

Digital Readiness

of Vocational Educational

Institutions

in an Inclusive Environment

PR2: Handbook

Chapter 3

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Abbreviations

* AT: Assistive Technology
* CV: Curriculum Vitae
* ETCF: ENTELIS+ Trainers Competence Framework
* EU: European Union
* ICT: Information and Communication Technology
* NGO: Non-Governmental Organization
* VET: Vocational Education and Training
* ECEC: Early Childhood Education and Care
* AI: Artificial Intelligence

# Guidelines for going digital

## Introduction

The outbreak of the COVID-19 pandemic made once more evident how technologies play a fundamental role in our lives and how access to digital technologies and the development of digital skills and abilities are relevant to increasingly ensure participation of all in all spheres of life. The COVID-19 pandemic has not only highlighted the need and accelerated the processes of integrating technologies into people’s lives, but it has also emphasized existing inequalities between people due to the digital divide, the lack of infrastructures and the lack of available or adequate technologies. This is especially true when it comes to people that were not used to using the internet and technologies in general, among which many persons with disabilities. Indeed, digital technology can become another factor for exclusion and exacerbate inequalities.

This was one of the impacts experienced during the Covid-19 pandemic where educational settings, families and individual learners with limited technology resources and support were practically excluded from education during the shift to remote learning. Many schools experienced difficulties in having to move the teaching and learning online, with those that had invested in digital education before the pandemic resulting being more successful. In particular VET institutions encountered significant difficulties in delivering practical training, due to health and safety regulations. However, new technologies can support the provision of practical training outside of workplaces.

In this chapter we will explore the dynamic and double-sided link that exists between digital technologies and inclusive practices in schools. On the one hand digital technologies can foster inclusive education and on the other hand digital education should take into account the challenges of all learners to be fully inclusive.

The DIG-i-READY Guidelines for “going digital” aim to provide core concepts at the basis of successful digital inclusive education and that are illustrated with practical suggestions. The indicators for good, sustainable, accessible, well-balanced and inclusive digital education in a school/home environment including ethical aspects of digital learning, developed in chapter 2, have been taken into account. The chapter is further based on an attentive reading of significant documents that can be found in the section “for further reading”.

Following an introduction on the relationship between digital technology and inclusive education, the guidelines address in three practical sections the following topics:

● the process of “going digital”

● the development of learning programmes based on digital technologies

● accessibility as a method

## Inclusive education & digital technologies

Inclusive education is a fundamental human right. Persons with disabilities of all ages have an equal right to learn in an inclusive environment as determined by numerous policies and legislations.

Access to equal and quality education opportunities is a matter of all ages and all levels of education, starting from the onset of Early Childhood Education and Care. The European Commission identifies inclusiveness as one of its five quality factors (European Commission, 2014[[1]](#footnote-1)).

Inclusive education considers all learners in a classroom and the objective of an inclusive learning program is to provide options for participation in the learning process for all learners, taking into account differences in conditions and learning styles. Choices should be available to everyone, and individual support should be provided in ways that do not stigmatize, while it should be available to anyone at any time. This leads to an approach based on the principles of flexibility, adaptability, reasonable accommodations for all, respect to everyone’s individuality and provisions of options for equal opportunities in participation and engagement.

To achieve all this in practice, it is necessary to design inclusive learning experiences right from the beginning and not simply make adjustments to existing processes and infrastructures. The objective is to design instructional goals, assessments, methods, and materials that can be customized and adjusted to meet individual needs, but be available to everyone, as indicated by the approach of the Universal Design for Learning (UDL). The 3 main pillars of this approach are:

1. Engagement: (the ‘why’ of learning), which refers to providing options for motivating and maintaining learners’ interest and effort in the learning process;
2. Representation: (the ‘what’ of learning), which refers to providing options of different means of presenting content and information;
3. Action and expression: (the ‘how’ of learning), which refers to providing options for various means of participation and learners’ interaction in the learning process[[2]](#footnote-2).

Nowadays the availability of different digital technologies and AI represents an element that provides new opportunities and possibilities for designing and delivering learning programmes and managing learning processes. It does so even more in the framework of inclusive education. A condition is that emphasis is put on the enhancement of digital skills of both educators and learners with disabilities and on the accessibility of the technologies used.

Also, the Digital Education Action Plan of the European Commission[[3]](#footnote-3) places particular emphasis on the importance of making digital learning inclusive, while recognizing that effective use of digital technologies can provide learning that is more personalized, interactive and tailored to the needs of the learner.

To move in this direction, however, it is important to take into account that not only digital skills have to be improved, but also the attitude towards the use of technology and ***inclusive digital education needs to be changed***: “*Inclusive education involves changes in attitudes, behaviour and ways of working, and has the potential to make an effective starting point to address the rights of learners in a range of cultures and contexts*” (Moodley, 2022[[4]](#footnote-4)).

### A new digital approach for a more inclusive setting

Inclusive Education is a process to increase participation of all learners in every aspect of education.

Participation implies accessibility. When it comes to the digital world, accessibility can be defined as all individuals being able to use Information Communication Technology (ICT) systems, hardware, software, and tools, perform services and understand content. However, accessibility will not always mean that all the learners will have the same experience, but it does mean that all learners have access to equivalent information. In addition, the use of assistive and digital technologies is not independent from accessibility. To be able to use AT tools we need an accessible digital environment.

