Guideline for inclusive teaching for instructors and inclusive learning for students

DEMO OR DIE

Develop Engaging Massive Open Online Resources for Designers Innovative Education

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Table of Contents

Table of figures

1. Introduction

Our interest in DEMO or DIE is to reach all the students and Inclusive design is the perfect framework to get it since provides a structure to proactively design learning that integrates inclusive strategies and options that can support all learners.

Inclusive Learning is based on the premise that learner variability is the norm. There is no "average" or "typical" learner. All learners have varied abilities, strengths, experiences, and preferences, aspects that can be dynamic and changing depending on one's context and development. In this way, Inclusive Learning provides a structure to proactively build in supports that address the learner variability that exists within any group.

Inclusive Learning in DEMO or DIE will allow to identify barriers in the instructional process and to reduce or eliminate those barriers by designing appropriate supports.

2. Why we need Inclusive Learning Design (ILD) in e-learning?

The COVID-19 pandemic has massively accelerated what was already a trend towards online learning. Unfortunately, this has led to an exacerbation of issues of exclusion and inequality for a wide range of reasons.

Many are not able to simply move their learning and teaching online, or they can do so but the conditions are far from ideal. That has negatively affected the learning experience.

So, a lot of people, unfortunately, are getting their first taste of online learning in these very unusual circumstances and finding it very negative and in many cases something that's left them feeling excluded.

The important thing to remember with inclusion is that the responsibility for changing the equality and inclusivity of online learning experiences lies with everybody who creates or controls the learning environment and experience.

It lies with the gatekeepers: those who provide learning experiences; those who design them; and anybody who upholds systems that are fundamentally unfair and unequal.

3. What is inclusive design?

Inclusive design aims to provide the best user experience for as many people as possible. In practice, it is a shift away from the one-size-fits-all approach that centres around so-called "average users." Instead, the inclusive design creates based on a diverse range of users by addressing barriers and providing a variety of ways for people to engage.[1]

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[1] *Inclusive Design Toolkit*. University of Cambridge

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The **British Standards Institute** (2005) definition of inclusive design is "The design of mainstream products and/or services that are accessible to, and usable by, as many people as reasonably possible … without the need for special adaptation or specialised design."

Inclusive design starts by identifying the rarest or extreme needs, otherwise known as edge cases or stress cases. Depending on the context, edge cases can include differences in ability, age, gender, language, and other factors. By contrast, universal design aims to serve the broadest range of people and situations.

Every design decision has the potential to include or exclude the audience. Inclusive design emphasizes the contribution that understanding user diversity makes to informing these decisions, and thus to including as many people as possible. User diversity covers variation in capabilities, needs and aspirations.

3.1.   Comparison with Universal design

Design for all and **Universal design** philosophies both have the same literal meaning. These philosophies originated from the design of the built environment and websites.

In the context of product design, both "Design for all" and "Universal design" approaches pragmatically accept that it is not always possible for one product to meet the needs of the entire population. Nevertheless, these approaches maintain that all mainstream products should be accessible to as many people as technically possible.[2]

In contrast, inclusive design originated with product design which focuses on choosing an appropriate target market for a particular design and making informed decisions to maximise the "Product performance indicators" for that target market.

While all three approaches aim to extend the reach of mainstream products, inclusive design more readily acknowledges the commercial constraints associated with satisfying the needs of the target market.

For websites and the built environment, the target population is generally the whole population, in which case all three approaches have an equivalent meaning.

3.2.   Inclusive design principles

Exclusion happens when we solve problems using our own biases. As designers and trainers, we must seek out those exclusions and use them as opportunities to create new ideas and inclusive designs.

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[2] _"What are the differences between universal design, accessibility, and inclusive design?"_. sayyeah.com.

3.2.1. Recognize exclusion

Designing for inclusivity not only opens up our learning to more people, it also reflects how people really are.

3.2.2. Solve for one, extend to many

Everyone has abilities, and limits to those abilities. Designing for people with permanent disabilities results in designs that benefit people universally. Constraints are a beautiful thing.

3.2.3. Learn from diversity

Human beings are the real experts in adapting to diversity. Inclusive design puts people in the centre from the very start of the process, and those fresh, diverse perspectives are the key to true insight.

3.3.   Inclusivity, equality and equity are different things

Consider this very powerful comparison:
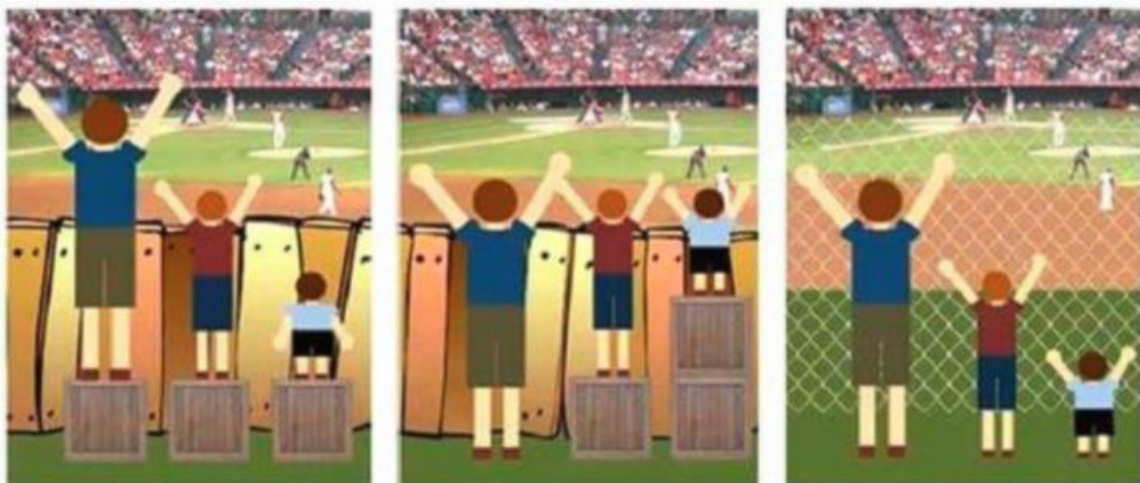
Figure 1: Equality, equity and universality

Three people of different heights are trying to see over a wall, and each person has been given a box to stand on. But for some, this still is not enough extra height. They have been given equal treatment, but their different needs still aren't adequately met.

So, what if we give each person the number of boxes that they actually need to stand on to see over the wall? This is often where we stop in terms of designing for inclusion.

Ideally, we would have a third scenario, in which nobody needs a box to see over the wall because there's no high, opaque wall in the first place. We found this a very powerful visual metaphor for the fact that equality is not the same as sameness. This is one of the first things that we've come to understand in the inclusivity project. It is so important to recognise and

to embrace individual differences and not simply pretend that those differences are not there, or to offer precisely the same content and experience to everybody.

