

# **TRAINING GUIDE - DEVELOPING AND TEACHING DIGITAL COMPETENCE AND FOOD SUSTAINABLE PRACTICES IN FOOD AND HEALTH PROGRAMMES**



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In today's rapidly advancing digital age, possessing digital competencies has become a fundamental requirement for educators, students, and professionals. These skills are essential for navigating the complexities of technology-driven environments and creating impactful learning experiences.

This booklet serves as a comprehensive guide, offering insights into the critical role of digital competencies in education and their broader societal implications. By exploring established frameworks, innovative methodologies, and practical tools, it equips readers to integrate technology effectively into their practices and foster digital literacy among learners.

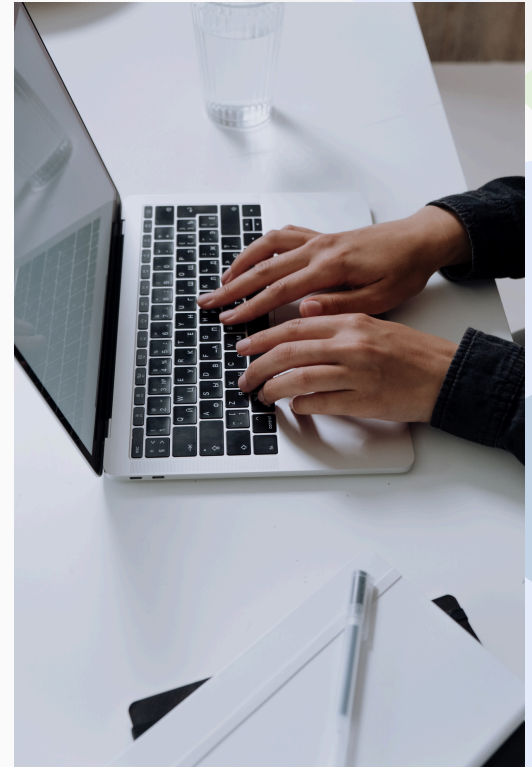


Modern society requires individuals to be able to use technology critically, both in their personal and professional lives.

Digital competencies include not only technical proficiency, but also analytical skills, creativity and ethical awareness. They enable the creation of innovative learning experiences that enhance student engagement and promote skill development. In the context of education, the ability to use technology effectively is no longer optional, but is the basis for creating an inclusive and dynamic learning environment that prepares students for the challenges of today's job market and global digital economy.



The transformation of education towards digitization opens up new opportunities, but also poses challenges for teachers. It requires them to be constantly improving, flexible and ready to experiment with a variety of tools and technologies. It is crucial that teachers develop their digital competencies in a systematic and informed manner, using available competency frameworks such as DigCompEdu to help identify areas for further development.



This guide is designed to help teachers and educators effectively incorporate digital technologies into educational practices. It provides guidance on developing digital competencies and integrating sustainable practices related to food and health. Presenting recognized competency frameworks, innovative teaching approaches and practical tools, the guide offers comprehensive support in building digital skills that are key to creating modern and effective teaching methods.





# 1. Introduction





## 2. Introduction to Digital Competency

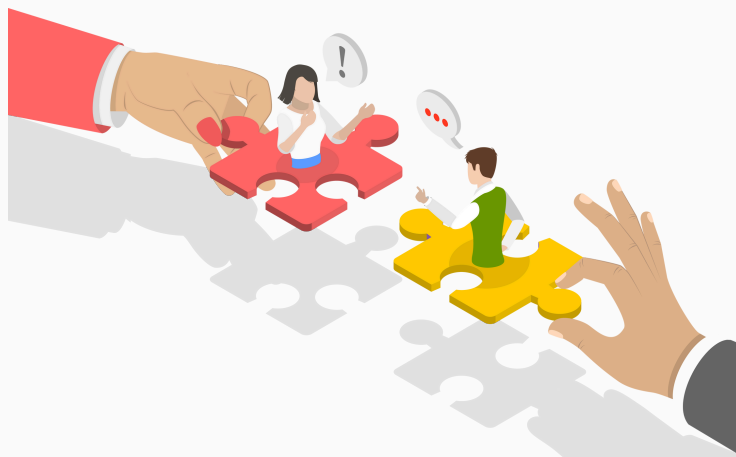
Digital competencies have emerged as essential skills in the 21st century, influencing how individuals learn, work, and interact in a technology-driven world. This module introduces the concept of digital competencies, explores their significance in education, and reviews frameworks that guide teachers in integrating these skills effectively into their practices.

Digital competencies encompass the **knowledge, skills, and attitudes** necessary to use technology effectively and critically in personal, professional, and social contexts. The **DigComp framework** defines them as the ability to **ethically and securely manage, analyze and communicate** information using digital tools. These competencies include **critical thinking, digital ethics, and cybersecurity fundamentals**.

The introduction of digital competencies into education responds to the demands of a global, technology-driven world. Technology makes it possible to personalize learning, increase student engagement and prepare students for the job market. For teachers, having these skills translates into better interactive curriculum design and modeling responsible behavior in the digital environment.

## 2.1. Definition of Digital Competency

Digital competency refers to the knowledge, skills, and attitudes necessary to effectively and critically engage with digital technologies in personal, professional, and societal contexts. The European Commission's DigComp framework defines digital competence as the ability to use digital tools and resources competently to access, manage, analyse, and communicate information ethically and securely. These competencies extend beyond technical proficiency, incorporating critical thinking, digital literacy, and the ethical implications of digital interactions.



In essence, digital competencies empower individuals to navigate the complexities of digital environments. They include core skills such as data management, communication through digital platforms, online collaboration, problem-solving in technical contexts, and a foundational understanding of cybersecurity and privacy. For educators, these competencies extend to using technology for teaching and adapting to dynamic digital advancements in pedagogy.

## 2.2 The Importance of Digital Competency in Education

The integration of digital competencies into education is a pivotal response to the demands of a globalized, technology-centric society. These skills enable educators to meet the needs of digitally native students while ensuring equitable access to learning opportunities. Technology fosters personalized learning experiences, enhances engagement, and prepares students for the digital workplace.

For students, digital competencies are not optional; they are a foundation for lifelong learning and professional success. As modern economies increasingly prioritize digital industries, equipping students with digital skills ensures they remain competitive in the job market. Moreover, the capacity to critically evaluate online content and navigate digital platforms protects students from misinformation and cyber threats.







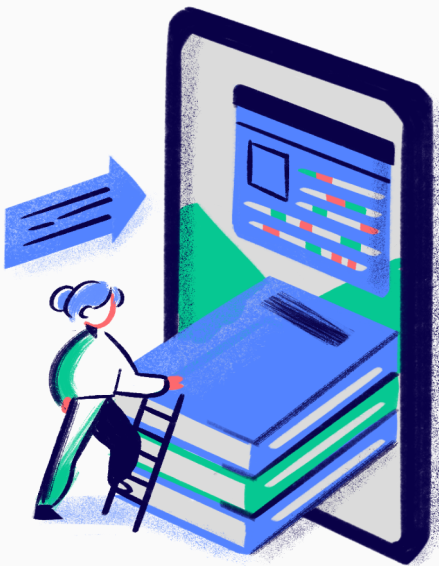
Educators are at the forefront of this transformative shift. Their ability to integrate technology effectively determines the quality of digital learning experiences.

Teachers who possess strong digital competencies can design innovative curricula, engage students through interactive tools, and foster collaborative learning environments. Importantly, educators model responsible and ethical digital behavior, imparting these values to their students.

The COVID-19 pandemic underscored the urgency of digital competencies in education. Remote and hybrid learning highlighted both opportunities and gaps in digital literacy, compelling education systems worldwide to prioritize these competencies. Consequently, teachers must continuously develop their skills to remain relevant and effective in evolving digital landscapes.

## 2.3 Digital Competence Frameworks for Teachers

To support educators in building and applying digital competencies, several frameworks provide structured guidance. Among these, the Digital Competence Framework for Educators (DigCompEdu) stands out as a comprehensive model.



Contemporary technological developments in education require teachers to have comprehensive digital skills that will allow them to effectively use available tools and technologies in the teaching process.

To support teachers in this regard, a number of competency frameworks have been developed that offer a structured approach to building and developing these skills.

The Digital Competence Framework for Teachers is a guide that systematizes and defines key areas in which educators should develop their competencies. Thanks to it, teachers can assess their current skills, identify areas for improvement and plan professional development based on specific standards.