Accessibility and universal design do not refer to a particular group of users and population but to all of us. Everyone in our daily life faces different challenges and needs various accommodations and variations in his environment, interactions and communication. As such we need flexibility and not settings that are developed under the concept of 'on size fit all'.

The European Agency for Development of Disability Education stated that “In today's knowledge society, access to appropriate new technologies must be seen as a human rights issue. …New technologies are recognised as integral to many aspects of citizens’ lives and their importance as a tool to promote broader social inclusion should be emphasized”. ICT offers myriad opportunities for communicating, accessing and distributing knowledge, creating content and collaborative learning. When technologies are appropriately used by digitally literate and ICT-trained educators and **embedded into curriculum design** (learning goal based), it is expected to support the development of innovative teaching practices, improve teaching instruction and enhance and enrich learning experiences creating an inclusive learning environment. Information and Communication Technology (ICT) should thus become integral to the teaching-learning interaction. Properly integrating ICT-AT into inclusive education can help to remove functional and societal barriers for learners with disabilities, provide them with learning opportunities and create a level playing field to realize their varying abilities by giving everyone the necessary support and an equally accessible learning environment[[5]](#footnote-5). Even if there are still specific digital technologies developed for users with disabilities (e.g. software/app), today it is more and more difficult to distinguish between ICT and AT. In fact, tablets and smartphones increasingly substitute assistive technologies, and some “accessible accessories” are already available in the most common operating systems as Microsoft or Apple (e.g. customized mouse, keyboard inputs, and shortcuts). As a consequence, educators should be able to recognize and use ICT-AT to ensure the development of inclusive classroom activities.

Nowadays, this inclusion process is supported and facilitated by digitalization. Indeed, the digital world is strongly moving forward also to the centre of learning and teaching. Where there were once only textbooks and printed resources, and learning was relatively local, the world today seems to be at our fingertips[[6]](#footnote-6). Educators are thus in the position to help young people gain the competences they need to access unparalleled learning opportunities. To achieve this the **learning approach should move towards more flexible and interactive programmes**. Furthermore, Educators have to change their role in the learning process from persons who explain the study information to persons who rule and manage the independent finding/reaching this study information among the multitude of sources and to assess it as useful. Digital transformation and inclusive education should be considered as interconnected, as both contribute to the development of a more accessible educational system.

During COVID-19 educational settings were strongly affected and educators faced the challenges of finding other ways to continue with their programmes. Evidence shows that the responses were not homogenous. Some of them accepted the challenge and tried to find out new instruments, tools, and methods for giving the learners the possibility to continue their learning process, others simply used online communication tools (such as Zoom or Meet) to get connected with the learners without changing their learning approaches, other weren’t even able to get connected with the learners and this caused an interruption on the learning processes. Schools and Vocational Educational institutes that had invested in digital education before the pandemic resulted in being more successful than those who did not.

The European Commission’s Digital Education Action Plan 2021–2027, adopted in late 2020, prioritizes education and training for the digital age (European Commission, 2020b). It aims to address the challenges brought by the COVID-19 crisis and on-going digital transformations in education (European Distance and E-Learning Network, 2020).

### Barriers and gaps

Despite the COVID-19 crisis has in a certain way accelerated the adoption of technologies in education, major obstacles remain. Many barriers must be overcome for different individuals and groups to access and use digital technologies and there are a variety of frameworks that map these barriers in different ways. Especially when it comes to the disability, long-term physical, mental, intellectual, or sensory impairments in interaction with various barriers may hinder persons with disabilities full and effective participation. From this perspective, since it is the environment that, in interaction with personal factors may cause the disability, it is important to remove or reduce the impact of the barriers to activities and participation.

There are many barriers that need to be overcome to assure full inclusion and participation, especially when we are dealing with persons with disabilities and educational contexts. In the white paper produced by the ENTELIS project network, a list of barriers to and opportunities for the technology enabled full digital inclusion were identified[[7]](#footnote-7).

In the Framework of inclusive digital education and the topics addressed by the DIG-i-READY project the most critical barriers are identified as follows:

#### Connectivity (access to internet)

Besides digital skills and competences of trainers and training, it is important to pay attention to the access to and the use of the Internet, which is a crucial condition for the implementation of on-line training activities.

During Covid-19, most courses shifted to virtual, requiring internet connection. But even individuals who may be considered connected have had problems, demonstrating the gap between being online and having meaningful connectivity, especially in the area not covered by service providers that offer fixed broadband internet to households or low-income families without a fixed internet connection. As a result, learners had to attend online classes via their smartphone’s mobile network, making it difficult to ensure a stable connection or a connection with enough quality and speed to carry live streaming. Learners who took online classes on their smartphones had to pay a high price to stay connected. Attending online classes uses more bandwidth than browsing websites or sending SMS messages since they transmit live audio and video. This can add extra financial pressure amid the pandemic or even in a normal daily situation.

#### Skills and competences

Nowadays almost all people use a smartphone or a pc, but other is to have the needed digital literacy and knowledge of the specific instrument to support other persons, especially persons with disabilities, to safe and responsible use of the technologies and to develop accessible learning programs/activities enhanced by using digital technologies. The limited competences of supporters and learners is one of the most crucial gaps hindering the proficient use of digital technologies and the systemic change of the education and vocational system to provide meaningful and high-quality education and training opportunities for all learners. In this regard, it is recommended to ensure the necessary digital competence of persons supporting persons with disabilities.