By showing different ways that access can be achieved, this illustrates how important it is to recognise and embrace individual differences. And not simply pretend that those differences aren't there, or to offer precisely the same content and experience to everybody. Many of us believe, that we're achieving greater equality by saying: "differences do not matter". Instead, how about asking, "Does my approach welcome everybody, regardless of their background and circumstances?"

An even better question might be: "Does my approach allow every learner to participate fully, because the approach is informed by their backgrounds and their circumstances?"

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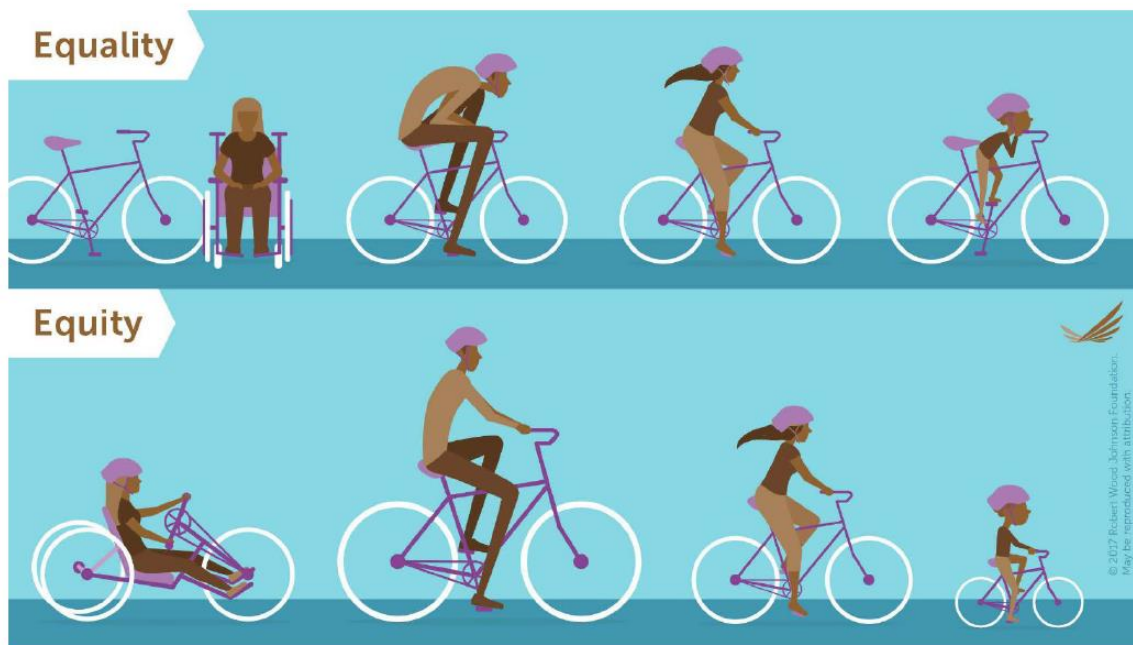
Equity Shoes Example

Equality!

Everyone gets the same pair of shoes.

Size 8
Running Shoes

Who is excited?
Will they fit you and meet your needs?

Equality

Performance   Style   Size   Comfort

Figure 2: Equality and equity differences

It is the difference between ignoring difference and **embracing** difference. We are all different and have different needs, and that is okay, this is the human condition.

3.4.   Inclusive design has far-reaching benefits

This is one of the most common examples used to talk about this principle: closed captioning. Adding subtitles to a video, or to something on television, was originally done so that people with hearing loss could access the content by reading what was spoken instead of hearing it.

But an unintended benefit of this is that if we are sitting in a loud environment with a TV on, but no sound, subtitles are also helpful for us. Similarly, there are benefits for language learners developing their language skills by reading subtitles while listening.

	Originally intended for	**Also helpful for**	
Closed captions	People with hearing loss	Loud environments	Language learners!

Figure 3: Original use vs unexpected application

This is just one example of the principle of designing for one context and extending to many. It shows how an inclusive starting point can benefit a lot more people.

Here is another example, again from outside the world of learning, but familiar to most of us. Very common in city design is the concept of a dropped kerb, originally intended for wheelchair users to navigate more easily around the urban environment. But again, there are unintended side effects that are also beneficial for other populations, such as people pushing children in a pushchair or a stroller, or people pulling luggage or shopping trolleys on wheels.

Figure 4: Original use vs unexpected application

It is very important to remember that when we are designing inclusively, we often capture the needs of a much wider population than we had originally imagined. This is especially important in learning design because, in addition to learners who know that they have particular access needs, such as a Specific Learning Difficulty, there are also many learners who may have undiagnosed disabilities which will affect their ability to access learning content. We do not always know what we need.

So as learning designers or educators, we cannot just wait until somebody explicitly tells us, "I need this" or "I need that". We should design learning content and courses to be as accessible and inclusive as possible in the first place. This will undoubtedly help a wider range of learners, just as a fortunate coincidence.

3.5. Neurodiversity is normal

Neurodiversity is a term we hear a lot these days and it's often mistakenly associated or even equated with specific neurological conditions.

What we were struck by when researching and reading around this area is that the term "neurodiversity" simply refers to the way people communicate and think in different ways.

It's about recognising that we're different, not deficient and that our brains all work in their unique ways. [3]

To be truly inclusive in our approach, we need to embrace this variety. So, in practical terms, this means recognising neurodiversity in learning design as a positive to help learners identify and play to their strengths, rather than feeling constrained by quite traditional teaching methods.

Figure 5: Neurodiversity is communicating in different ways

4. Creation of more inclusive learning experiences

4.1.   What affects the learning experience?

There are **four** broad dimensions:

- The learners themselves and what they bring to the experience.
- The learners' environment, whether physical or digital.
- The learning content: what is it that they're learning? The tasks and materials.
- The modes and methods used. How is the teaching happening? How is the learning happening?

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[3] *What Is Neurodiversity?* - Understood.org

4.2.   Ideas for more inclusive learning: content, modes and methods

It is more difficult for people to create materials for a global audience than for people to create materials for their own classroom or training environment. This is because there are many more people and factors to consider.

We need to do our best to help learners have an individual experience that is positive. Part of that is anticipating what the learners need and providing, for example, content in different media or in different forms. It may be written and spoken at the same time, for example.

When designing a course that is going to be used by a large heterogeneous group, it can be challenging to address individual needs. But we can look at what groups have in common, address these needs, and then design the rest in a way that is flexible and adaptable, particularly including an element of choice wherever possible.

Having this choice takes us a step closer to meeting individual needs, even when we're not able to discuss with every individual what their particular needs are. Some examples of common considerations include:

- The **images** in the learning material, especially the range of human characters that are shown. What is their age? What is their race? Can the learners relate to these characters from their own lived experiences?
- The **contexts** used to illustrate learning scenarios, especially where characters interact or represent certain roles. Who are those people? What is their relationship? What language do they use? Do these contexts represent the world of the learners?
- The use of **assessment** and **practice** tasks. For example, are they available in different formats so learners with different abilities can demonstrate their learning equally? Do they actually check the understanding they're intended to check, or are there inherent barriers to completion, where a learner may not be able to demonstrate their knowledge because they're not able to use the tool, method or process that the task requires?

