisit detailed information given in these materials, you can reach out from the relevant sections of the LMS.

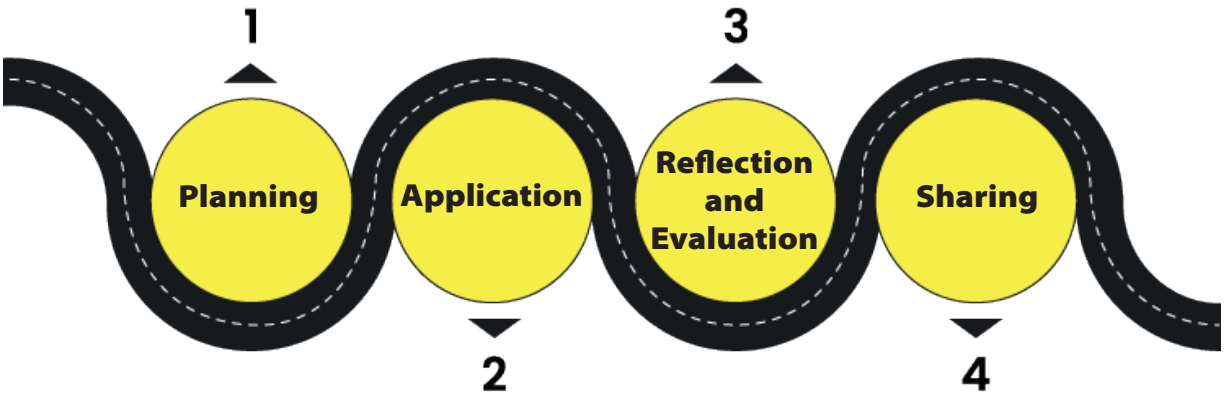
Type of Learning Material	What can you find? How can you use?
 Reading Materials	✓ Effective use of digital technologies in terms of improving teaching and learning: the use of technology in blended learning environments, technological pedagogical content knowledge. ✓ Practical example of a case in which effective integration of a digital tool in learning and teaching. ✓ The need for collaborative learning, pedagogical strategies for effective implementation of collaborative learning, available digital tools and their effective integration into collaborative learning environments. **Where can you find?** **Unit 4. Lesson 4.1 and Unit 4. Lesson 4.2**
 Presentation Materials	Presentations include things focusing on the summary of reading materials supported with visual as well as in generally presentations also include suggestions on how, why where, when and who digital tools should be used. ✓ Different models of technology integration into teaching and learning ✓ Blended Learning, Flipped Classroom, Technological Pedagogical Content Knowledge ✓ Pedagogical strategies for effective integration of digital tools into collaborative learning environments. ✓ Digital tools and their use suggestions for integrating into a collaborative learning environment. **Where can you find?** **Unit 4 Presentation 4.1 and Unit 4 Presentation 4.2**

Video Materials	In the videos ✓ In the video of Lesson 4.1, you can find practical application of various digital tools into the learning environment through a case description. ✓ In the video of Lesson 4.2, you can find common challenges of online collaborative learning and practical suggestions on how to overcome the challenges with the help of digital tools.

*** In order to view these materials, you must be registered and logged into the Empowerdigiteach LMS.**

Roadmap for Empowering Teachers Digital Practice

In this section, basic information and suggestions are provided on how to use the theoretical and practical information you have learned above. Now, you will learn how to integrate digital tools in pedagogically effective ways in your own classrooms. In the following sections, you will first learn three digital tools that are widely used and then you will find fundamental tips and suggestions that will help you become more digitally competent when:



Below are three exemplary digital tools that you can use when integrating digital tools into learning environments as well as supporting collaborative learning.

Name of digital tool	Properties	Link
Miro	Collaborative whiteboard facilitates active participation and co-construction of knowledge.	www.miro.com
Poll Everywhere	Capture ideas of participants instantly during instruction, which allows effective communication and feedback.	www.polleverywhere.com
Microsoft Teams	Digital space for organizing collaborative work by offering space for document sharing, discussion of ideas, task management etc.	https://www.microsoft.com/en-us/microsoft-teams/group-chat-software

Planning

Considering the stages below will help you to conduct an effective lesson, when incorporating digital tools to support effective collaborative learning in your classroom.

1.Stage: Strengthening yourself in terms of content knowledge, pedagogical and technological knowledge about the digital task.

First, review the applications available in both the learning management system and other resources regarding the technological tool you will use, and also research information on how these digital tools are used to enrich teaching. In light of this information, you can move on to the stage of observing a teacher who has a similar or similar classroom application to the subject you will teach.

2.Stage: Observing the teaching process of an experienced and expert person and sharing knowledge and experience.

It will be beneficial for you to observe a teacher who has designed and implemented a digital content similar to yours and gain practical insights. If it is not possible to make such an observation in your environment, we recommend that you watch the videos in the recommended videos section. During such observation, taking notes and asking the experienced teacher any questions you may have to receive their answers will provide significant guidance for you in creating your own lesson plan. In light of the knowledge and experience you gain from this step, you can now begin the process of planning your own lesson.