#### Interaction perceived

Many studies that investigate the difficulties faced during the pandemic period by learners of all levels, revealed that one of the most significant barriers to online learning was a perceived lack of social interaction. This can be mitigated partly by trainers' familiarity with virtual group dynamics and their ability to create dynamic, challenging, and varied learning tasks that involve both individual and group work.

#### Sustainability and affordability

The use of digital technologies in VET can make the system more accessible and affordable. Concerning the practical training, new technologies such as AI, VR and simulators, can reduce the social gaps between learners, reducing costs related to equipment and risks related to the use of specific materials, requiring additional, and not always available, supervision. Digital solutions produce important benefits in terms of use of materials or supplies, representing a greener cost-effective alternative, during the VET training. Importantly, the use of new technologies can facilitate access to high-quality VET for socially disadvantaged learners, and therefore foster social inclusion and inclusive growth. Even if new technologies can’t replace the in-person training experience, they can provide a complementary option.

#### Awareness

Digital technology is often not perceived as a tool for education but as a tool of entertainment. The usefulness of digital technologies and the opportunities that they can create are often underestimated by educators, trainers and parents. This can generate a certain scepticism that becomes a barrier to their productive and effective use in learning environments. Periodic training activities on digital technologies are needed to keep the trainers updated and aware about the role they can play to enhance the participation and inclusion of all.

## How to facilitate the process of going online (not just with «Zoom»!)

### Access to technologies

Nowadays everyone has access to at least one technological device – a smartphone – and many have two or more (i.e. tablet, pc, smart printers, ect). Despite this, we should not take for granted the possibility to use those devices as educational tools for various reasons: maybe they share the devices with other family members or they do not have internet access or their own devices aren’t at the proper high technological level. The COVID-19 widened the gap between the poorest and highest-income households and this was reflected also in the access to education and training.

Inclusion means to give all the people, including persons with disabilities the possibility to participate. Access to technology, namely access to devices, internet connection and educational platforms, is the first step to allow everybody to remain connected and the basis for the definition of new digital inclusive educational methods. Especially in relation to persons with disabilities it is important to give them the right devices and supporting technologies, the knowledge about the basic functionalities, tools and applications available and information about the main opportunities and risks in using such instruments.

Research evidence indicates that during COVID-19 the loan of devices and training was an important service that allow persons, especially persons with disabilities, to take advantage of the services and participate in the activities offered online. Additionally, these devices may come with the adequate software pre-installed.

Access to an ICT-AT service delivery is another vital element that enhances the inclusiveness of digital education. There are large differences in access to technology between persons with disabilities from different countries, regions, income levels, ages, impairments, cultures and languages and it is important to provide all the information to make aware families and educators about the path to be taken to access services.

### Staff training

Lack of training impacts educators’ general attitudes towards using digital technologies in the classroom. Educators and trainers need specific continuous professional development opportunities on digital competences to enable them to improve the learning paths offered, the inclusiveness of activities, access to resources and the promotion of interaction and collaboration among learners through technologies. Having adequate digital competences means knowing when, how, and why digital tools can be used. Examining their understanding of and experiences with digital tools, but also why they are not always able to use them, is an important first step in assessing the starting point of the educational path that should be initiated.

Digital competencies do not just refer to digital literacy in the technical skills sense - the individual's ability to find, evaluate, and communicate information through typing and other media on various digital platforms - but indeed to “have a confident, critical, and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking.”

Educational and vocational training policies need to structure new learning processes and environments to advance new learning models for the digital age.

Educators and trainers should:

* Acquire basic and periodically update on digital ICT-AT and accessibility competencies and examples of how they can be used in the learning environment.
* Learn How to design accessible online services and lessons, netiquette and social skills while using and communicating through digital means, copyrights and data protection (GDPR).
* Raise their awareness about the different technologies, platforms and accessibility tools that could improve their training programs.
* Acquire new competences, and update the existing one, needed to enhance the digital skills of learners/trainees, with particular attention on persons with disabilities.
* Provide examples of the positive impact that digital assistive technology can help and support individuals with disabilities to assist them to be more independent and build digital skills.

The goal is to combine new technology with a new pedagogy, to develop active classrooms that encourage cooperative interaction, collaborative learning and group work (Traina & Hoogerwerf, 2018). To achieve this goal, educators need systematic support and regular training from experienced digital technology and pedagogy supervisors for a period long enough to be able to use the appropriate tools and materials.

### The support of the governments and social partners

Innovation in school-based VET could be actively promoted and supported by governments and social partners that can facilitate the redesign of curricula and teaching methods. As emerged from the previous “DIG-i-READY Mapping of good practices”, most of the good practices were either initiated by non-governmental organizations (NGOs) or funded by Erasmus+: While nine practices are based on NGO actions, five were funded by Erasmus+. This could indicate that the funding provided by the European Commission was crucial to efforts in the direction of digital inclusive education. This result also shows that NGO internal initiatives played a major role during the pandemic period and pushed digitization especially internally within organizations. In VET schools the collaboration with social partners and industry is even more relevant, as the development of innovative curriculum design based on new technologies, can effectively replace or complement the work-based learning path and provide relevant practical skills.