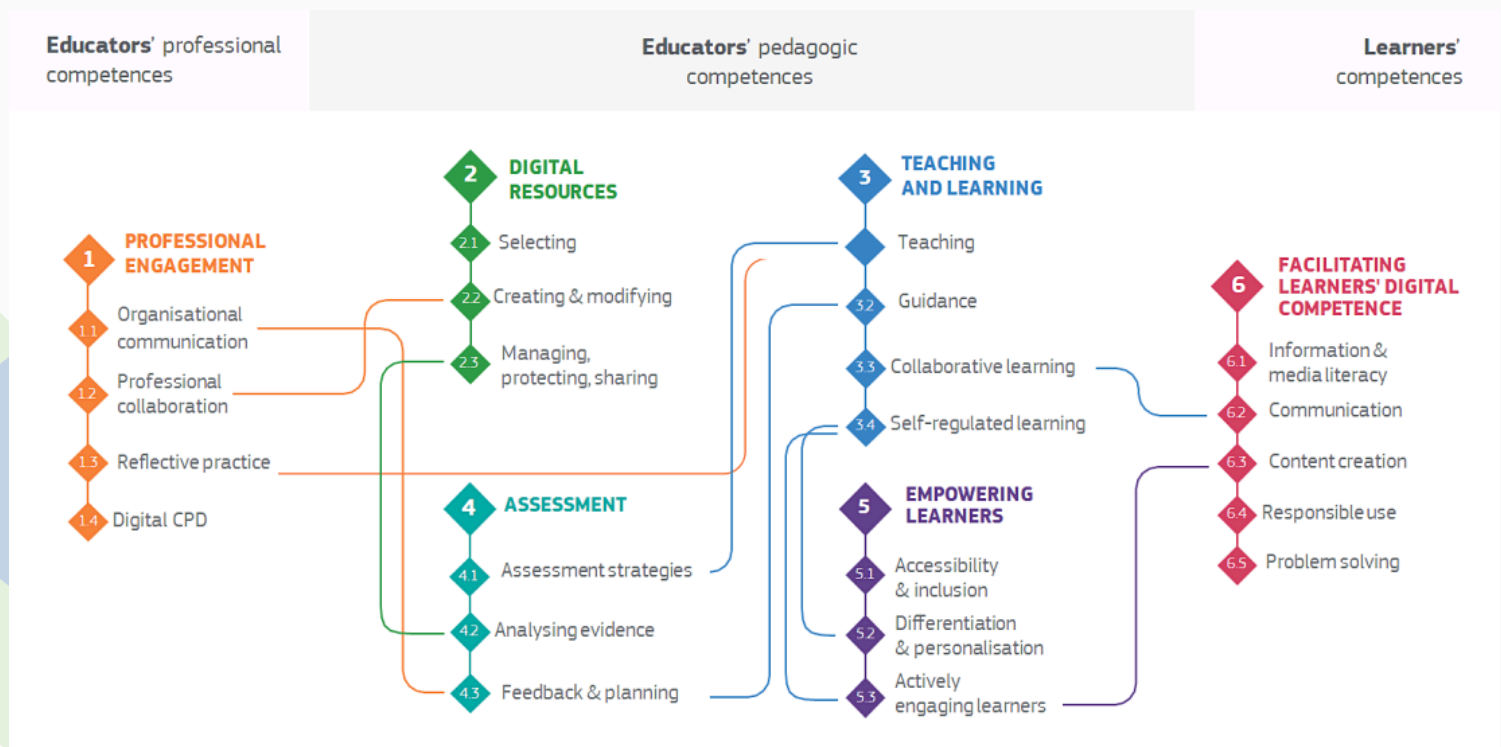
The Digital Competence Framework for Teachers takes into account not only technological aspects, but also pedagogical, ethical and social ones. Thanks to this, teachers are able to:

- Design engaging and inclusive learning environments that accommodate the diverse needs of students.
- Use digital tools to create, evaluate and adapt teaching materials.
- Build relationships and collaborate with other teachers, students, and the community through digital platforms.
- Promote students' critical thinking, problem-solving and informed use of technology skills.



## 2.4 DigCompEduFramework

The Digital Competence Framework for Educators (DigCompEdu) developed by the European Commission, serves as a **comprehensive guide** to help educators **assess and enhance** their digital teaching practices. It identifies a wide range of **competencies** that educators need to develop in order to effectively **integrate technology** into their teaching methods.





The first key area of competence is **Professional Engagement**. This focuses on how educators can use digital tools to **communicate and collaborate** with colleagues, students, and professional communities. It encourages teachers to engage with various **online platforms** for professional development, sharing resources, and building networks. This competence highlights the importance of **staying connected** with educational trends and fostering **collaboration** in the digital space.



Next is **Digital Resources**, which emphasizes the use of digital tools for **sourcing, creating, and sharing** educational materials. Teachers are encouraged to select and adapt digital resources that align with their teaching objectives while ensuring that these resources are **reliable** and **accessible**. The **responsible sharing** and reuse of digital materials also play a key role in this area, fostering a culture of **openness** and **creativity** in the educational environment.

The third area is **Teaching and Learning**, which focuses on the **integration of technology** into the actual teaching process. This competence involves **designing, implementing, and assessing technology-enhanced teaching strategies** that improve student engagement and learning outcomes. Teachers are expected to use **digital tools** to create **interactive learning environments, personalize learning experiences, and support diverse learner needs.**

**Assessment** is another crucial competence in the framework, which addresses how educators can use **digital tools** to assess student learning. This area emphasizes the use of **digital technologies** for creating and delivering assessments, providing **timely feedback**, and tracking **student progress.** Teachers are encouraged to explore **innovative ways** to assess student performance beyond traditional methods, such as through **online quizzes, digital portfolios, and peer assessments.**



The fifth area, **Empowering Learners**, involves encouraging students to become **autonomous** and **motivated** learners. It focuses on the ways in which teachers can use **technology** to support student **self-directed learning**. This includes fostering **critical thinking**, **digital literacy** and the use of **digital resources** to explore topics independently. By promoting **digital competence** in students, educators help them develop the skills necessary for **lifelong learning**.

Finally, **Facilitating Learners' Digital Competence** highlights the teacher's role in helping students develop their own **digital skills**. In this area, educators are encouraged to teach students not only how to use digital tools but also to understand the **ethical** and **responsible use** of technology. This includes guiding students in evaluating **digital content**, understanding issues related to **online safety**, and using technology to **communicate** and **collaborate** effectively.



Each of these **areas of competence** is divided into **progressive levels**, ranging from **beginner (A1)** to **advanced (C2)**. This allows educators to **assess their current proficiency** and **identify areas for growth**. The levels are designed to encourage **continuous development**, offering a pathway for educators to advance from **basic usage of digital tools** to a **leadership role** in promoting **digital innovation** in education.

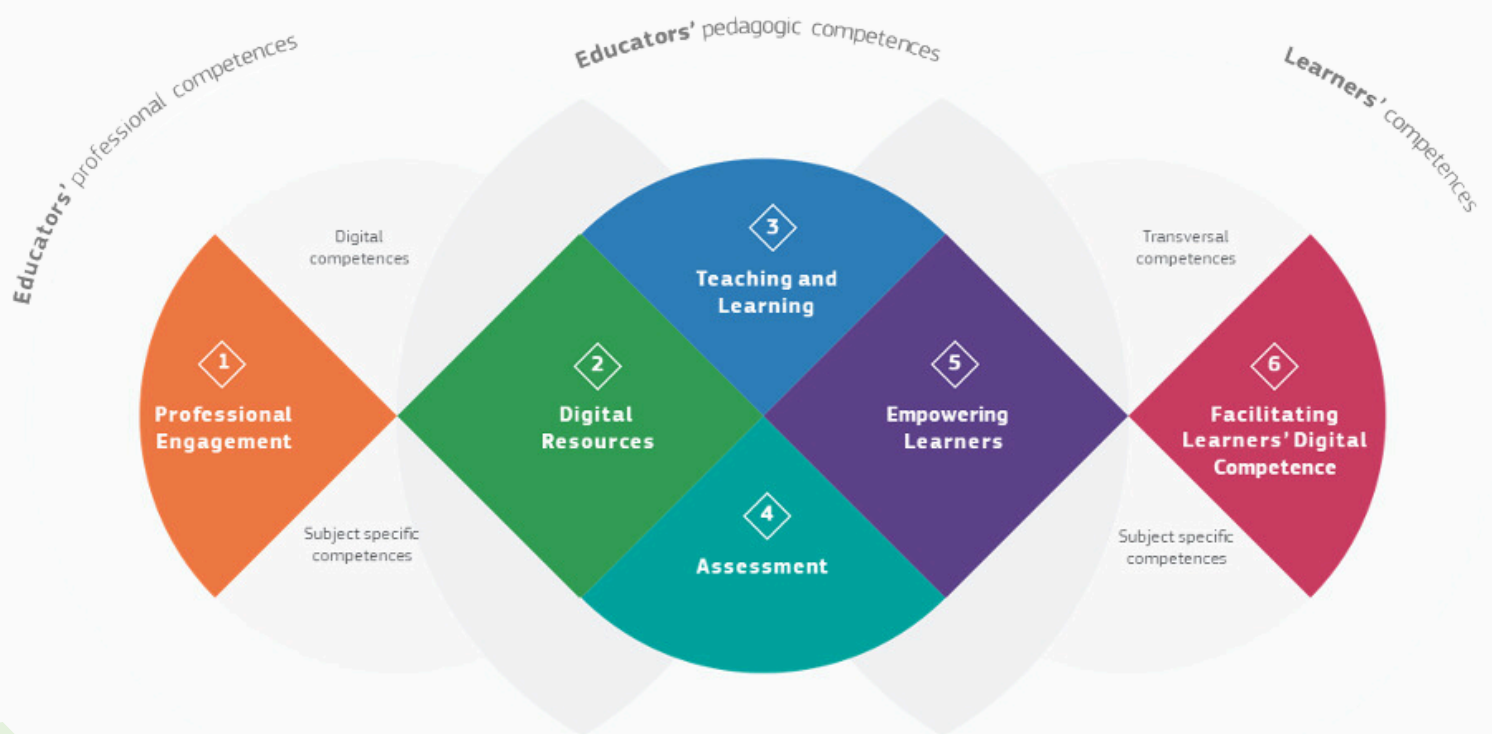
By following the **DigCompEdu framework**, educators can improve their **digital competency**, creating more **engaging and inclusive learning environments** that prepare students for success in a **digital world**.