4.3.   Moving from empathy to action

Ultimately, learning designers and teachers/trainers are parts of a larger system. And the changes we make for better learning design may well have a ripple effect in other realms of life and society. **Everyone** benefits from more inclusive practices, and we all have a responsibility to challenge and improve any system that perpetuates exclusion and unfairness. But where to begin?

Empathy is an important starting point, but action is an essential next step. There is a real risk of getting stuck in the phase of learning, reflecting, hoping but ultimately, we have to **do** something about injustice and unfairness if we're going to make learning more inclusive and accessible.

5. ILD APPROACH

There are different approaches relating to ILD, but CAST's approach is one of the most interesting[4]. The three core principles of the ILD framework. These principles articulate the basic ILD premise: that to provide equitable opportunities to reach high standards across variable students in our schools, we must:

- Provide multiple means of **engagement**
- Provide multiple means of **representation**
- Provide multiple means of **action and expression**

5.1. The ILD Principles

The ILD framework stems from a broad base of research in how the brain learns (as reflected in the affective, recognition, and strategic networks) and a similarly broad base of educational research in the core components of effective teaching (as reflected in optimal techniques for building engagement, knowledge, and skills). Other factors feeding into the framework are rapid developments in digital technologies; our own work with individuals, teachers/trainers, and training centres; and the concept of inclusive design in product development and architecture.

In this context, we found three ILD principles to guide the design, selection, and application of learning tools, methods, and environments:

- Provide multiple means of engagement (the "why" of learning)
- Provide multiple means of representation (the "what" of learning)
- Provide multiple means of action and expression (the "how" of learning)

These principles, based on the three-network model of learning, take into account the variability of all learners, including learners who were formerly relegated to "the margins" of our educational systems but now are recognized as part of the predictable spectrum of variation.

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[4] CAST

Provide multiple means of **Engagement**	Provide multiple means of **Representation**	Provide multiple means of **Action & Expression**
Affective Networks The "WHY" of Learning	Recognition Networks The "WHAT" of Learning	Strategic Networks The "HOW" of Learning

Access

Provide options for **Recruiting Interest**	Provide options for **Perception**	Provide options for **Physical Action**
• Optimize individual choice and autonomy • Optimize relevance, value, and authenticity • Minimize threats and distractions	• Offer ways of customizing the display of information • Offer alternatives for auditory information • Offer alternatives for visual information	• Vary the methods for response and navigation • Optimize access to tools and assistive technologies

Build

Provide options for **Sustaining Effort & Persistence**	Provide options for **Language & Symbols**	Provide options for **Expression & Communication**
• Heighten salience of goals and objectives • Vary demands and resources to optimize challenge • Foster collaboration and community • Increase mastery-oriented feedback	• Clarify vocabulary and symbols • Clarify syntax and structure • Support decoding of text, mathematical notation, and symbols • Promote understanding across languages • Illustrate through multiple media	• Use multiple media for communication • Use multiple tools for construction and composition • Build fluencies with graduated levels of support for practice and performance

Internalize

Provide options for **Self Regulation**	Provide options for **Comprehension**	Provide options for **Executive Functions**
• Promote expectations and beliefs that optimize motivation • Facilitate personal coping skills and strategies • Develop self-assessment and reflection	• Activate or supply background knowledge • Highlight patterns, critical features, big ideas, and relationships • Guide information processing and visualization • Maximize transfer and generalization	• Guide appropriate goal-setting • Support planning and strategy development • Facilitate managing information and resources • Enhance capacity for monitoring progress

Goal

Expert learners who are...

Purposeful & Motivated	**Resourceful & Knowledgeable**	**Strategic & Goal-Directed**

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The learner needs
access.

The learner builds
understanding.

The learner develops
**skills and
practices.**

The learner
becomes an
expert learner.

CAST Universal Design for Learning Guidelines graphic organizer, version 2.2.

udlguidelines.cast.org | © CAST, Inc. 2018 | Suggested Citation: CAST (2018). Universal design for learning guidelines version 2.2 [graphic organizer]. Wakefield, MA: Author.

5.2.   What can we do to make our classroom more accessible?

The typical barriers to online instruction are:

- Limited tech experience
- Lack of motivation
- Personal cognitions
- Too challenging e-learning materials
- Inadequate support
- Lack of community involvement

So, we must implement specific questions:

- Find out what our entity's policies and practices are around accessibility and accommodations as courses move online?
- Share learning objectives and goals with our students.
- Inform ourselves about where students can go for help and share that information with students early and often.
- Build our own and our students' best practices.

In summary, for the successful creation of an inclusive lesson plan there are some points to be considered:

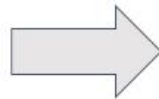- The target audience and their needs.
- Designated goals and how to be achieved.
- The materials/aids/tools available.
- Assessment.
- Motivation and engagement.
- Prior knowledge.
- Student-centred pedagogy.
- Accommodations/modifications.
- Contingency plan.
- Clear, well-organized presentation and sequence of activities.

6. Easy-reading

In this section, we provide tips to create easy-reading files. We include these tips in the design of Learning Units and platform in DEMO or DIE.

6.1.   General standards for easy-reading

Before we start producing our information

- We must find out as much as we can about the people who will use our information and about their needs.
- Choose the best format for our information.
- Always use the right language for the people our information is for. For example, do not use language for children when our information is for adults.
- We have to remember that the people who will use our information might not know much about our subject. We make sure to explain the subject clearly and also explain any difficult words to do with that subject.
- Always involve people with intellectual disabilities when making our information. For example, they can take part in making decisions
  - about the subject
  - about what to say on a subject
  - and about where to make the information available.

They can also take part in checking the information to see how easy it is to understand.

Words

- We use easy to understand words that people will know well.
- We do not use difficult words. If we need to use difficult words, we make sure we always explain them clearly.
- Use examples to explain things. We try to use examples that people will know from their everyday lives.
- Use the same word to describe the same thing throughout our document.
- Do not use difficult ideas such as metaphors.
- Do not use words from other languages unless they are very well known.
- Avoid using initials. Use the word in full where possible. If we have to use initials, we will explain them. For example, if we write "EU", we explain that it stands for "the European Union".
- Percentages (63%) and big numbers (1,758,625) are hard to understand. We try not to use percentages and big numbers. Instead, we use words like "few" and "many" to explain what we mean.

Sentences

- Always keep our sentences short.
- Speak to people directly.
- Use words like "you" to do this.
- Use positive sentences rather than negative ones where possible.

- Use active language rather than passive language where possible.

How to order our information
- Always put our information in an order that is easy to understand and follow.
- Group all information about the same topic together.
- It is ok to repeat important information. It is ok to explain difficult words more than once.