3.Stage: Plan your own lesson.

Effective lesson planning is crucial for the successful integration of digital tools in supporting collaborative learning activities. If you are planning to design collaborative learning experiences for your students, you must first decide on the instructional model you want to implement in your classroom. If you choose to implement blended models of collaborative learning, such as flipped learning, consider where digital tools or technology will be integrated into the instruction and how they will enhance the learning process. On the other hand, if you opt for a fully online model of collaborative learning, you need to determine which learning management system (LMS), such as Google Classroom, will best support your instructional goals considering your contextual details.

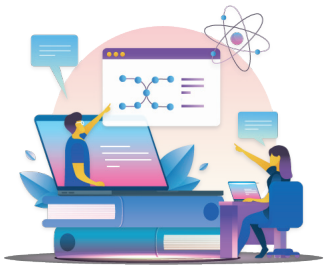
Once you decide your instructional model, it is now time to plan the content of your collaborative instructions. First thing is to make sure that you anchor your collaborative learning around a problem that is challenging enough to support collaborative activity. If your problem is not challenging enough to cultivate curiosity and dependance of team members, then collaborative activity would not materialize. Then you should follow below pedagogical suggestions:

- Promote active participation and coconstruction of knowledge by establishing clear complementary roles for each student in a group as well as medium for interaction and co-construction of knowledge.
- Foster positive interdependence where each member of a group feels the responsibility of contributing to group work to achieve a shared goal of the activity.
- Use digital tools to facilitate intra group as well as inter group communication during collaborative learning. It is important to use both synchronous as well as asynchronous discussion tools to keep communication alive all the time.
- Incorporate accountability mechanisms into collaborative learning by assigning responsibilities to members of a group and holding them to group norms and expectations.
- Provide structural scaffolding to facilitate group work. For instance, you can provide sentence starters or guidelines for productive contribution to group discussions. By following these scaffolds, group members can make productive contributions to group discussions.
- Constantly assess groups as well as individual learning by employing various assessment types. It is important to constantly assess group work to make sure productive engagement of students.

Application

In the application phase of your teaching, consider the following question for smooth and effective integrations of digital content into your teaching.

- Check if all the tools mentioned in the lesson plan work, if there are any links to online materials, etc.
- Provide clear instructions on how to use the tools and assist students in selecting materials or applications that will support the achievement of course objectives.
- Use them alongside materials like presentations, experiments, textbooks or physical models.
- Observe the process and take notes on all application processes.



You can use the same digital content with different purposes across the various stages of a lesson. The table below provides suggestions about using digital content for collaborative learning.

When to use digital assessment	Suggestion
At the Beginning of the Lesson	At the beginning of a lesson, you play a pivotal role by clearly communicating the activity's purpose, expected outcomes, and relevance to students' prior knowledge and real-world contexts. Clearly stated goals help students connect personally to the learning process, which increases their motivation and engagement. You should explicitly introduce and demonstrate the digital tools students will be using, clarifying any technical or procedural aspects upfront to reduce confusion or technical issues during the activity. You should also clearly outline communication expectations, online etiquette, and guidelines for constructive interactions, reinforcing a respectful and inclusive learning environment.

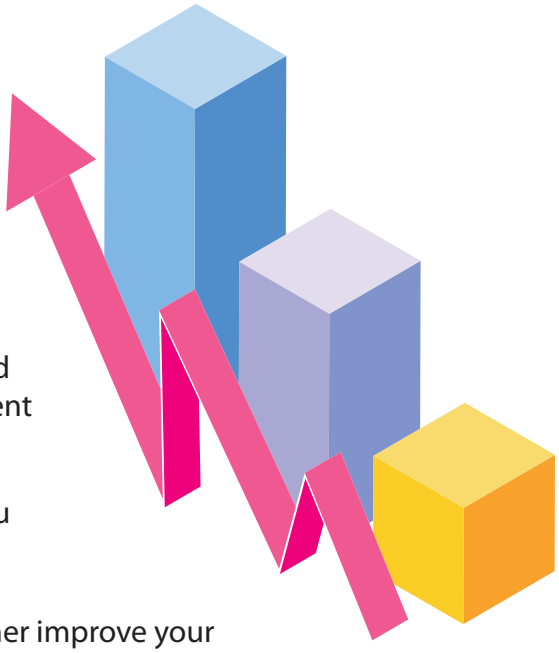
During the Lesson	During the implementation phase, you play a crucial role in actively facilitating and monitoring group interactions to ensure equitable participation, constructive dialogue, and effective collaboration. You should regularly check that students fulfill their assigned roles, engage meaningfully, and communicate respectfully. Using digital tools like Google Docs version history, LMS analytics, and interactive platforms (e.g., Padlet) can help track contributions and provide timely feedback. You should also model effective communication skills and offer scaffolding through prompts, examples, or clarifications when needed. Addressing technical difficulties promptly and providing targeted feedback helps sustain productive collaboration and keeps students focused on achieving their shared learning objectives.
After the Lesson	After incorporating digital collaborative activities into the lesson, you should reflect on the effectiveness of the activity, evaluate student performance, and gather feedback for continuous improvement.It's essential to solicit students' reflections on their collaborative experiences using surveys, feedback forms, or structured discussions to understand their perspectives and identify areas needing improvement. Additionally, encouraging students to self-assess their performance and collaboration skills promotes greater self-awareness and accountability. You should then use this collected feedback and reflection to adapt and refine future activities, such as modifying instructions, changing digital tools, or adjusting scaffolding strategies.
Outside of the Classroom	Providing timely, formative feedback through digital comments, audio, or video can encourage students to stay motivated and on task. Additionally, you should remain accessible to students for support and clarifications, responding promptly to questions or technical issues to maintain momentum and minimize frustration. It's also beneficial to foster peer support mechanisms, encouraging students to help each other, answer questions, and resolve challenges independently. At appropriate intervals, you can organize short virtual check-ins or discussion forums to reinforce accountability, address emerging questions, and provide ongoing guidance, thereby ensuring successful collaboration and meaningful co-construction of knowledge.