Other frameworks, such as the **UNESCO ICT Competency Framework for Teachers** and the **International Society for Technology in Education (ISTE) Standards for Educators**, align with DigCompEdu, providing **global perspectives**. These models emphasize the integration of technology not only in teaching but also in promoting **digital equity, inclusion, and innovation**.



Frameworks like these are **vital** because they provide educators with a **roadmap** to navigate the **diverse and dynamic digital ecosystem**. They encourage **reflective practices**, **collaborative learning** among educators, and **professional development opportunities** tailored to **technological advancements**.



## 2.5 Conclusion

Digital competencies are integral to modern education, equipping educators and learners to succeed in a digitally interconnected world. The ability to effectively engage with technology not only enhances teaching and learning but also prepares students for future challenges. Frameworks such as **DigCompEdu** serve as invaluable tools for teachers to evaluate and expand their digital skills systematically. By embracing these competencies, educators contribute to building resilient, innovative, and digitally literate societies.





### 3. Teaching methodology using digital technologies



Teaching methodology using **digital technologies** involves integrating various **digital tools** and **platforms** to enhance the learning experience and engage students more effectively. This method may incorporate **multimedia presentations**, **interactive simulations**, **online collaboration tools**, and **educational applications**, accommodating various **learning styles** and promoting **active engagement**.

Educators can utilize **Learning Management Systems (LMS)** to organize course materials, monitor student progress, and enable discussions, creating a more **individualized learning environment**. Furthermore, digital technology allows instructors to integrate **real-world events** and **worldwide resources**, enhancing the curriculum and fostering **critical thinking abilities**. By adopting these creative techniques, educators may develop **dynamic, adaptable learning experiences** that equip students for a **digitally driven environment**.





Current teaching methodology increasingly incorporates **digital technologies**, aligning with the **European Union's policy frameworks** that emphasize the importance of **digitalisation in education**. The **EU's Digital Education Action Plan 2021-2027** aims to promote **innovative teaching and learning practices**, foster **digital skills**, and bridge the **digital divide** (European Commission, 2020). This approach encourages educators to leverage tools such as **blended learning**, **interactive platforms**, and **online resources** to enhance **student engagement** and facilitate **personalized learning experiences**.

Moreover, initiatives like the **European Digital Competence Framework for Citizens (DigComp)** provide a structured way to assess and improve **digital competencies** among learners (Ferrari, 2012). By integrating these methodologies, educators can better prepare students for a **digital economy** and empower them to navigate an increasingly complex **digital landscape**.



## 3.1 Digital Classroom Management

**Digital classroom management** refers to the **strategies, tools, and practices** educators use to effectively manage and facilitate learning in a **digital or online environment**. The significance of digital classroom management has grown rapidly with the move to **online learning, hybrid learning**, and the use of **technology** in conventional classrooms.



### 3.1.1. Setting Up Digital Environments

Choosing the right platform is an important first step. Use of learning management systems (LMS) like Moodle, Anthology (formerly Blackboard), Google Classroom or Canvas provide educators with a tool for communication with students on classwork and assignments, sharing resources and class materials, and to issue updates. Each LMS system should be evaluated to assess its compatibility in line with teaching goals. Once an LMS system has been chosen clear guidelines for online behaviour should be established, for example etiquette in discussion forums, communication norms, and consequences for inappropriate behaviour.

In line with choosing an LMS system, a decision on conferencing tools such as Microsoft Teams, Google Hangouts, or Zoom should be chosen. These video conferencing tools facilitate real-time communication. Utilising interactive tools alongside these platforms like gamified components, polls, quizzes, and multimedia presentations can be effective strategies to keep students engaged. Collaborative activities like breakout spaces and group projects can also encourage cooperation.

### 3.1.2. Monitoring Student Engagement

In addition to routinely asking students for comments regarding their digital learning experiences, monitoring student engagement entails using statistics from digital platforms to assess attendance and involvement. This can be effectively achieved by utilizing built-in analytics from digital platforms to track attendance and participation levels. Additionally, implementing regular feedback mechanisms like rubrics and digital comments allows educators to gather insights directly from students about their digital learning experiences, fostering an environment that is responsive to their needs.





### 3.1.3. Classroom Communication

Effective classroom communication can be achieved by establishing multiple channels, including digital chats, email, and virtual office hours, to foster open dialogue among students and instructors. Digital tools such as MentiMeter, Vevox, and Slido can enhance online discussions and enable students to participate in question-and-answer sessions anonymously, thereby alleviating peer pressure stigma often found in classroom environments and promoting student enquiries and responses during live online instruction.

It is equally important to have clear strategies in place for promptly and efficiently resolving any conflicts or challenges that may arise in the online learning environment. By prioritizing these elements, educators can create a more supportive and responsive educational experience. Digital classroom management is crucial for creating a safe and effective learning environment, especially in data privacy and security. Educators must implement strict measures to protect student data, ensuring confidentiality and security. This approach fosters trust among students and parents, enhancing the learning experience and promoting an engaging and respectful digital classroom atmosphere.

## 3.2 Innovative Teaching Methods

**Innovative digital pedagogies** have transformed the **educational landscape**, providing **dynamic ways** to engage students and enrich learning experiences. A notable method is **blended learning**, which integrates conventional in-person teaching with **online activities**, **facilitating individualised pace** and a variety of learning resources. Other examples include **flipped classrooms**, **virtual and augmented reality (VR/AR)**, and **gamification**.



# Blended Learning

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A **hybrid approach** combining **traditional face-to-face instruction** with **online learning component**.

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## Key Components:

- In-Person Instruction: Engaging students through direct interaction and discussion.
- Online Learning: Utilizing digital platforms (e.g., LMS, video lectures) to deliver content asynchronously.

## Key Benefits:

- Enhance student engagement through integration of various multimedia resources (videos, interactive simulations, etc.) and make lessons more interesting and relevant.
- Enables educators to tailor content to meet the individual needs of students, using data from online assessments to guide instruction and provide targeted support.

## Implementation Steps:

- Create a balanced schedule that allocates time for both online and in-person activities.
- Integrate online assessments to gauge student understanding.
- Use collaborative tools (e.g., discussion boards, group projects) to foster community.

# Flipped Classroom

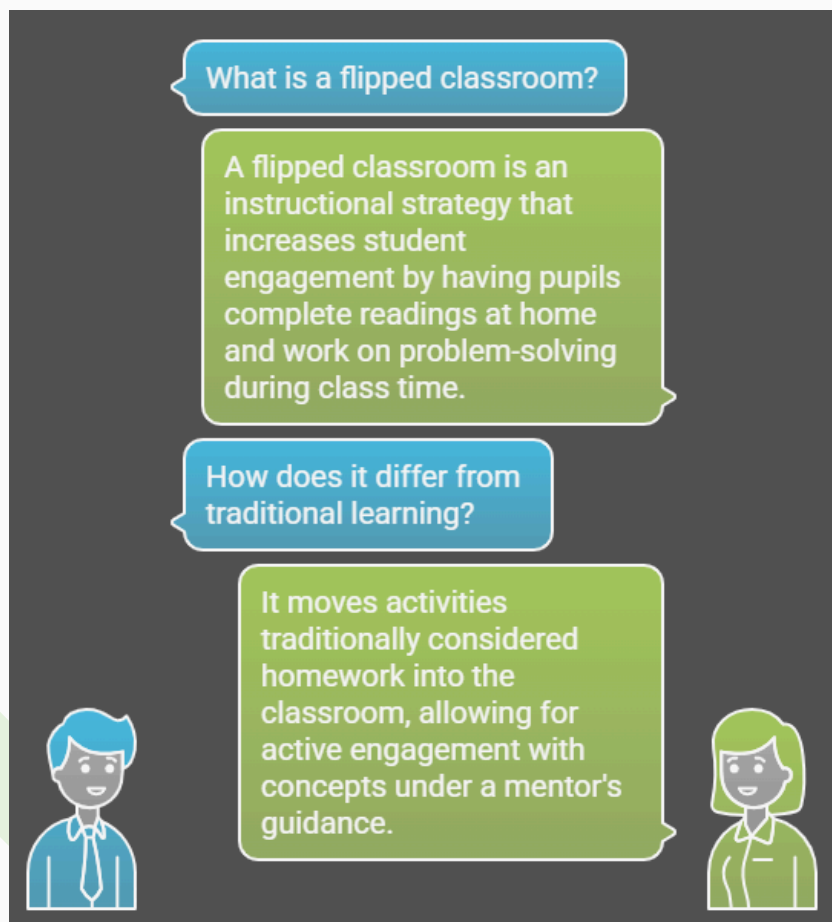
A **teaching model** where **traditional lecture** and **homework** elements are **reversed**; students learn **content at home** and engage in **hands-on activities** in class.