6.2. Standards for written information

Design and format
- Use a format that is easy to read, follow and photocopy. For example, A4 or A5.
- Think about the size of our document. For example, a book of 100 pages is too long. People could feel they are not able to read such a long book. In this case, it would be better to write three smaller booklets.
- Never use a design or layout that will make our document hard for people to read and understand. The most important thing is that our document is easy for people with intellectual disabilities to understand.
- Never use a background that makes it difficult to read the text. For example, never use a picture or a pattern as a background.

Figure 6: Bad use of background

- We have to be careful when using a dark background. When we do that, make sure the background is dark enough and the writing clear enough for us to read it.

Figure 7: Differences in easy to read

Writing
- Always use a font that is clear and easy to read. For example, Arial or Tahoma are clear and easy to read fonts.
  - o Never use serif fonts.

These fonts are harder to read because the shape of the letters is not as clear. Here is an example serif font sans-serif font

serif font   sans-serif font

d   d

Here are some examples of fonts that are harder to read

- Century is not easy to read
- Times new roman is not easy to read.

  - Never use writing that is too close together.

Example:

This is Gill 12 condensed. This is not easy to read because it is too close together.
This is Arial 12 with character spacing at 70%. This is not easy to read.

  - Never use writing that is too light and does not print off well.

Example:

This is Eras 14 Light.
This is not easy to read because it is too light.

  - Never use italics.

Example:

This text is in italics.
It is not easy to read.

  - Never use a special writing design.

Example:

This is text with shadows.
It is not easy to read.

This is outlined text.
It is not easy to read.

- Always use large writing. We should use writing which is at least the size of Arial 14.
- Do not write whole words in capitals. Lower case letters are easier to read.
- Try to use only 1 type of writing in our text.
- Underlining can make the text harder for some people with intellectual disabilities to read. We use underlining with caution.
- Where possible, avoid writing in colour because
  - Some people cannot tell the difference between colours.
  - People might need to photocopy our document in black and white. Then the colours would not come out clearly.
  - Some colours do not stand out well against certain backgrounds. For example, yellow writing on white paper is not easy to see.

Words

- Do not use difficult words. If we need to use difficult words, we need to explain them clearly. Where possible, explain the words at the time we are using them. In written documents, we could also have a list of useful words at the end of the document.
- Be careful when we use pronouns. Pronouns are words like "I", "him" or "it" that we use instead of the actual person or thing we are talking about. Make sure it is always clear who or what the pronoun is referring to. If it is not clear, then use the proper name instead.
- Never use footnotes.
- Keep the punctuation simple. For example, do not write "Yesterday, I bought a green/yellow bike (a new one!) for my son – whose name is Michael". Instead, write "My son's name is Michael. Yesterday, I bought a new bike for him. The new bike is green and yellow".
- Avoid all special characters where possible, like \, &, <, § or #.
- Avoid all abbreviations like "e.g." or "etc."

Sentences

- Always start a new sentence on a new line.
- Never split 1 word over 2 lines. This means never use a hyphen (-) to split a word over 2 lines.
- Keep our sentences short. We could do this by:
  - writing only 1 idea per sentence
  - using a full stop before starting a new idea, instead of using a comma or an "and".

Where possible, 1 sentence should fit on 1 line. If we have to write 1 sentence on 2 lines, we need to cut the sentence where people would pause when reading out loud.

Writing text

- Use headings that are clear and easy to understand. Headings should tell us what the text underneath is about.

- Always make sure we give people all the information they need. Make sure it is clear who the information is for and what it is about.
- Do not give people more information than they need to understand our point. Only give them the important information.
- Make sure the important information is easy to find. To do this, we could:
    o put this information at the beginning of the document
    o highlight the important information in bold
    o or put the important information in a box.
- Try not to use too many layers of subtitles or bullet points.
- Graphs and tables can be very hard to understand. But they can sometimes explain things better than in writing. When we use graphs or tables, make them simple and explain them well.

What our text should look like
- We use bullet points to list things. A list of words separated by commas is not easy to read.
- Do not write in columns.
- Align our text to the left of the page. Never justify our text. Justified text has big gaps between words and is harder to read.
- Do not put too much text on our page.
- Leave space between paragraphs.
- Do not indent our text. This means that the first line of each paragraph should be aligned with the rest of the text.
- Try to avoid narrow margins. Where possible, keep all margins big enough so that our page does not look too cramped.
- Where possible, number the pages of our document.

Images
- Many people find it hard to read text. To help them understand our text, we should put images next to it to describe what it is about. Images are things like
    o photographs,
    o drawings,
    o or symbols.
- Where possible, we try to use the same style of images throughout our document.
- We always use images that are good and right for the people we are writing for. For example, we never use images for children when we are writing for adults.
- Always choose images that are clear, easy to understand and go well with the piece of text they are helping to explain.
- Use the same image to explain the same thing throughout our document.

How to show people it is an easy-to-read document
Put an easy-to-read symbol on the cover page of our easy-to-read document. This will help people see that it is an easy-to-read document. There is a European easy-to-read logo that we can use.
We can download this logo at www.inclusion-europe.org/etr

- We must be careful with numbers
  - Write numbers as digits, not as words. This means we should write numbers as 1, 2, not one, two.
  - Never use Roman numerals like V, X or XVI
- Where possible, we use the present tense rather than the past tense.
- Avoid words like doesn't, wasn't, couldn't. Write the words out in full instead. For example, does not, was not, could not.
- Where possible, write dates out in full. For example, Tuesday 13 October 2008. Do not write 13/10/2008 or 13th October.

6.3. Example of a reading tool for students with vision problems

Immersive Reader is an excellent learning tool from Microsoft that helps students of all ages and skills develop their reading. Immersive Reader provides a wide variety of features to enhance students reading experience. There is the read-aloud feature available in both male and female voices which reads out loud the provided text. This is a great tool to help language learners learn how words of a target language are pronounced. It is also great for students with vision problems.
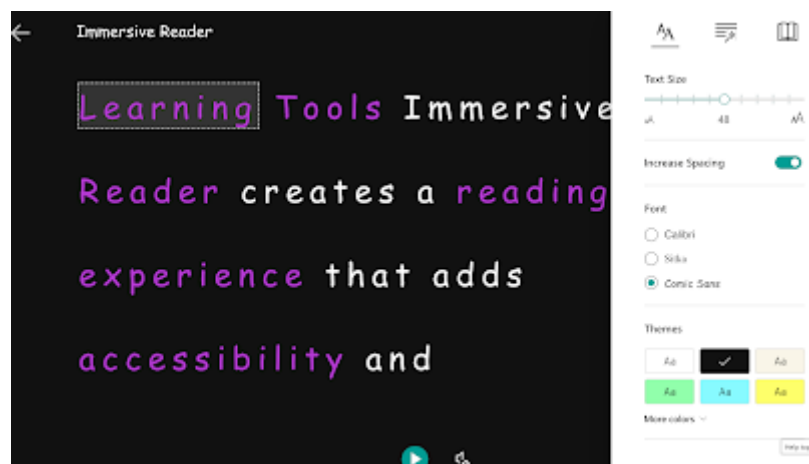
Figure 8: Immersive Reader

The Immersive Reader has a distraction-free interface where the focus is squarely on text. Users can change text size, font and increase spacing between lines, letters and words to enhance the visibility of text. Another feature is the Grammar Options which once activated enable students to "split words into syllables so words are easier to sound out". They also automatically highlight the selected parts of speech (e.g., nouns, verbs, adjectives, and adverbs).