### Preparation of the environment to guarantee the participation of all

School policies need to provide schools with the minimum acceptable infrastructure for ICT, including stable and affordable internet connectivity and security measures such as filters and site blockers. When bringing ICT into classrooms, policies should use an incremental pathway, establishing infrastructure and bringing in sustainable and easily upgradable ICT with equitable access to these ICT devices for learning for all learners. Therefore, policies need to intentionally bridge the digital divide to bring ICT and digital literacy to all learners, not just those who are easiest to reach.

According to what emerged from SKATE guidelines, “Collaboration and collaborative practices are considered as essential for developing inclusive pedagogies in educational settings (Ainscow & Sandhill, 2010),[[8]](#footnote-8) as well as facilitating educator’s professional learning and practice. Collaboration can assist educators in their decision - making and problem – solving, developing deeper understanding, acquiring new skills, concepts and ideas, and potentially leading to transformative practices (Kennedy, 2014).[[9]](#footnote-9) For learners with disabilities, collaboration amongst all stakeholders (learners/users themselves, educators, support educators/facilitators, ICT-coordinator, educational needs coordinator, technology experts, parents) is integral for building a framework of digital inclusive pedagogies in action, informed by educators’ practice, observations and reflections (Florian, 2014).[[10]](#footnote-10)”

### Using technologies in a responsible, flexible, proficient and collaborative way

New questions on ethical and social concerns are related to digital learning, since online learning platforms include chat, asynchronous podcasts, webinars, and synchronous mode of learning. Issues related to informed consent, privacy protection, and identity need to be considered, as well as psychological safety, social safety, ethical morality and educators’ responsibility. Knowing the risks of communicating personal data concerns one's own safety and reputation online.

### Accessible digital formats

Accessibility of the resources is an enabling factor for inclusive learning and teaching. In order to assure that everyone can access all the content, once you have chosen the tool you will be using to carry out the training, it is important to ensure that the digital materials that will be used during the training are accessible for all learners.

The main principles for creating accessible learning materials, which are in line with the framework of UDL as outlined at the beginning of these guidelines, are the following:

* Creation of accessible contents: using more than one format for better understanding and be sure that all the formats included in the course/lesson are accessible (text, images, video, audio, Word, PowerPoint, pdf).
* Accessibility of the websites and the applications used
* Accessibility of the language (plain language and easy to read)
* Creation of multimodal communication: concept of “Less is more”

## How to structure a learning programme that uses digital solutions

When you want to develop a learning programme that uses technological tools and digital solutions as an integral part while enhancing accessibility and favouring the inclusion and the interaction of all learners, you have to take into consideration various aspects among which: the target group (number of participants, existing abilities and skills, group members at risk of exclusion), level of engagement, the learning contents, learning methods, learning activities, resources available, final assessment of the learned.[[11]](#footnote-11)

### Core aspects to consider

What is essential in the success of ICT-AT supported universally designed inclusive education is the definition of a clear and flexible implementation plan. After the assessment of needs and provision of any ICT-AT on an individual or classroom basis, educators and trainers should design and apply an implementation plan, taking into consideration the learning and interaction context and condition. They should assess the opportunities for participation (i.e. activities to participate in, the content of the activities and the processes within the activity), barriers and provide access by removing them (with (or without) technology). The training should be ensured to all stakeholders involved, identifying time-schedule and milestones and gathering feedback, evaluate (ongoing and at milestones), follow-up, review and revise. Table 1 provides an overview of core aspects to consider when designing a learning programme.

**Table 1 “Me and the Media**: Fostering Social Media Literacy Competences through Interactive Learning Sets for Adults with Disabilities” - “Learning programme for educators supporting adults with disabilities” <https://www.memedia-project.eu/>

|  |  |
| --- | --- |
| **Topic** | **Questions** |
| **Target** | Which kind of disability?  Which are the initial skills?  How many learners? |
| **Facilitator and context** | Who is the facilitator? (school teacher, educator, parent)  In which context are you operating? (school, family, other contexts) |
| **Number of meetings** | How many meetings do you plan to organize? |
| **Timing** | How long the meeting will lasts? |
| **Primary objective** | Which is the primary aim of the meetings? |
| **Secondary objective** | Is there a correlated aim? |
| **Learning contents** | What is the content of each meeting/the series of meetings? |
| **Learning methods** | How you want to work? Which methods do you want to use? (collaborative, to-down or bottom up approach, case studies, role play) |
| **Learning activities** | Which kind of activities would you like to carry out? (group activities, quizzes, creation of tools, etc.?) |
| **Learning resources** | Which are your resources of information? Are there some available tools that you would use with your learners? |
| **Assessment** | How do you assess the acquisition of the competences? (questionnaires, trainers’ observations, ad-hoc tools) Are there some scientific schema or grid you can use? |

### Think multiple!

To ensure the participation of all during online training, it is important to consider multiple means of engagement, representations and action/perception. For this purpose, it is important to present alternative ways to recruit learner interest. Offering learners choice, creating authenticity and relevance to their context and minimizing threats and distractions can develop self-determination, pride in accomplishment, and increase the degree to which they feel connected to their learning. The table below provides examples of how each principle can be effectively addressed with the use of ICT-AT.