## Key Benefits:

- Encourage active learning and student engagement.
- Allow for personalized support during in-class activities.

## Implementation Steps:

- Prepare video lectures, readings, or presentations for home study.
- Design in-class activities that allow students to apply knowledge collaboratively.
- Assess and provide feedback on in-class performance to guide future lessons.





# Gamification

The **integration of game elements** into the **learning process** is crucial for enhancing **engagement** and **motivation**. Key game elements include **badges**, **leaderboards**, **points**, and **challenges**.

## Key Benefits:

- Motivates students to participate more actively by making tasks enjoyable and interactive.
- Improve knowledge retention by providing interactive and immersive experiences.

## Implementation Steps:

- Design lessons with game-like scenarios or challenges.
- Introduce competition through team-based activities.
- Use digital platforms that facilitate gamified learning experiences (e.g., Kahoot!, Raptivity, Quizizz, Edgagement).



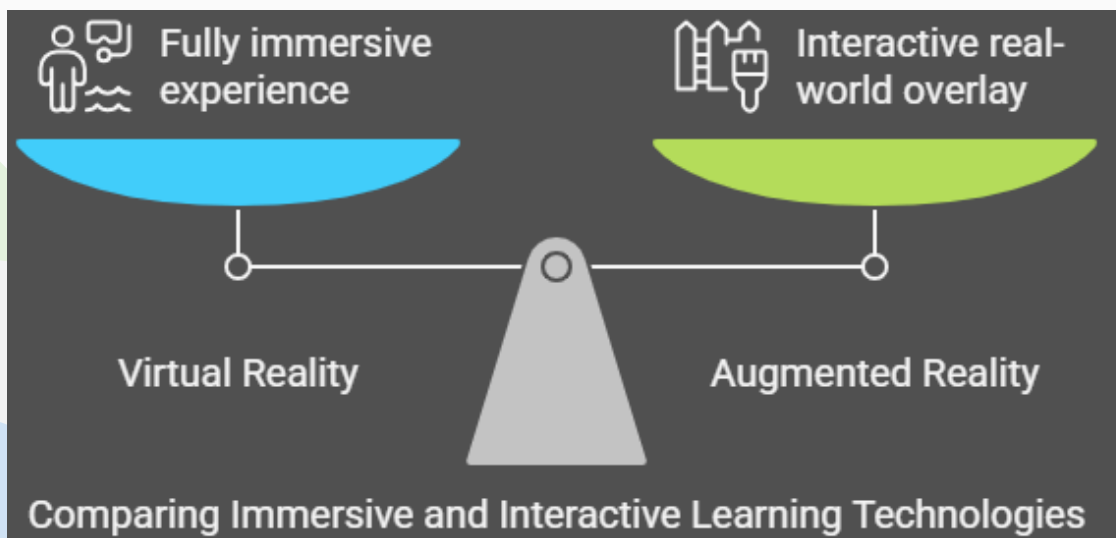
# Virtual and Augmented Reality (VR/AR)

The integration of **VR** and **AR** can enhance the effectiveness of conventional teaching practices by producing learning experiences that are both **immersive** and **interactive**.

1. VR refers to environments that are totally immersive and allow users to interact with a computer-generated world.
2. AR overlays digital content in the real world, enhancing one's perception of the environment.

## Key Benefits:

- VR/AR experiences capture students' attention and increase motivation through interactive and gamified learning environments.
- VR allows students to practice skills in safe, simulated environments (e.g. a food production).
- AR can make difficult concepts more tangible by visualising abstract ideas.



### Implementation Steps:

- **Identify the specific goals** of implementing VR/AR in the curriculum.
- **Conduct research** and choose the virtual reality (VR) or augmented reality (AR) tools that are most appropriate for the educational setting. **Consider the compatibility** of the software and hardware that is already in place.
- **Create or curate educational content** that is tailored specifically for virtual reality or augmented reality platforms. **Work together with educators and subject matter experts** to guarantee that the information is accurate and relevant.
- **Start with a pilot program** in a few classes or with a smaller group of students. **Gather feedback** to understand student experiences and learning outcomes.
- **Create a support network** among educators using VR/AR to share experiences, resources, latest advancements in technologies, and best practices.



### 3.3 Motivating Students to Use Technology

Promoting the use of technology in education necessitates a **multifaceted approach** that considers **students' diverse interests, experiences, and learning styles**. Here are some methods to foster a **positive attitude towards technology**:

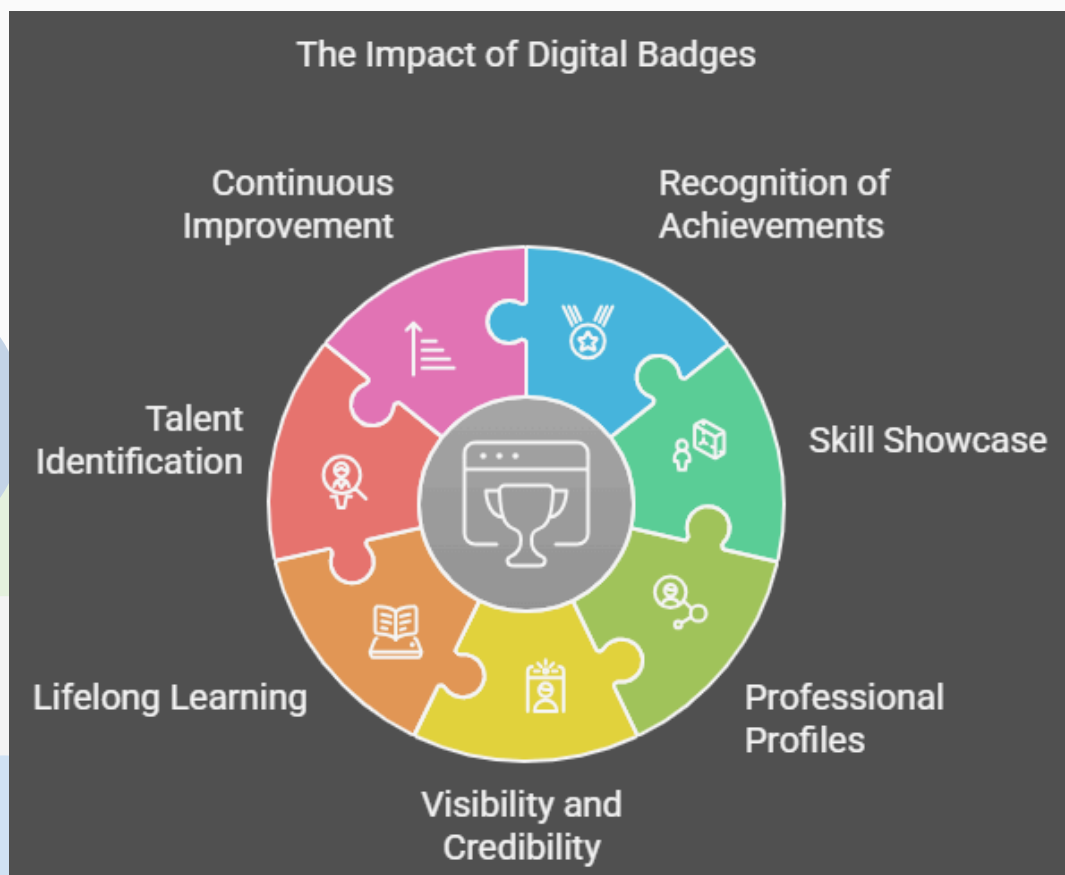
#### 3.3.1 Building a Positive Technology Environment

To motivate students to use technology effectively, it is essential to **build a positive technological environment** that emphasizes **relevance** and **celebrates success**. Linking technology to **practical applications** and **prospective employment prospects** enables students to recognize its significance in their lives. Moreover, **acknowledging accomplishments** through grades, vocal commendations, or digital badges cultivates a sense of **achievement** and promotes **sustained involvement**. Collectively, these tactics foster an **encouraging environment** that enables students to adopt technology as an essential instrument for their **education and future achievements**.