Reflection and Evaluation

Once you completed your teaching with digital content, it is now time to reflect on your practice to improve your digital competence. Below are exemplary questions you might ask yourselves and think about:

Reflection Questions	Your Response (Not so much …. Very Much)				
How easy was it to set up the digital content and integrate into your lesson?	1	2	3	4	5
Did you feel adequately prepared to use this tool effectively?	1	2	3	4	5
Were you able to effectively manage the use of the digital tool alongside other teaching activities?	1	2	3	4	5
In terms of student performance, was it easy to implement compared to traditional methods?	1	2	3	4	5
Was the time spent using the digital content appropriate for the lesson?	1	2	3	4	5
Did you feel confident using the digital content during the lesson?	1	2	3	4	5
Total Score					

Evaluation Questions	Your Response (Not so much …. Very Much)				
The average of the students' grades is above the midpoint score to be taken from the exam	1	2	3	4	5
The completion rates of my students were above average	1	2	3	4	5
The results of satisfaction survey of my students were above average	1	2	3	4	5
My observation of student participation and engagement is above average	1	2	3	4	5
Total Score					



If your reflection score is above 18, then it means that your experience with incorporating digital content into your classroom practice is positive. Please consider responding below questions:

- What specific strategies or approaches contributed most to your success in using digital tools or content in your classroom?
- What innovative digital tools or techniques are you interested in exploring next? Why?
- Are there any areas where you feel you could further improve your integration of digital tools? If so, how?

If your reflection score is equal to or below 18, then it means that your experience with incorporating digital content into your classroom practice did not go as planned. Please consider responding below questions:

- In what ways do you feel that digital content did not meet your teaching objectives or student needs?
- What do you think about digital tools could better align with your teaching goals?
- What steps would you like to take in the future to improve your use of digital tools in the classroom?

If your evaluation score is above 12, then it means that digital content that you incorporated into your classroom practice resulted in positive learning gains in your students. Please consider responding to below questions:

- What aspects of the digital content implementation do you feel went particularly well?
- Which specific tools or features of the digital content contributed the most to achieving your teaching goals?
- In what ways do you think you can further enhance the effectiveness of digital content in your future lessons?

If your evaluation score is equal to or below 12, then it means that digital content that you incorporated into your classroom practice did not result in positive learning gains in your students. Please consider responding to below questions:

- Why do you think the digital content you implemented did not result in positive learning outcomes?
- In hindsight, what would you have done differently in planning or implementing the digital content?
- What steps or resources (e.g., training, collaboration, technical support) would help you feel more confident and prepared to use digital content in your teaching next time?

Sharing

It is now expected to share your best practices or challenges you experience, digital tools etc with your colleagues. Some of the channels that you can accomplish this…

Social media, the forum within LMS, online teacher communities

- Sharing the best digital materials
- Sharing best experiences with using tools
- Sharing best experiences with pedagogical applications

Suggested Videos

Below, some videos are recommended for you to watch. By viewing these videos, you can gain insights into collaborative learning with digital technology and/or learn how to effectively use these pedagogical suggestions in and outside the classroom from a pedagogical perspective.

Collaborative Digital Presentations Enrich Projects: Tech2Learn

Tips and suggestions for collaborative project based learning with the help of digital tools.

Link to video (00:04:41) :
https://www.youtube.com/watch?v=KzCQH58Bwpo

Designing Activities for Online Collaborative Learning

The video provides guidance on designing effective activities for online collaborative learning. It outlines strategies to foster engagement, including clearly defined roles, tasks, and using appropriate digital tools. Emphasis is placed on structuring activities thoughtfully to ensure meaningful student interaction, enhance participation, and achieve desired learning outcomes.

Link to video (00:42:15) :
https://www.youtube.com/watch?v=Cy6YyYjyDpI