Reading Preferences is another great tool embedded in Immersive Reader. It includes three main features: Line Focus (it is similar to "reading ruler that helps students reduce distractions as they scroll down the page"), a Picture Dictionary which provides graphical representations of the meanings of words in a text, and Instant Translation which supports more than 60 languages. Students can either translate the whole document or single words. Translation

also comes with read-aloud functionality allowing students to learn how translated words are spoken in their native tongue.

Immersive Reader is included in many of products of Microsoft (e.g., OneNote, Word, Microsoft Teams, Outlook, Minecraft Education Edition, Whiteboard and several other Office 365 apps) as well other educational tools such as Flipgrid.

7. Accessible and inclusive events

By being inclusive, we need to create a learning environment that is filled with different perspectives so we can gain the opportunity to learn something different. In this way, we can also reach out to a larger audience. The teaching can benefit from many more points of view and be better adapted to what final users need. If organising an inclusive event, workshop or seminar may seem overwhelming at first sight, it is not rocket science and relies mostly on common sense. In DEMO or DIE we will use these guidelines in pilots and Multiplier Events.

7.1.　The importance of the registration form

To start, the most important thing is to ask our participants what they need. If we do not ask, we will not know. If we do not know, we cannot act and ultimately ensure their full inclusion. It is important to keep in mind that disabilities have their scales and variations. For example, we may have two different participants who use a wheelchair. However, one may need to use it at all times, and one only for long distances. In this case, these two participants do not have the same needs and their specific cases cannot be approached in the same manner. This is why our registration form is our best friend when organising an inclusive event. This is our time to ask participants for their access, communication and participation needs.

Some suggestions to include in the form could be:

- What is your gender? Options: Male, Female, Other, Prefer not to disclose.
- Do you have any medical conditions that may require urgent attention during the meeting, such as epilepsy, diabetes or allergies?
- Do you have any specific dietary requirements or food allergies?
- Do you need a sign language interpreter?
- Will you use International Sign Language (ISL) as your primary language during the event? If not, which language will you use?
- Do you require step-free access?
- Are you a wheelchair user?
- Tell us more about your access needs connected to your use of the wheelchair.
- Are you bringing a personal assistant?
- If you are bringing a personal assistant, are you able to share a room with them?
- Will your personal assistant attend all parts of the meeting with you?
- Would you like an introduction to [topic of the event/seminar/workshop]?
- Is there anything else we can do to help you feel included (for example regular breaks, somebody to talk you through meetings in advance, etc.)?

viii

- Is there anything else we should know, or you would like to share with us?

7.2.   Venue and logistics

If the event/seminar/workshop demands accommodation, booking the right venue can significantly simplify organising an inclusive and accessible event. Professional venues and hotels normally include all the necessary features to ensure accessibility for people with various inclusion needs, such as accessible bedrooms, wide elevators, and accessible bathrooms.

To make the participants' life easier, the whole event should ideally take place at the same venue as their accommodation, such as hotels that provide meetings and conference rooms. If this is not possible, we try to ensure a short travel distance between accommodation and meeting venue and check if the local transportation system (metro, tram, bus) is accessible.

7.2.1. Physical and visual accessibility

Regardless of which venues we book, there are several pointers to follow to ensure accessibility.

- There is a ramp and a rail at the entrance to the accommodation and the meeting venue or the entrance is step-free.
- The accommodation has adapted bedrooms for wheelchair users with no step, a spacious bathroom and an adapted step-free shower, and accessible dining rooms.
- All the venues have adapted restrooms for wheelchair users.
- There are automatic doors or a button to open the doors at our venues.
- There are spacious elevators in all the venues with accessible buttons.
- The height of the tables during meals is suitable for people using wheelchairs. If we are planning a standing dinner with tall tables, consider providing several regular tables with chairs and space for wheelchairs. We do not want the participants who use wheelchairs to feel excluded from the conversations.
- The thresholds of a door are not too high and if they are, place a mat or a temporary ramp.
- No cables or other obstacles are lying on the floor of the venues.
- There are signs in braille at our venues, such as in the elevators.
- There is enough space for a guiding dog during meals and sessions. We make sure there is a relief area for the dog and check whether we need to provide food and a water bowl for the dog.
- The conference/training/ seminar rooms are big enough to accommodate wheelchair manoeuvring or guiding dogs.

7.2.2. Venue logistics

- A quiet safe space room. For example, people with anxiety might need a quiet room to take a break so that they can continue to participate.
- The main room does not have a loud echo. Environments with significant echo create barriers for people who are hard of hearing.

- There are adjustable lights so we can control the brightness of the room. Good lighting helps people who are deaf or hard of hearing to read lips or communicate using sign language.
- There are clear and easy-to-read signs provided around the venue signalling accessible facilities, such as bathrooms and elevators.
- Offer multiple types of seats with backs, considering people's variable needs regarding preferences and issues of comfort.
- Check for the fire-escape protocols and if they are adapted for people with disabilities.

Transportation
- Accessible transportations are available nearby.
- Accessible parking space near our venues.

Catering
- Our catering will include options for people with allergies and special food requirements.
- We can provide bendable straws and cups with handles upon request

Other
- Create colour-coded communication for participants to communicate their level of comfort among other people during social situations. These can be name tags, stickers, or bracelets. For the visually impaired, we can have volunteers acting as "image describers".
- Is a participant coming with an accompanying person? We should ensure accommodation, meals, and space at the meeting/training room for this person as well.

7.3. Communication

- If we share web links in an email or document, we must avoid copy-pasting the full link as text. Otherwise, the screen reader would read out the whole link.
- We make sure we have clear descriptions under all the pictures we included in all our online communication, including on social media such as Facebook posts. We make sure that the descriptions are detailed and informative. They are important for those who may have difficulties seeing it clearly and understanding its message. This is especially important if we have pictures that contain text.
- Our videos must have subtitles. This is crucial if we have participants who are hard of hearing, but it is also useful for participants who are not entirely comfortable with the language of the video.
- Whenever possible, be mindful of the accessibility of the size of fonts and the kinds of colours we are using throughout our online communication.

7.4. Etiquette

Communicating with individuals with disabilities should be no different from the same respectful, clear communication deserved by everyone. This is especially important to

x

remember given that the majority of disabilities are "hidden" or "invisible," i.e., not obvious. Below are some general guidelines.