For example, the use of **digital badges** in a module is a great way to **recognize and validate achievements, skills, or competencies** in various fields. These **virtual credentials** serve as **tangible representations** of a learner's accomplishments, enabling individuals to **showcase their skills** to potential employers or educational institutions. By incorporating digital badges into their **professional profiles**, users can enhance their **visibility and credibility**, foster **lifelong learning**, and motivate themselves and others to pursue **new challenges**. Additionally, organizations can benefit from digital badges by streamlining **talent identification** and promoting a culture of **continuous improvement** and **skill development** among their workforces.



### 3.3.2. Engaging Curriculum Design

To effectively **motivate students** to utilise technology in their learning, it is imperative to create **interesting content** that integrates **multimedia** and **interactive components**, accommodating various **learning styles**. By including **videos, games, and collaboration tools** into class plans, educators may establish a **dynamic and engaging environment**. Furthermore, providing students with options in their learning trajectories and project subjects cultivates a sense of **autonomy**, enabling them to assume **responsibility** for their education. This combination of captivating content and individual **autonomy** not only enhances **motivation** but also fosters a **deeper connection** to the subject matter being examined.

Examples of virtual collaboration tools include:

- a. **Miro** – a collaborative online whiteboard platform that allows users to brainstorm, plan, and organize visually. A visual tool that aids in brainstorming sessions, collaborative projects, and interactive lessons, allowing students to collaborate and plan projects, research, and events.



b. **Padlet** - a digital canvas tool that allows users to create boards for various types of content, such as text, images, links, and videos. Padlets serve as discussion boards, project showcases, and collaborative learning tools for students to share ideas, resources, and media, facilitating collaborative learning activities.



**padlet**

c. **Slack** - a messaging platform that enables team communication through channels, direct messages, and file sharing. Slack enables organized class communication, real-time group project sharing, and seamless integration with educational tools like Google Drive and Dropbox for seamless access to resources.



d. **Klaxoon** - a collaborative tool designed to create interactive workshops and meetings. Klaxoon is ideal for brainstorming, surveys, quizzes, and polls, providing real-time interaction for feedback and contributions.



### 3.3.3. Training and Support

Lastly, but arguably **most important**, motivating students to embrace technology requires a **robust framework of training and support**. By ensuring that students have access to **reliable technical support** for the digital platforms they engage with, we can alleviate frustrations and **empower** them to explore new tools **confidently**.



Additionally, **fostering a culture of peer learning** enhances this experience; encouraging students to assist one another not only **builds collaborative skills** but also **deepens their understanding of the technology**. Together, these approaches create an environment where students feel **supported and motivated** to leverage technology to enhance their learning.

Before an educator should consider how to train and upskill their students on the use of digital technology, they first need to **assess their own skillset** and identify **areas for improvement and up-skilling**.



Educators can utilize **online digital skills assessment tools** such as those housed on [www.digitaled.ie](http://www.digitaled.ie), where educators and students can engage with the **Digital Discovery Tool** to assess their digital skills.

The tool facilitates a **self-assessment of digital capabilities** to evaluate your digital skills level in a straightforward and engaging manner, identify your **strengths and weaknesses** and receive **tailored recommendations** for suitable training and courses. The assessment takes approximately 20 minutes, after which a summary evaluation of your skill level is provided.





## 4. Digital Communication Tools in Education

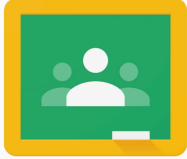



**Digital communication tools** have become **essential** in **modern education**, transforming how educators interact with students, organize lessons, and facilitate learning.

As educational needs evolve, so do the platforms that support them, with a growing array of tools designed for specific purposes like **classroom management**, **interactive lessons**, **collaborative projects**, and **assessments**. Selecting the right **digital tool** is crucial for maximizing **engagement**, improving **accessibility**, and enhancing the **educational experience**.




Tables highlight some of the most effective **digital communication tools**, organized by educational purpose. From **real-time video conferencing** for **virtual classes** to **collaborative platforms** that support **student teamwork**, each tool has **unique features** that can enhance specific aspects of **teaching** and **learning**. This can help educators identify and integrate tools that best align with their **goals**, creating a **dynamic** and **supportive learning environment**.

# Online Classroom Management




| Digital Communication Tool  | Description  | Example of Use  |
|---|--|---|
|  <p>Google Classroom</p> | Organizes assignments, materials, and announcements; integrates with G Suite                       | Assigning homework, sharing announcements   |
|  <p>Microsoft Teams</p> | Combines chat, video, and collaborative workspaces with assignments and grading                    | Managing class discussions, team projects, file sharing   |
|  <p>moodle</p>         | An open-source LMS for course management, grading, and student engagement.                         | Hosting online courses, tracking progress, managing assignments   |
|  <p>Blackboard®</p>     | A highly customizable online learning application that allows users to take or host online courses | Offers live interactions with assignments, video conferencing, discussion groups, tests, and more in Blackboard Learn |



# Interactive Lessons




| Digital Communication Tool  | Description   | Example of Use   |
|---|---|--|
|     | Allows teachers to create interactive presentations with quizzes and multimedia | Real-time quizzes during lessons, live polling   |
|   | Game-based learning platform for quizzes and interactive assessments            | Review sessions with competitive quizzes   |
|  | Interactive add-on for Google Slides to engage students during presentations    | Add questions, polls, and drawing prompts directly onto their slides, inviting students to respond in real time  |
|   | Allows educators to create interactive websites tailored for e-learning         | Integrate multimedia components like videos and interactive quizzes, making lessons more engaging and accessible |

# Video Conferencing for Real-Time Classes

| Digital Communication Tool  | Description   | Example of Use  |
|---|---|---|
|              | Video conferencing with screen sharing, breakout rooms, and reactions                             | Hosting live classes, group discussions                             |
|  Google Meet | Video conferencing with G Suite integration for seamless online classes.                          | Hosting regular virtual classroom sessions                          |
|            | Combines video calls with collaboration tools; works well for team teaching and breakout sessions | Hosting virtual group projects or classroom sessions, team teaching |






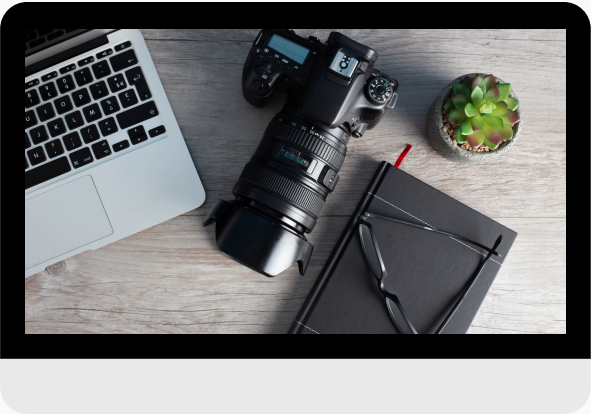
# Student Collaboration

| Digital Communication Tool   | Description  | Example of Use                                  |
|--|--|---|
|   | Digital bulletin board for real-time collaboration and sharing of ideas  | Brainstorming sessions, class resource sharing. |
|  | Communication and collaboration tool with channels and messaging         | Group projects, ongoing class discussions.      |
|  | Project management tool using boards, lists, and cards to organize tasks | Organizing long-term group projects.            |






# Content Creation & Presentation

| Digital Communication Tool  | Description   | Example of Use                                |
|---|---|---|
|     | Graphic design tool with templates for presentations, infographics, and posters | Student projects, visual assignments.         |
|    | Interactive presentation platform with zoom-in features for storytelling        | Dynamic, interactive student presentations.   |
|  | Video discussion platform where students create video responses                 | Video reflections, peer feedback assignments. |










# Formative Assessment



| Digital Communication Tool  | Description   | Example of Use                                 |
|---|---|--|
|     | Flashcard-based learning for review and self-assessment.  | Vocabulary review, self-paced quizzes.         |
|   | Formative assessment tool with quizzes, exit tickets, and instant feedback.                         | Real-time knowledge checks, exit tickets.      |
|  | Video platform that allows teachers to embed questions within videos for engagement and assessment. | Video-based assignments with embedded quizzes. |