|  |  |
| --- | --- |
| Principe | Means |
| **Engagement** | Allow early learners to choose between print or digital resources  Support self-reflection and self-assessment e-portfolios.  Use digital presentations to recruit early learner's interest  Use communication software and tools  Reflect with smileys/ thumbs/colours on paper or digital  Use various software to make digital choices  Provide Assistive Technology for access, communication and learning  Vary the level of sensory stimulation of digital resources. |
| **Representations** | Digital visual representations of the thematic topic  Digital visual organizational cues and images through the lesson activity.  Visuals such as graphs, maps, cartoons, video, and other multimedia to illustrate concepts when possible  Digital forms of readings, graphic organizers, response cards, calculators  Support the development of Project method using tech tools (e.g cameras, tablets) |
| **Action and expression** | Recording/video recording of songs/dance/musical performances  Incorporate digital classroom response tools (clickers or mobile devices)  Allow learners to express their ideas through multiple digital resources  Provide alternate keyboard commands for mouse action  Provide access to alternative pointing devices and switches  Provide access to alternative keyboards.  Customize overlays for touch screens and keyboards. |

### New technologies and practical learning

The practical nature of the learning which characterized the VET education was particularly affected during the Pandemic (OECD, 2021),[[12]](#footnote-12) as many professional sectors have had to close or slow down their operations due to the various blockades. One of the most affected sectors is the hotel, restaurant and catering industry (HORECA). Due to all these closures, thousands of young trainees did not have the opportunity to complete their professional internship. This poses real problems to which new technologies such as simulators, VR and AR, as well as artificial intelligence, can contribute to give a response. These technologies not only give the opportunity to learners to test their competencies on specifical technical tasks, but they provide an environment where learners with disabilities can learn in a safe way. New technologies can be integrated into online learning platforms and in face-to-face settings to develop key competences for learners of all ages. VET educators need strong competencies for developing these programs.

## How to create an accessible digital training

### Creation of accessible contents

The way the content is presented not only determines whether a person with reading and writing difficulties and/or cognitive deficits starts reading or not, but also whether they continue reading and understand the content of the text. You need to be sure that all the formats included in the course/lesson are accessible including text, images, video, audio, PowerPoint, pdf.

The most common productivity application, Microsoft Office (Word, PowerPoint and Excel), include many tools that support you in making more accessible your materials[[13]](#footnote-13).

Below are some tips to make your contents accessible[[14]](#footnote-14).

#### Accessible text

Structure and formatting (An article usually contains: a main heading, a preamble, subheadings, a text body divided into sections and specific formats such as bullet points): structural elements make it possible to create a 'mapping' of the document, so that parts of a document can be found, read and reviewed very quickly.

Font and contrast: the font chosen is less important than contrast, text size and character spacing. However, it is still recommended to use sans serif fonts in a readable size (at least 12p). Another recommendation is also to use a limited number of fonts. Each individual has his or her own preferred font; it is a matter of habit, not just visual ability. A 'new' or unusual font is often perceived as more difficult (or less fast) to read.

Spacing: Greater line spacing between lines and paragraphs allows users to follow the text better from one line to the next and to recognise the end of a paragraph.

#### Accessible images

Images facilitate comprehension of content for many users, increase readability and often also improve the aesthetics of text. Images should have the proper size and contrast. For visually impaired users, images must be described in the form of a textual alternative, the so-called ALT Text.

#### Accessible videos

To make videos accessible, subtitles must be provided for the spoken dialogue. Subtitles can be open (i.e. always visible on the video) or closed (visible on demand). Since they may be distracting to some users, it is recommended to always use closed subtitles (CC). Subtitles should contain information about the person who is speaking and also describe important/significant background sounds. There are different options for subtitles and captions depending on the functionality and the user requirements.[[15]](#footnote-15) These can be adopted accordingly.

Avoid loud background sounds, as they may interfere with the spoken dialogue. Hearing-impaired and cognitively impaired users may lip-read to aid understanding of spoken parts. Where feasible, ensure that the speaker's face is visible and well lighted.

#### Accessible audio

Avoid loud background sounds, as they may interfere with the spoken dialogue. It is usually better to choose between music, background sound or dialogue/speech and try to keep them separate. If the audio is to be accessible to everyone, its content should be transcribed in text form.

#### Accessible Links

Links should be large enough to facilitate selection even for those with mobility difficulties. To simplify the content, it is best to place the links after the text section.

#### Accessibility check

Even when following the main rules that guarantee the accessibility of the learning material, it is a good practice to check and evaluate the accessibility of the documents in order to improve them as much as possible. Microsoft Office has already embedded the Accessibility checker in its applications, otherwise it is possible to use external checkers such as [WAVE](https://wave.webaim.org/).

### Accessibility of the language (plain language and easy to read)

Over the last decades a more flexible language provision evolved, considering the needs of persons with permanently or temporarily limited reading proficiency.

Plain language is a direct style of writing for persons who can read at a reasonable level. It helps persons who want to read and understand information quickly. Instead, “Easy-to-read” or easy reading is a writing style that helps persons who find it hard to read and understand. It is simpler and has a lower reading level than Plain Language.

Easy-to-read refers to the presentation of text in an accessible, easy to understand format. It is often useful for persons with learning disabilities, and may also be beneficial for persons with other conditions affecting how they process information.

There are various different ways in which information can be made easy-to-read, but there is a general consensus that the following rules should be observed:

* Text should be broken down into short sentences.
* Images should be selected to represent each sentence of text where possible.
* Language should be simplified wherever possible, and any necessary complicated words or terms should be explained.
* The terms and abbreviations used should be explained in the beginning in order to be understood correctly.
* Text should always be aligned on the right hand side of the page, and images should be aligned on the left hand side of the page.
* Avoid fancy fonts and italics.
* Design elements should be kept to a minimum to stop them detracting from the information.