7.4.1. Every person

- Treat the person with the same respect that we extend to every person.
- Focus on the person, not their disability.
- Do not ask about their disability.
- Do not make assumptions about the person's ability or inability to participate in an activity or perform a task.
- Do not assume that the presence of one disability (e.g., a speech impairment) indicates the presence of another (e.g., a cognitive impairment).
- Do not make decisions for the person.
- Ask each person what will make them most comfortable.
- Always ask the person if they need assistance and how we can assist; do not assume they need help.
- Address the person directly rather than the sign language interpreter, reader, or other access providers.

7.4.2. Persons who use mobility devices

- When speaking for more than a few minutes, bend to eye level or pull up a chair.
- Never lean on, push, move, or touch the mobility device.

7.4.3. Persons who use service animals

- Service animals are not required to wear a vest when they are working.
- We can ask two questions regarding a service animal: 1) is this a service animal? 2) what duties does it perform?
- We must remember that service animals perform a variety of tasks, many of which may not be immediately visible; do not make assumptions and remember to respect the handler's privacy.
- Approach a service animal calmly and speak to the person, not the animal.
- Do not touch, pet, feed, whistle, or make sounds at the service animal without asking permission; the service animal is working and petting or otherwise engaging with it could distract and stop it from performing its duties.
- Walk on the opposite side of the service animal.

7.4.4. Persons who are deaf or hard of hearing

- To get their attention, wave to them; avoid touching them without permission, and only then tap lightly on their shoulder.
- Ask the person how they prefer to communicate (e.g., sign language, gesturing, writing, or speaking).
- Face the person when talking.
- Speak clearly, avoiding gum chewing or obscuring our mouth with our hands.
- Use our normal tone of voice and volume.

- Maintain eye contact with the deaf or hard of hearing person.
- Have pen and paper or a device to text on hand as an alternative communication method.
- Address the person rather than their interpreter.
- Avoid spaces with background noise.
- Find a well-lit room but avoid glare.
- Ensure that the venue has an induction loop that stops background noise from interfering if the person is wearing a hearing aid.
- When communicating with a person who reads lips, speak clearly in a normal way that does not overly exaggerate words, use short and simple sentences, avoid blocking our face, and stand in a well-lit place.
- If there is a window in the room, place the person with their back to it to avoid the silhouette effect.
- In groups, request that people speak one at a time.
- If communicating in a smaller group setting, arrange to seat or stand in a circle so deaf or hard of hearing attendees can see signing and/or lipreading.
- Ask, if we have any doubts, if the person understood us.
- Do not pretend to understand when we do not.
- Ask for clarification if we do not understand something.
- Be aware of situations involving announcements or calling out names so we can notify persons who are deaf or have other hearing loss.

7.4.5. Persons who are blind or have visual impairments

- Ask the person their name.
- Introduce ourselves and others if present.
- Identify our job or role.
- Avoid touching without permission; to get their attention, say their name or, "excuse me".
- Avoid shouting.
- Be descriptive when giving directions.
- Offer our arm if the person needs to be guided.
- Avoid using visually oriented references.
- Describe where we are going and any obstacles if we are serving as a guide.
- Find a place with good lighting, but not too bright.
- With permission, guide the person's hand to the back of a chair if we offer someone a seat.
- Let the person know when we are leaving.

7.4.6. Persons with learning/cognitive difficulties

- Ask each person what will make them most comfortable.
- Ask the person how they prefer to communicate (e.g., written or verbal).
- Listen carefully.
- Speak clearly.

- Check for understanding.
- Use clear, concrete language, avoiding abstractions.
- Allow the person extra time to process the information and ask questions.
- Do not overload the person with too much information.
- Find a quiet place without distractions.

7.4.7. Persons with developmental disabilities

- Ask each person what will make them most comfortable.
- Keep to the person's schedule and routine.
- Speak clearly.
- Do not use "baby" talk. Speak at a normal volume unless asked to do otherwise.
- Model our pace of speech and vocabulary on that of the person.
- Ask neutral questions.
- Allow time for decision-making.
- Use simple words and concrete, not abstract, concepts.
- Break down complex concepts into small parts.
- Verify responses by repeating questions in a different way.
- If we are not sure if the person understood us, ask them to repeat the information.

7.5. Content

7.5.1. Presentations

- Use a microphone, speak slowly and describe images that are projected on the screen.
- We make sure our lips are visible so hard-of-hearing participants who read lips can follow.
- Try not to improvise a lot outside what's on our slide and do not overuse expressions like "as you can see" because it can make it difficult for some to follow.
- PPT rules: text 18 points, a clear font like Arial, high contrast colours, not overpacking slides. Mind the amount of text on one slide, make two slides if needed.
- Having speakers pre-record their presentations in audio/ video format can be useful for some participants.
- Some participants may need physical handouts of the PPT to follow the presentations.
- Sporadically ask participants if they are comfortable with the pace.
- If presentations run longer than planned, people who use specialised transportation services may need to leave earlier.
- Establish a sign commonly agreed with the group to slow down or pick up the pace of the meeting. Our participants could use colour-coded cards (green, orange, red) to signify how they feel about the pace of the meeting at any given moment. However, the most important is that the group agrees on a system, depending on the access needs of the participants. The colour cards are just one example and would not work in all situations. Signs should be introduced at the beginning of a meeting.

xiii

- Before booking an interpreter, we must check which version of sign language interpreting we need. There are over 100 sign languages in the world. We cannot assume every deaf person uses International Sign Language (ISL).
- We will normally need at least 2 sign language interpreters. For large conferences and events, a minimum of 3 is better so that they can take turns and rest.
- Make sure they are placed next in the front so the deaf/ hard of hearing participants can have an unobstructed view.

Figure 9: Place for sign language interpreter

7.5.3. Other considerations

- Content of presentations and training sessions should be made available to the interpreters beforehand for preparation and should include explanations for specific terminology.
- We must always introduce the interpreters at the beginning of the event. Explain also that the deaf/hard of hearing participants should be addressed directly, not the interpreters.
- Check that our participants are not bringing their own personal interpreters.
- Explore accessible methods and energisers. For example, we may not want to use colour-coding with post because some of our participants may be colour blind or visually impaired. Instead, we can use post-its of different shapes. Similarly, energisers that include jumping or doing similar physical activity may not be a good idea if we have participants with limited movement. Also, ensure that there is room for discussion and sharing of different perspectives for everyone to be able to voice themselves and have the time needed for this.
- It's good to have anonymous ways of commenting and asking questions if we are tackling controversial topics.
- Try Speech to text (Palantypist) or Real-time captioning so participants can follow the meeting and so that those who may have to leave a part of the meeting can go back and

check what was discussed. Keep in mind an additional screen is needed for real-time captioning.