# Classroom Communication

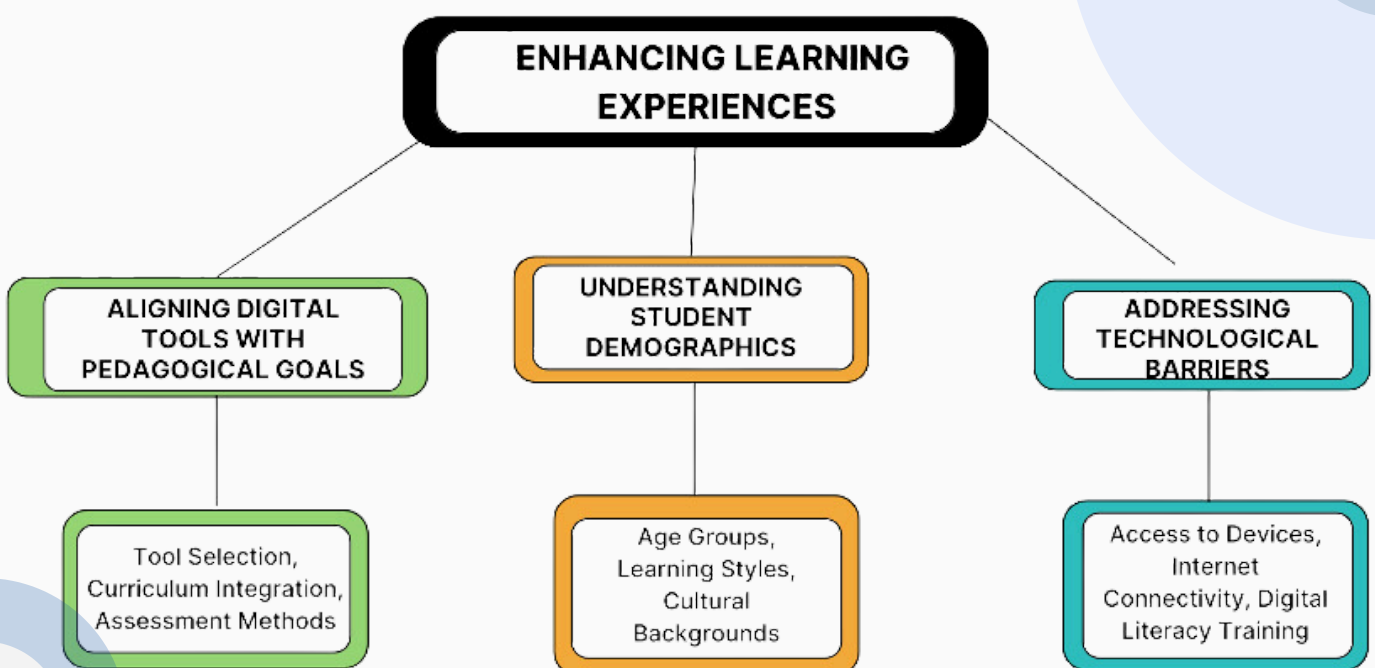
| Digital Communication Tool  | Description   | Example of Use                                  |
|---|---|---|
|  <b>remind</b>      | Communication platform for messaging students and parents   | Sending announcements, reminders                |
|  <b>ClassDojo</b> | Communication tool with behaviour tracking and messaging for parents and students                   | Teacher-parent communication, behaviour updates |
|  <b>OneNote</b>  | Digital notebook allowing teachers and students to share notes, track tasks, and organize resources | Note sharing, collaborative brainstorming       |
|  <b>Edmodo</b>   | Social learning network for discussions, polls, and assignment sharing                              | Class discussions, peer feedback on assignments |
|  <b>Discord</b>   | Voice and text chat platform with servers and channels for community interaction                    | Group discussions, virtual study groups         |

# File Sharing & Collaboration

| Digital Communication Tool   | Description  | Example of Use                                     |
|--|--|--|
|  Google Drive | Cloud storage with real-time document collaboration in Google Docs, Sheets, and Slides | Sharing class materials, collaborative assignments |
|  Dropbox    | Cloud storage and file sharing platform, supporting real-time collaboration            | Large file sharing, document storage               |



The integration of **digital communication tools** in education has unlocked numerous opportunities for enhancing learning while also presenting **unique challenges**. Each category of these tools serves a **distinct purpose**, providing educators with **versatile options** to meet the varied needs of students. However, for effective use, educators must carefully consider their **pedagogical goals**, **student demographics**, and **potential technological barriers**.



Each of these factors plays a crucial role in determining how well these tools support **learning outcomes** and enhance **student engagement**.



## Pedagogical Goals and Tool Selection:

- Pedagogical goals should guide the selection of digital tools, ensuring they align with specific learning objectives.
- Tools should add real educational value:
  - For developing critical thinking, tools like **Socrative** (quizzes) or **Flip** (video responses) are ideal.
  - For fostering collaboration, platforms like **Padlet** or **Trello** support real-time group work.
- Clear educational purposes help avoid using technology as a distraction instead of a learning enhancement.

## Student Demographics:

- Consider factors such as age, learning preferences, and technical familiarity when selecting tools.
- Younger students may benefit from simple, interactive tools:
  - **ClassDojo** or **Kahoot!** provide quick feedback and visual engagement.
- Older students may prefer more sophisticated platforms for structured, self-managed collaboration:
  - **Slack** or **Trello** are effective for this age group.
- Tools should also cater to different learning styles (visual, auditory, kinesthetic) to engage all students.

## Technological Barriers:

- Consider technological factors like internet access, device availability, and digital literacy.
- In areas with limited connectivity:
  - Synchronous tools like **Zoom** or **Google Meet** may be challenging.
  - Asynchronous tools, such as **Google Classroom** or **Microsoft Teams**, are better suited, allowing offline access to materials and tasks.

Providing training and selecting user-friendly platforms ensures accessibility for students and teachers with limited tech experience, making digital learning more inclusive.



While **digital communication tools** can significantly enrich education, their **successful integration** requires **careful selection**, **thoughtful planning**, and **continuous evaluation**. Educators need to consider the pedagogical value of each tool, provide necessary **training**, and adapt to students' **evolving digital skills**. When thoughtfully implemented, digital tools can **transform educational experiences**, creating **interactive**, **accessible**, and **inclusive** learning environments that benefit students and teachers alike.







## 5. Digital Content Creation Tools



The COVID-19 pandemic has further accelerated the existing trend towards **online and hybrid learning**. In today's digital age, using **interactive media** is essential in education. These tools allow teachers and trainers to develop lessons that are **informative** and **engaging** for learners.



By incorporating various **digital interactive content**, educators can design activities that **capture learners' attention** and encourage **active participation**. This module will explore the principles of creating **teaching materials**, developing **multimedia content**, ensuring **compliance** with **copyrights and licenses**, and provide examples and case studies of sustainable food practices.



## 5.1 Principles of Creating Interactive Teaching Materials

One important factor that can influence the **success of learning** is the use of **effective learning media**. Research shows that using **interactive multimedia learning materials**, which are created with specialized programs, can significantly improve the teaching of listening skills. For instance, a study indicates that interactive multimedia tools designed for listening practice engage students more actively and make the learning experience more enjoyable.

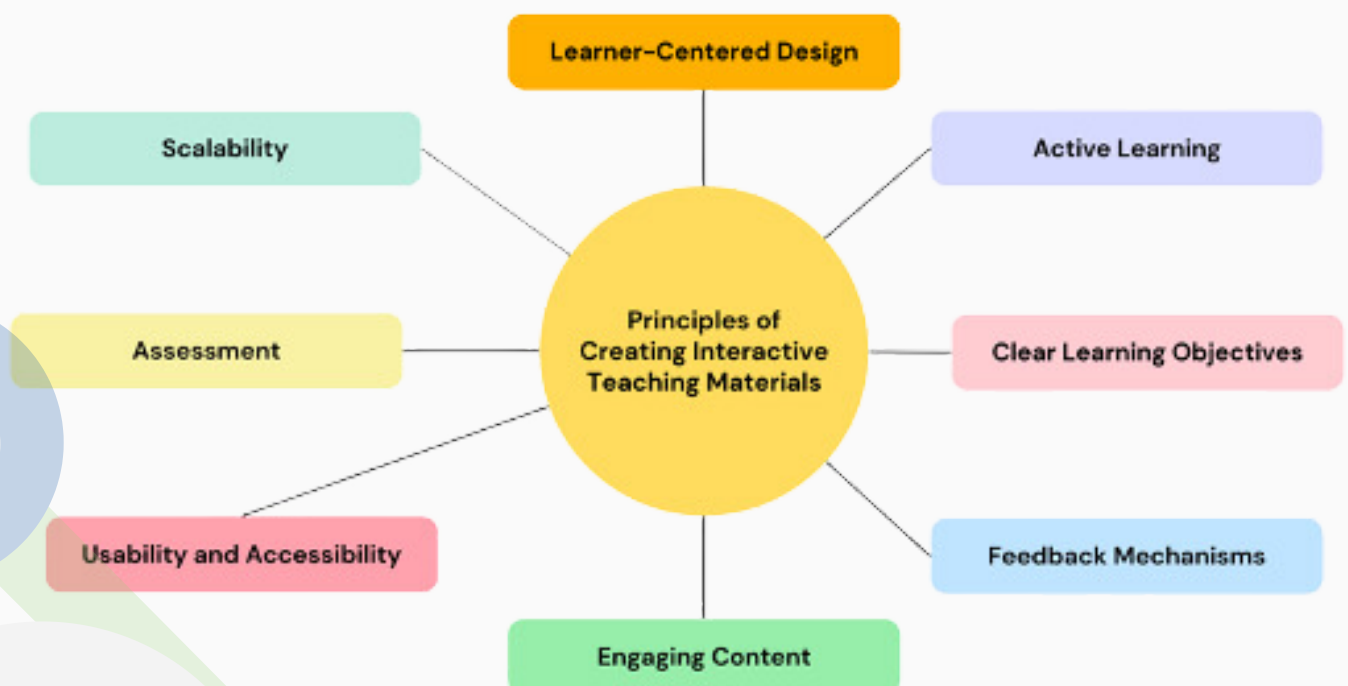
When creating **interactive teaching materials**, it's crucial to focus on how they can support the learning objectives. For example, using **videos**, **quizzes**, and **interactive exercises** can help students understand concepts better and retain information longer. Additionally, these materials can be tailored to meet the needs of different learners, making the lessons more inclusive.