Easy read materials are often a lot of longer documents (not in terms of content) than non-easy read materials because of how they are formatted. For this reason, if you are converting a report into an easy read format it can be beneficial to shorten the text into an executive summary, keeping just the key elements that persons need to know. This helps to avoid producing an unmanageably large document.

When producing easy read materials, it is advisable to ask persons who have learning disabilities to support you during the process. This ensures that the resulting publication will be as successful as possible in being understood by the target audience. It takes some skill to create effective “easy to read” text, so it is vital that the materials be tested before they are considered finished.

Depending on the target audience, the “Easy-to-read” style or “Plain language” style might be used. Sometimes a mixture of both styles is most suitable.

Some useful tools can be find here:

|  |  |  |
| --- | --- | --- |
| Name | Link | Description |
| Inclusion Europe Easy to read guidelines | <https://www.inclusion-europe.eu/easy-to-read-standards-guidelines/> | Standards are to help persons make their information easy to read and understand. |
| Easy reading project | <https://www.easyreading.eu/the-project/> | support tool that users can install on their computer. It will provide help by adjusting web content in real time based on the individual users needs. |
| [Making Content Usable for Persons with Cognitive and Learning Disabilities](https://www.w3.org/TR/coga-usable/Overview-mutiple-pages.html) | <https://www.w3.org/TR/coga-usable/> | comprehensive resource that provides design patterns and technical guidelines for making content usable for individuals with cognitive and learning disabilities |

### Taking into account assistive technologies

Assistive technology has a major role in augmenting abilities and removing barriers, as well as ensuring effective evaluation/assessment of all learners. Current ICT-AT applications support a diversity of flexible, learner-centred assessment strategies that are adapted and tailored to individual needs, thus meeting the diverse needs of all learners and leading to greater equity and validity of assessments. Assessments and other aspects of the study/learning process should be adjusted depending on the individual needs. If you already know that a person with disability has enrolled in a course or laboratory or a learning activity or you are organising activities with a group of persons with disabilities, try to gather relevant information about his/her mobility, communication skills and previous learning experience as this may be important to ensure access to the study/learning process.

It is important to consider the need for course material adjustment, the frequency and length of breaks and the need for additional assistance. Friendly acceptance and individual attention are often particularly important for learners with disabilities. It will be much easier to ensure access to the teaching course or subject if you prepare in advance and adjust your course to different needs.

### Creation of multimodal communication

The inclusive potential of digital technologies in educational contexts is well represented by multimodal communication: the use of different channels and strategies can lower barriers to participation and improve the overall quality of educational intervention[[16]](#footnote-16). Talking about multi-modal communication doesn’t refer only to accessibility, but also to the use of different learning styles and a range of communication methods to ensure that the communication message can be understandable by all participants.

### Accessible online video conference systems

There are many advantages of carrying out training online if the user has the correct tools in place. However, with the wrong tools, some user groups, particularly persons with disabilities may encounter many new barriers.

An accessible video conferencing system is when the system has a built-in functionality to provide closed captions, the possibility to highlight sign language interpreters, and works for persons using assistive technology for both input and output.

Even simple tasks such as joining an online meeting or training session can be difficult if the system you are using has not been developed with accessibility in mind. For example, the launch of various, unnecessary preference dialogues when entering a system can block a blind person that is using a screen reader.

The level of familiarization of the target audience with the online training tools should also be taken into account when choosing one of the video conferencing tools. It can be appropriate to include introductory classes to present the capabilities of the applied software and the used teaching materials.

### Other key accessibility issues to take into account when carrying out online training

Once you have chosen your online training/video conferencing tool, there are various tips that you can follow to ensure a more accessible experience for all of our learners. Online meetings can be very tiring as you are not able to see and interact with the other participants in the same way as you can in face-to-face meetings. It is therefore important to understand this and ensure that you programme in breaks at regular intervals. It is also important to engage with the participants by stopping, asking questions or carrying out a group exercise. This is important for all learners but particularly for neurodiverse learners.

Before starting the online training sessions, please consider the following points:

* Icebreakers: it could be an interesting link, a photo, a song or anything else to get the group's attention.
* Netiquette: introducing the participants to the rules of etiquette of communication on the World Wide Web
* Glossary of key terms related to digital learning, asynchronous and synchronous communication, blended learning etc.
* Introduction: useful tips for navigating the platform
* Pace: if the training or discussion moves too quickly, it can be inaccessible to some learners. When using videoconferencing tools, such as those described above, there can be a lot of things going on (audio, visual, chat etc.). Please be aware of this and adapt the pace to your group’s requirements.