- We explore how to make accessible PDF and Word documents so they can easily be read by screen readers.
- Visually image-rich films where no words are spoken are not accessible to the Blind and others with visual impairments, so we should try using descriptive audio, sometimes called audio description. If there are spoken words in the video, we make sure we have subtitles.
- We make sure that written material can be made available in braille format upon request.
- Some participants may request to have the files available before and after the event in order to be able to follow the meeting. We make sure we have our material ready in advance so we can provide it to them.

7.6.   Virtual events

Just as with in-person events, virtual events must be accessible to disabled individuals. When planning a virtual event, we must consider their accessibility needs, including those who are deaf or hard of hearing, blind, or have intellectual, developmental, or mobility disabilities. Selecting the right platform is key. It must be accessible to all participants, including those with disabilities. Before choosing one, we can familiarize ourselves with the particular accessibility features. Features to look for are platforms that provide real-time captions or otherwise support captions, allow individuals to magnify screen content, can be navigated by a keyboard only and thus provide keyboard shortcuts, and support screen readers and interpreters.

We must ensure that the platform:

- Is accessible for disabled persons
- Has been tested by users with different types of disabilities
- Is compatible with assistive technologies used by disabled persons (e.g., screen readers for blind persons, screen enlargement applications, closed-captioning, cognitive aids including computer devices, etc.)
- Allows ASL Interpreters to stay visible throughout our event
- Has simple keyboard shortcuts for users who may not use a mouse
- Has a chat, note, Q&A, or other features for participation that is fully accessible
- Allows for computer-based and phone-based audio listening/speaking
- Has simple keyboard shortcuts for users who may not use a mouse
- Allows for computer-based and phone-based audio listening and speaking
- Has customizable interfaces so that anyone using screen readers or screen magnification can adjust the video windows as needed
- Provides good video quality, including the ability to show two screens at the same time

7.6.1.   Best Practices

Below is a list of best practices to help ensure that our virtual meetings are accessible.

- Include a statement on our website, registration, and all other communications that ask attendees to specify their accessibility/accommodations needs. Gives a deadline for requests, and provides the name, email address, and phone number of the individual to contact.
- Ensure that the individual hosting the event is trained on how to set up and implement the platform's accessibility features.
- List in all event communications accessibility/accommodations that we will provide without the need for attendees having to request, such as captioning.
- Provide materials that help orient participants to our chosen platform. Offer practice sessions in advance of the main event.
- On Zoom, screen readers read aloud the comments in the chat, distracting screen reader users from hearing the conversation effectively. As a result, use the chat feature sparingly; do not use the chat function; or designate a person who everyone privately messages, and have that person read the chats aloud and keep a record of URLs posted in chat and save the chat to make it available to users after the meeting.
- Consider our audience and language level. Use plain language when appropriate. Ask attendees if they can hear everyone or if anyone is speaking too quickly.
- Have a staff person monitor the chat or Q&A function for accessibility issues that may arise during the event and read aloud the author and questions or comments to be addressed. The host may also offer an outside contact point, such as an email address, for anyone who is not able to access the in-platform functions and monitor it before and during the program.
- Advise everyone orally and in the chat or Q&A function about the accessibility features/ accommodations being offered and how to use them at the start of the event, including captions. Do a check of access features. Invite attendees to raise access concerns during the event and instruct them how to do so.
- If there are any barriers or extra steps to joining the event, such as passwords or requiring the user to input information to join, make sure all attendees know and understand how to do so, and provide assistance
- Offer the option for people using chat and/or Q&A functions to have their messages read aloud.
- Offer different ways that individuals can access the event, including via Internet and dial-in.
- Provide all materials and PowerPoint slides in an electronic format, share via email or the chat function, post on a website before the event, and create a short URL.
- Announce at the start of the event how to access copies of materials and share the link on the presentation's first page and in the chat/Q&A function and read it aloud.
- Provide CART (real-time captioning) for all events even if the virtual platform generates automatic captions, as these are often unreliable. Captioning creates a transcript of the event that can be used by everyone, including those who attend the live event.
- Describe all images and videos for blind/visually impaired individuals, as well as for those joining by phone. Some videos with descriptive audio can be found on YouTube or youdescribe.org.

- Sharing our screen is not accessible for blind persons, so send or post materials electronically on a web page in advance of the event. On the day of the event, provide a link to the materials in the Q&A or chat function and add a visual description.
- Sharing a video is not accessible for blind and/or deaf and hard of hearing persons. Ensure that the video is captioned and also describe what is happening during the event.
- Try to schedule our event so as not to go beyond two hours.
- Allow people to turn off self-view if it is distracting to them.
- Have the event host only show the person presenting, along with the active ASL interpreter.

8. Creating audio-visual accessible material

Any videos or audio recordings that are created for a course, seminar or workshop must have captions and/or a transcript available. In a sense, captions and transcripts are another form of alternative text for deaf and hard-of-hearing users. Rather than alt-text on an image, which is converted into an audio format for blind and low-vision users, captions and transcripts convert a primarily auditory medium into a visual one. This allows deaf and hard-of-hearing users to fully engage with the material.

8.1.   Descriptive Text Transcript (Web-based Audio)

Audio recordings–such as announcements, podcasts, and interviews–must be accompanied by a text transcript.

8.1.1. External Recording

For external recordings, like podcasts, the following steps should be taken to assess the audio and create a transcript:

- Was the audio posted by the copyright holder? If so, a transcript may already exist. If one cannot be easily located, the copyright holder should be contacted about creating a transcript.
- If the audio was not posted by the copyright holder, obtain a copyright-compliant version of the audio.
- If the audio cannot be obtained, it may be worth considering the educational value and need of the audio recording. Is there another way of sharing the information with the students?
- If we determine that no transcript exists and no accessible alternative can be found, submit the video to a transcription service to produce a transcript.

8.2.   Synchronized Captions (Web-based Video)

Like audio recordings, all video recordings should have captions on them. In some cases, such as uncaptioned, external videos, descriptive transcripts are an acceptable substitute.

8.2.1. Captions vs Subtitles

Captions are an accessibility tool that many people are familiar with, but it is important to note the difference between captions and subtitles. Subtitles are simply a running transcript of the dialogue that is occurring on-screen. Captions are more encompassing and include a description of any audio that is necessary to understand the information.

8.2.2. External Videos

When working with external video clips like this, we work through the following steps:

- Was the video posted by the copyright holder? If so, the video may already be captioned. If the video isn't captioned, it may be worth contacting the copyright holder about captioning.
- If the video was not posted by the copyright holder, obtain a copy of the video clip.
- If a copy of the video cannot be obtained, it may be worth stepping back and considering the value of the video. What is its purpose? Could the same information be conveyed through another, more accessible video?
- Finally, if we have determined that there are no alternatives to the video and no way to obtain a captioned version, submit the video to a transcription service to produce a transcript, which can be linked on the page with the video.