There are six key phases in creating interactive teaching materials:

- (1) **choice of subject**, where educators select the topic
- (2) **information and material collection**, involving gathering relevant resources
- (3) **material selection**, where the best materials aligned with learning objectives are chosen
- (4) **content selection and systematisation**, organizing the content logically
- (5) **appropriate design and selection**, ensuring materials are visually appealing and user-friendly and
- (6) **embedding of interactive elements**, incorporating features like quizzes and simulations to enhance student engagement.

Some important principles of creating interactive teaching materials are:



## Principles of creating interactive teaching materials:

1. **Learned-Centred Design:** Focus on the needs, preferences and learning styles of the students.
2. **Active Learning:** Encourage students to actively engage with the content - e.g. through interactive quizzes, simulations, and group discussions that help them participate and apply what they learn.
3. **Clear Learning Objectives:** Define what learners should achieve by the end of the lesson, and design materials to meet these objectives.
4. **Feedback Mechanisms:** Provide instant feedback on learner performance to reinforce learning.
5. **Engaging Content:** Use multimedia elements like videos, audio, animations and graphics to keep the students engaged.
6. **Usability and Accessibility:** Ensure that the materials are easy to navigate and accessible to all students, including with disabilities.
7. **Assessment:** Include opportunities for learners to assess their understanding on what they have learned.
8. **Scalability:** Design materials that can be easily updated for different contents or larger groups of learners.
9. **Consistency:** Maintain a consistent design, language, and structure throughout to avoid confusing learners.



## 5.2 Creating Multimedia Content

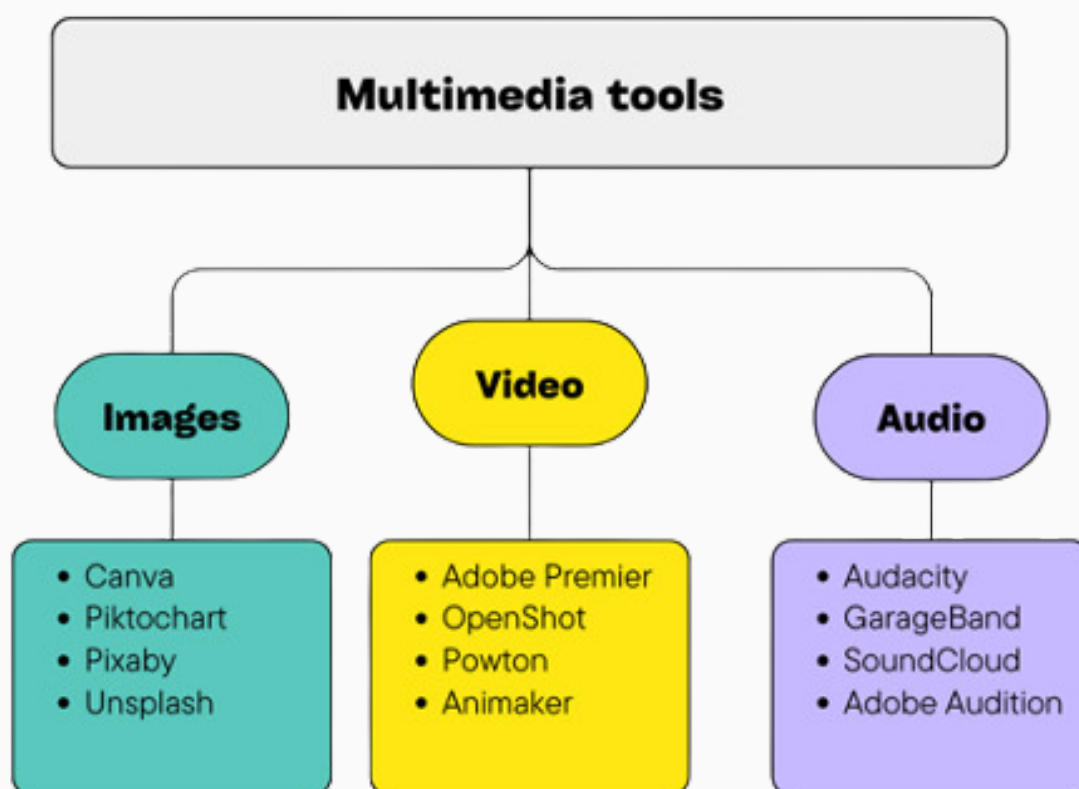
**Multimedia content** combines various forms of media, including **text, images, audio, video, and interactive elements**, enabling users to **navigate, interact, create, and communicate**. One effective way to **increase motivation** in using multimedia is by offering **engaging activities** that encourage participation. By incorporating digital media into education, students can learn more effectively because they use **more senses simultaneously**. This process leads to **deeper understanding, improved retention, and enhanced knowledge**.

**Interactive multimedia** can include a variety of interactive features that enhance the learning experience. Examples of these features are **page navigation tools, buttons or links for easy access, animation controls** to view content dynamically, and **feedback systems** that help students understand their progress. Other interactive elements can include drag-and-drop activities, simulation controls that mimic real-world scenarios, and game mechanics that make learning fun.



**Multimedia tools** offer significant **benefits** for **teaching and learning**. A study has shown that learners who use a combination of pictures and words tend to achieve better outcomes than those who rely solely on words. These tools allow for the efficient presentation of large volumes of information in a short amount of time and with minimal effort. They also enhance students' learning by stimulating interest in the process. Additionally, they provide teachers with **valuable insights** into their students' **understanding** and **progress**.

The figure presents tools for creating multimedia content, categorized into three areas: images, video, and audio.



## 5.3. Compliance with Copyrights and Licenses

When creating and using **digital content**, it is essential to respect property rights. Digital content licensing is an agreement between content creators and educators that grants permission to use digital learning materials for instructional purposes. This includes **legal rights** to use copyrighted materials, **guidelines for their use**, duration of use, and associated costs.

There are several types of **licenses** to consider:

### 1. Creative Common (CC) Licenses:

- **CC BY**: Allows use and modification of the original work, including for commercial purposes, as long as the creator is credited.
- **CC BY-SA**: Permits use and modification of the original work for both commercial and non-commercial purposes, with the requirement that new works are licensed the same way.
- **CC BY-NC**: Allows use and modification of the original work only for non-commercial purposes, with proper credit to the creator.
- **CC BY-ND**: Permits use of the original work for any purpose but does not allow modifications. The work must be shared unchanged, and the creator should be credited.



2. **Proprietary Licenses**: This type of license restricts the use, modification and distribution of a work. It is typically owned by an individual or organization that retains control over the content. Users must obtain permission, often through subscription plans.

3. **Fair Use**: Is a legal guideline that allows limited use of copyrighted materials without permission under certain conditions. In educational settings, fair use often applies when the use is for non-commercial purposes, involves a small portion of the work, or does not negatively impact the market value of the original work. For instance, a teacher might photocopy a chapter from a book for a classroom discussion.

4. **Open Educational Resources (OER)**: OER are educational materials that are freely available for use, modification, and sharing. They are released under open licenses that allow users to use the materials without restriction, modify the content to meet specific educational needs, and share the modified materials with others.

To ensure compliance with copyright and licensing, it is important to provide appropriate credit to the original creators when using their work. Additionally, maintain records of the licenses for any materials incorporated into coursework or presentations. Whenever possible, prioritize the use of educational materials, which are designed for such purposes.

| License Type | Cost | Modification Allowed | Commercial Use |
|--------------|------|----------------------|----------------|
| CC BY        | Free | Yes                  | Yes            |
| CC BY-SA     | Free | Yes                  | Yes            |
| CC BY-NC     | Free | Yes                  | No             |
| CC BY-ND     | Free | No                   | Yes            |
| Proprietary  | Paid | Limited/No           | Varies         |
| OER          | Free | Yes                  | Yes            |



## 5.4 Examples/Case studies of Food Sustainable Practices

The **sustainable development** of **food and agriculture** is connected to nearly every aspect of human society, addressing **environmental, social, and economic challenges**. In Europe and beyond, various **innovative approaches** are being adopted to foster sustainability in food systems. Here are some examples and case studies that illustrate successful sustainable food practices:

- **Green Belt Movement**

The Green Belt Movement in Kenya focuses on reforestation, women's empowerment and community development. By encouraging local communities, particularly women, to plant trees, the movement has successfully planted over 51 million trees. This effort has led to improved soil fertility, reduced erosion, and a sustainable source of income for many families.