Additional tips may include:

* Check in on people’s understanding throughout the training and reiterate key points at regular intervals through relevant feedback and/or tests.
* Ensure that participants speak one at a time.
* Ask learners to request their turn to speak by using the “raise the hand” function (Zoom) or by alternative ways such as the chat box.
* Record the meeting (always seeking prior permission from all learners). This can be shared afterwards and will allow participants to go back and listen to the important points again afterwards.
* Ensure that you include the appropriate number of breaks for long sessions.
* Audio: A training session involving many learners may be noisy and quite hard to follow. Try and keep the online training groups to a minimum number of learners. Additional tips include:
  + Ask learners to turn off their audio when they are not speaking or, as the organizer, you mute all meeting participants.
  + Consider using an external mic if you are hosting the meetings in order to improve sound quality.
  + Use a video conferencing system that supports subtitles/captioning (see previous section).
  + For captions, speak clearly and try to limit background noise.
  + If you are using slides, try to share your notes or transcript so that learners can read along as you present.
* Visual: Visual images on all slides are helpful almost for everyone, especially those who need support reading or communicating through images or pictures. However, these visual images or slides need to be verbally explained in some form for non-visual learners.  
  Additional tips include:
  + When using slides, read out the content of the slide or describe images.
  + Before starting and depending on the size of the group, ask all participants to introduce themselves and describe them and their environment.
  + If you are sharing a website, include the link to the website in the chat so learners can access and read through themselves.
  + Share any documentation that will be presented prior to the training so that visually impaired persons have time to go through it with their screen reading software.
* No internet access: not everyone has an internet connection at home, or some persons may live in rural areas where the connection is too weak to support video conferencing facilities. It is always good to offer an alternative, such as joining by phone in these cases, and sending by demand and if possible, a link to the recorded session.

Within the Entelis+ project, a series of training materials was created and published that will help you in creating accessible digital content. You can download it, in different languages at this link: <https://entelisplus.entelis.net/training-materials/>

### The 10 attention points when “going online”

As stated in the previous chapters, “going digital” and “going online” is not an easy process. However, VET institutes or other schools and centres for professional training and qualifications are recommended to capture all the advantages provided by digital technologies in education and in professional contexts and to improve and enhance inclusive educational environments.

As a result of research carried out in the DIG-i-READY project and the collaboration and training activities with educators and other stakeholders from VET and Professional schools from the partners’ countries, 10 attention points at the basis of the process of going online were identified and listed below.

1. **Technical support and help desk**: Having efficient technical support available for those who need it is always useful, but in emergency situations it is essential. An accessible help desk to provide on-site and remote support avoids that persons remain excluded from activities. Support should empower persons and not just solve issues.
2. **Methodological support**: When conditions change what was working before might not work any longer. Methodological support should be made available for educators and other school staff, as well as learners and parents to make the teaching and learning process as effective as possible. Psychological support might be needed in case sudden disruptions occur and relationships are significantly challenged.
3. **Coordination and outreach team**: In case of disruptions of the usual, a team should be put in place that coordinates all those involved in learning to keep communication constant and up-to-date and to create ways of sharing resources. It should also oversee and manage the decision-making process during emergencies.
4. **Training for all**: Ongoing professional development should address learning needs in ICT use and inclusive education. During emergencies permanent training should be provided about the tools and strategies used during the crisis.
5. **Devices for all**: In case of disruptive events in the learning process all learners and educators should have access to appropriate technologies. This involves assessing the access to technology of each person involved and provide solutions where necessary.
6. **Connectivity for all**: Not only the VET structure must have a good Internet connection. Also, the quality of the connection for learners and educators is essential to make digital technologies work in education. During emergency situations it might be necessary to provide broadband connections where needed.
7. **Accessible digital environments**: Platforms, websites, applications and tools should be accessible, easy-to-use and ready-to-use.
8. **Data protection and safety**: It is important that even in emergency situations there is attention for data protection issues. In the case of use of social media platforms safety of the users, especially minors, should be supervised. Guidelines to ensure privacy and data protection should be in place.
9. **Accessibility competences**: Basic competencies on how to address accessibility challenges should be present in all stakeholders. Expert advice should be “at handreach”.
10. **Monitoring and evaluation**: Periodically the state of the art of the whole school system to provide inclusive and digital education should take place.

## Conclusions

The COVID-19 emergency required an important effort for VET educators and learners to convert physical classrooms and working places into digital learning environments. ICT-AT tools have proven to be useful to support learners with disabilities, creating inclusive learning programs, to avoid the risk of learning disruption. To more effectively prepare for future pandemics and emergencies, it is crucial to identify the key learnings from the COVID-19 response to further strengthen learning environments.

The variety of digital tools opens to a wide range of possibilities and innovations in VET educational programmes fostering an inclusive education. For instance, digital environments (as googledrive, teams, etc.), videoconference systems (as zoom, googlemeet, etc.) and e-learning platforms (as google classroom, miro, etc.) supported the learning process, raising the awareness on the crucial importance of digital skills for educators and learners. Teaching methods should integrate ICT, developing meaningful learning path, using digital tools in a safe and interactive way. Indeed, it is essential to train educators on how to use digital tools to facilitate inclusive practices, taking in account technology risks and limitation. The DIG-i-READY guidelines aims to provide hands-on guidance for educators, including practical tips. They are designed for VET educators with or without specialist knowledge of digital education.