8.2.3. Ad-Hoc Recordings

Many users like faculty create videos throughout the quarter–weekly wrap-ups, announcements, etc. Ideally, these would all be scripted, and those scripts would be the base for the creation of transcripts and/or captions. Short of this ideal, however, consider the following:

- Do the videos contain academically important information?
- If so, is the academically important information available elsewhere (in text format) on the website?

For example, if a video includes information about one of the assigned readings, but that information is also included in the weekly overview, then captions or a transcript for an ad-hoc recording are less important. If the academic information in the video cannot be accessed by students in any other way, however, then a transcript is required. That said, it's a best practice to provide transcripts or captions on as much teaching material as possible, academically relevant or not so that all students are fully included in the complete teaching experience.

8.3. Creating accessible multimedia in PowerPoint

The method we use to add videos to our presentations will determine the best way for us to make them accessible. Below is the ideal delivery method of presentations for meeting both accessibility and ILD guidelines. However, it is not the only method of making our PowerPoint accessible.

8.3.1. Captions + Audio Descriptions

Videos should always have the option to view closed captions (CC). Captions are text versions of any spoken word present in audio or video media. This text appears on screen, making the content of the multimedia accessible for audiences who:

- do not have access to audio (speakers, headphones, etc.)
- are deaf or hard-of-hearing
- are not fluent or native speakers of the language used in the audio
- want to ensure they are adequately understanding the vernacular used (and spelling it correctly)
- may not understand the narrator's accent, dialect, or
- have trouble with the speed of the speaker's speech

We write our script ahead of time is extremely useful in captioning our videos. We cannot stress this enough! We will save ourselves a lot of time in both production and post-production by having and using a script.

To optimize the experience for students who may have hearing impairments, our captions should also include audio descriptions. Audio descriptions are intended for users who may have visual disabilities, and they provide additional information about what is happening visually on the screen. While these types of enhancements are not common, they are gaining in popularity because they are helpful when visual content in the video is important to understand what is going on, but it is not available through the audio.

It's also important to note that if our video does not have any audio recorded, we will need to create descriptive audio narration to tell our audience what is happening on screen.

8.3.2. Adding CC

YouTube Videos Embedded in PowerPoint

For the YouTube video in our presentation to be captioned, we need to go to YouTube and add captions to our video there. The instructions below will walk us through adding captions to a video that is already uploaded to YouTube. We should keep in mind that we have to be the owner of the video in order to use this method. If we do not own the video, consider replacing it with a video that is closed captioned. We can specifically search YouTube for videos with captions to find a replacement.

If we used a script, once we upload and publish our video to YouTube, creating captions will be easy!

1. Go to our YouTube Video Manager and find the video we want to caption.
2. Click Edit next to the video.
3. Select "Subtitles and CC".
4. Choose the video language.
5. Select "Add new subtitles or CC", then choose the video language again.
6. Click "Transcribe and auto-sync".

7. Paste our script into the box, then click "set timings".

After a few minutes, YouTube will work its magic. We have got synchronized captions, making our video accessible.

However, if we do not write a script (or we are retroactively adding captions to a video for which we didn't write a script), the video below shows us how to manually caption videos that are uploaded to our YouTube account.

Video Recordings in PowerPoint 2016

Currently, only PowerPoint 2016 for Windows supports adding closed captions that are stored in files separate from the video. For all other editions of PowerPoint (such as PowerPoint for Mac or the mobile editions), closed captions must be encoded into the video before they are inserted into PowerPoint. We can add captions to videos we have recorded with video narration, screen recordings, and any other (non-web-hosted) video that we insert into PowerPoint 2016. [This method is complicated](#), especially if we have to [create the closed captions for the video](#).

For these types of video recordings, here is what we can do to improve accessibility:

1. Consider transforming the presentation into a captioned, narrated video following the instructions provided on the Overview tab of this page.
2. Can the video be taken out of the PowerPoint? It may be better to embed the video on a Canvas page.
3. If the video has to remain in the presentation, see if we can find a YouTube equivalent that has CC.
4. If none of the previous options are feasible, we could provide a transcript of the video in the Notes section.

8.3.3. Transcripts

Transcripts allow students who cannot access content from audio or video to read a text transcript instead. This is extremely beneficial to people with both hearing and visual disabilities; sometimes captions are too fast for them to read, and they need to use ATs, like screen readers, which can be set to a specific listening speed.

Transcripts can include descriptions, explanations, or comments outside of the spoken narration that may be beneficial in understanding the content and the context. We should keep in mind, however, that the audio narration itself should be transcribed verbatim.

Adding Transcripts

This is where writing a script comes in handy (again). We can copy and paste our script into the Notes section of the slide to serve as the transcript, and this will save us a lot of time.

Video Recordings

Providing audio transcription in the Notes section of the PowerPoint presentation is also a way to improve the accessibility of video recordings. We should keep in mind, however, that this is not the optimal method. We make sure that we add text on the slide indicating that there is a transcript available and directing the student to the Notes section for the transcript.

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Audio Recordings

Currently, adding captions to an audio-only recording that is embedded on a slide isn't supported by PowerPoint. Instead, we should add the transcript for the audio file into the Notes section of the PowerPoint slide. Then, add text underneath the audio file on the PowerPoint slide itself indicating that the transcript is available in the Notes section.

8.3.4. Tools + Services

YouTube

If we create audio or video without a script, and we are looking to make that multimedia retroactively accessible, we will want to use machine-generated transcription and edit it for accuracy. YouTube captions can be edited to make them optimal for accessibility.

Here are some other tools worth mentioning:

Camtasia

This recording software creates video and audio recordings and also creates captioning using speech-to-text capabilities. It works best with recordings made in Camtasia, since imported media results in less useable data.

Express Scribe

This free audio player can assist in the manual creation of transcripts.

MAGpie2

The National Center for Accessible Media (NCAM) offers this Java-based captioning tool, which allows us to add captions to QuickTime (MOV), Real Media (RM), and Windows Media Player (WMV) video formats.

Overstream

This free Web tool enables the production of caption stream that plays in sync with an online video without altering the original video. This is a good platform for video we do not own that are hosted on sites like YouTube or Vimeo, since downloading, captioning, and re-posting YouTube videos may violate copyright law.

8.3.5. Quality

In addition to captions, transcripts and audio descriptions, there are other considerations for audio and videos that impact accessibility.

For audio, these include:

- Low volume
- Unclear, expedited, slow or stylized speech patterns (including heavy accents)
- Audio interference
- Background noise
- Poor quality recording

For video, these include:

- Poor lighting
- Pixelation

- Low-quality picture
- Flashing lights or graphics
- Low contrast
- Colour

All of these interfere with our audiences' ability to understand the content of our audio and/or video. Sometimes it's simply distracting, while other times it completely inhibits comprehension.

Poor audio quality also interferes with the ability of speech-to-text recognition software to generate accurate transcriptions, so if we are trying out software like Camtasia or a service like YouTube captions and the results seem worse than normal, we should try recording our audio with better equipment in a location that is isolated from outside noises.