- **Too Good to Go**

Too Good to Go is an innovative app based in Denmark that addresses food waste by connecting consumers with restaurants, cafes, and grocery stores that have surplus food. Users can purchase these surplus items at reduced prices, which helps prevent food from being thrown away. Since its launch, the app has expanded to numerous countries, raising awareness about



- **Local Harvest CSA**

Local Harvest CSA (Community Supported Agriculture) creates a direct link between consumers and local farmers. By offering subscriptions for seasonal produce, consumers gain access to fresh, local food while supporting sustainable agricultural practices. This model reduces the carbon footprint associated with transportation and packaging and promotes biodiversity.



**LocalHarvest**  
*real food, real farmers, real community*

- **AeroFarms**

AeroFarms is a sustainable indoor agriculture, utilizing aeroponic systems to grow leafy greens and herbs in a controlled environment. This farming technique uses 95% less water than traditional methods and doesn't require pesticides, which reduces chemical runoff and supports healthier produce.



- **Biobag**

Biobag produces biodegradable bags for food waste collection, promoting composting and reducing plastic waste. Their products support sustainable waste management in households and businesses, encouraging users to separate organic waste.



These examples outlined above illustrate the diverse and innovative approaches to sustainable food practices being adopted around the globe. As more people become aware of food sustainability, these models can inspire others to work towards a more sustainable future.



## 6. Summary

## 6.1 Overview of Key Digital Competencies

This booklet explores the central themes of digital competencies and their indispensable role in education and professional development. It delves into **essential frameworks, methods, and tools** that empower individuals to excel in an increasingly digital society.

An overview of key digital competencies underscores their importance as **foundational skills** for engaging with technology effectively and responsibly. Frameworks such as the **European Commission's DigCompEdu** outline six key areas, including **professional engagement, digital resources, teaching and learning, assessment, empowering learners, and facilitating digital competence development** among students. These competencies go beyond technical proficiency, incorporating **critical thinking, ethical practices**, and the ability to **adapt to emerging digital tools and platforms**. For educators, mastering these competencies is crucial to fostering engaging, inclusive, and future-ready classrooms.







To support **self-improvement**, the booklet highlights an array of valuable sources and resources. Frameworks like **DigCompEdu** and **UNESCO's ICT Competency Framework for Teachers** provide structured approaches to developing **digital skills**. Digital tools such as **Zoom**, **Google Classroom**, and **Canva** offer practical solutions for **communication, collaboration, and content creation**.

Online learning platforms, including **DigitalEd.ie**, deliver access to **training programs, assessments, and curated materials** designed to address specific needs in digital education.



**Open Educational Resources (OER)** expand opportunities for learning by providing free, adaptable teaching and learning materials that cater to diverse educational goals.

Through this exploration of digital competencies, their applications, and the resources available for ongoing growth, this booklet provides readers with the tools and understanding necessary to succeed in a digitally interconnected world. By adopting these competencies and resources, educators and professionals alike can continue to grow, innovate, and inspire within their respective fields.

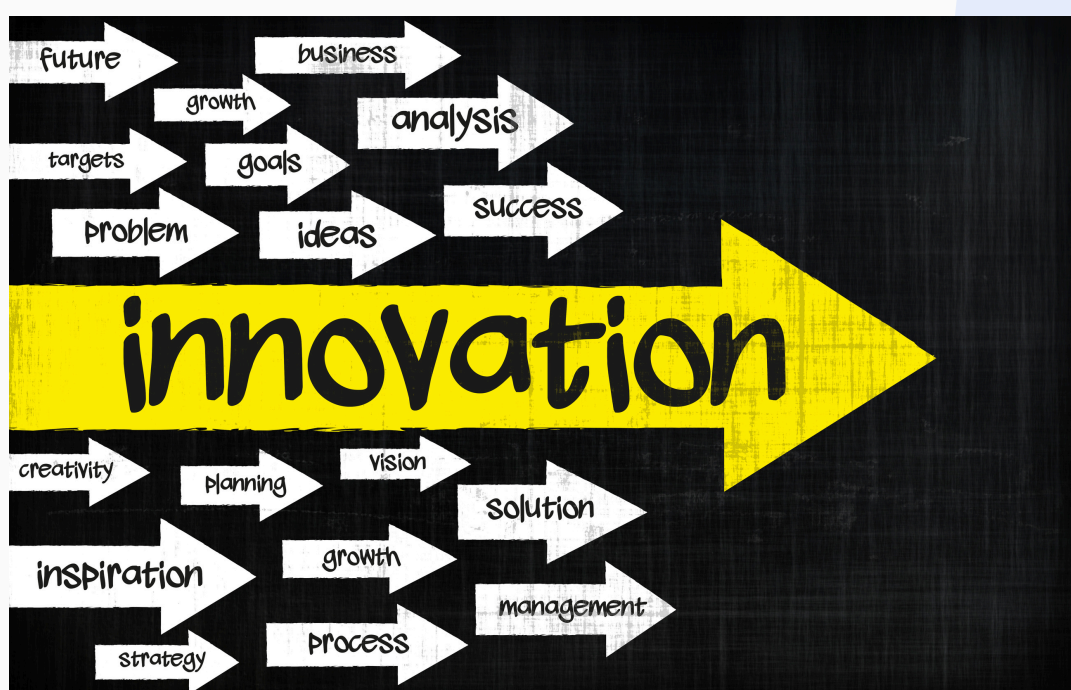
## 6.2 Tips for Further Professional Development in Digital Competency

To effectively develop **digital competencies**, educators must adopt a **proactive** and **strategic approach** that prioritizes **continuous learning** and **adaptation**. Regular engagement with **training programs**, **webinars**, and **workshops** is essential to stay informed about emerging digital tools and teaching methodologies. Platforms such as **DigitalEd.ie** offer flexible, **self-paced courses** tailored to the unique needs of educators.

Building connections within **professional networks** is another key aspect of professional growth. Joining **online communities** and forums, such as LinkedIn groups or educational organizations like ISTE, enables educators to share **best practices**, gain new insights, and **collaborate** with peers. Additionally, **digital skills assessment tools**, such as the Digital Discovery Tool, can help educators identify their **strengths** and pinpoint **areas for improvement**, guiding their learning journey.



Embracing innovative teaching practices, such as **gamification**, **flipped classrooms**, and **blended learning**, not only enriches the learning experience for students but also enhances educators' own digital competencies. Familiarity with established frameworks, including **DigCompEdu** and **UNESCO ICT Competency Frameworks**, ensures alignment with recognized standards and provides structured guidance for **skill development**.



**Collaboration with colleagues** is another effective strategy, fostering a culture of shared learning through co-creation and exchange of **digital resources**. By staying actively engaged in professional development activities and integrating **technology into everyday practice**, educators can continually refine their skills and remain at the forefront of **modern education**.



## 6.3 Sources and Resources for Self-Improvement



Numerous resources are available to support educators in their pursuit of **digital competence**. Frameworks such as **DigCompEdu** and **UNESCO's ICT Competency Framework for Teachers** provide comprehensive guidance on developing and enhancing **digital skills**.

These frameworks emphasize essential areas like **professional engagement**, **digital resource management**, and the **integration of technology into teaching and learning**.

Online learning platforms, such as **DigitalEd.ie**, **Coursera**, and **edX**, offer extensive training opportunities, including **digital skills assessments** and courses focused on **integrating technology into educational practices**. These platforms provide practical tools and resources tailored to diverse needs, enabling educators to enhance their expertise at their own pace.



Digital tools like **Zoom**, **Microsoft Teams**, **Canva**, and **EdPuzzle** facilitate **communication**, **collaboration**, and **content creation**, while platforms such as **Google Classroom** and **Padlet** foster **dynamic** and **interactive learning environments**.

**Open Educational Resources (OER)** repositories, such as OER Commons, further enrich the range of available materials, offering **free** and **adaptable teaching content** designed to support **diverse educational goals**.

Educators can also draw inspiration from **blogs**, **podcasts**, and **tutorials** created by **educational technology experts**, which explore the latest advancements and **best practices** in integrating technology into the classroom. By actively engaging with these sources and resources, educators can continuously expand their **skills** and **knowledge**, ensuring they remain effective and innovative in an increasingly digital world.



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[f\\_Technologies\\_Available](https://www.researchgate.net/publication/236170564_The_Re-use_and_Adaptation_of_Open_Educational_Resources_OER_An_Exploration_o)

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