**Annexes (tables, figures, links, additional resources etc.)**

**Annex I - For further reading**

The following existing documents were consulted in the making of these guidelines:

* **KTP Guidelines for Lifelong Learning in Assistive technology** (<https://www.at4inclusion.org/wp-content/uploads/2020/12/KPT-bookguidelines_ENG_11_557-2.pdf>): The KPT Guidelines have been written within the framework of the Keeping Pace with Assistive Technology (KPT) Project, European project for the development of assistive technology (AT) training and education. The guidelines are more focused on a rather narrower conceptualization of Assistive Technology, specific for persons with disabilities interpreted as limitations, where the DIG-i-READY project focuses more on educators and parents in a framework of inclusive digital VET education.
* **SKATE Guidelines** (https://skateerasmus.be/guidelines/): The SKATE Guidelines aims to provide the main theoretical aspects of the content and the focus of the learning programmes for inclusive Classrooms for Early Childhood Education and Care (ECEC) teachers.
* **ENTELIS+trainingmaterials** (<https://entelisplus.entelis.net/training-materials/>): The ENTELIS+ training materials help the social care and support providers, accessibility and assistive technology experts, teaching staff etc. to provide the highest quality training that is easily accessible to all learners, guiding them through the process, right from the preparation phase all the way to the training itself.
* **MEME Learning programme for educators supporting adults with disabilities** (<https://www.memedia-project.eu/learning-programme/>): The learning programme has been put together as a practical tool for educators to support persons with disabilities in the correct use of internet and social media, so that they can grasp the opportunities of the digital media and avoid risks. The modules of this guide serve to share effective methods in working with young adult with disabilities, in addressing the risks, opportunities, and implications of digitalization
* **Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training** (<https://op.europa.eu/en/publication-detail/-/publication/a224c235-4843-11ed-92ed-01aa75ed71a1/language-en>): The Guidelines for educators on tackling disinformation and promoting digital literacy through education provide hands-on guidance for educators, including practical tips, activity plans, insights on topics and cautionary notes grounded in what works as concerns digital literacy and education and training. They are a key initiative of the Digital Education Action Plan (2021-2027 of the European Commission and were informed by a dedicated Commission Expert Group.
* **European Agency report on Inclusive Digital Education** (<https://www.european-agency.org/sites/default/files/Inclusive_Digital_Education.pdf>): This report gives an overall picture of inclusive digital education and of issues remaining to be tackled. It describes the policy context for inclusive digital education and considers issues of vulnerability and inclusion. It reviews relevant research literature from 2016–2021 and examines thematic trends in related implementation projects and conferences.
* **Disability-Inclusive Communications Guidelines**(<https://www.un.org/sites/un2.un.org/files/un_disability-inclusive_communication_guidelines.pdf>):  
  The purpose of the Guidelines is to assist United Nation communications focal points and other UN staff to make all their communications inclusive and accessible. Inclusive and accessible communications reduce bias and discrimination, and promote inclusion and participation.

**Annex II – “Going on line” infographic**



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1. European Commission, 2014. Proposal for key principles of a Quality Framework for Early Childhood Education and Care. Report of the Working Group on Early Childhood Education and Care under the auspices of the European Commission. ec.europa.eu/assets/eac/education/policy/strategic-framework/archive/documents/ ecec-quality-framework\_en.pdf [↑](#footnote-ref-1)
2. CAST (2018). Universal Design for Learning Guidelines version 2.2. Retrieved from http://udlguidelines.cast.org [↑](#footnote-ref-2)
3. See Digital Education Action Plan (2021-2027) here: <https://education.ec.europa.eu/focus-topics/digital-education/action-plan/action-7> [↑](#footnote-ref-3)
4. International Journal of Education and Development using Information and Communication Technology (IJEDICT), 2022, Vol. 18, Issue 1, pp. 146-163. [↑](#footnote-ref-4)
5. Assistive technology devices can be used by learners with disabilities with or without assistance, in and outside the formal learning environment. ICT-AT can be used to train or rehearse, and to assist and enable learning for early learners at risk or with disabilities by eliminating barriers for learning. (Ahmad, 2015) [↑](#footnote-ref-5)
6. “Guidelines for teachers and educators on tackling disinformation”, Publications Office of the European Union, 2022 [↑](#footnote-ref-6)
7. “White paper with roadmaps”, Evert-Jan Hoogerwerf et al., 2016 [↑](#footnote-ref-7)
8. Ainscow, M. and Sandill, A. (2010). Developing inclusive education systems: the role of organizational cultures and leaders. International Journal of Inclusive Education, 14(14), 104-111. [↑](#footnote-ref-8)
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11. MEME project, [Learning programme for educators supporting adults with disabilities](https://www.memedia-project.eu/wp-content/uploads/2022/05/2Learning_programme_for_educators_final_version.pdf), 2022 [↑](#footnote-ref-11)
12. Teaching and learning in VET: Providing effective practical training in school-based settings © OECD 2021 [↑](#footnote-ref-12)
13. Windows 10 Accessibility Tools; Accessibility support for Word (Windows, macOS, iOS, Android, Windows 10 app and Web); Accessibility support for PowerPoint (Windows, macOS, iOS, Android, Windows 10 app and Web); Accessibility support for Excel (Windows, macOS, iOS, Android, Windows 10 app and Web) [↑](#footnote-ref-13)
14. ENTELIS+ training materials (https://entelisplus.entelis.net/training-materials/) [↑](#footnote-ref-14)
15. Web Content Accessibility Guidelines (WCAG) 2.1 (<https://www.w3.org/WAI/media/av/captions/>) [↑](#footnote-ref-15)
16. A. Mangiatordi, G. Pastori, V. Pagani, A.S. Sarcinelli, L. Menegola (2019) DESIGN FOR INCLUSION IN A LINGUISTICALLY AND CULTURALLY DIVERSE EUROPE: CHALLENGES IN THE DEVELOPMENT OF A VIRTUAL LEARNING ENVIRONMENT, EDULEARN19 Proceedings, pp. 7472-7481. [↑](#footnote-ref-16)