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INTUX

Handbook for trainers

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1 Introduction

This handbook provides instructions and tips to trainers of the INTUX training material. It is divided into two parts.

The first part (chapters 2-6) focuses on ensuring an accessible and inclusive learning environment for all students, covering both online and face to face learning environments. It provides guidance on how to prepare the classroom to make it accessible, choosing the most appropriate online collaboration tools, how training material can be made accessible and teaching strategies for inclusive training.

The second part (chapters 7-8) focuses on specific trainer tips to teach the content included in the training modules. It provides background information on the material that is being taught and include prompts for group discussion on key points in the materials.

The aim of the handbook is to prepare the trainers to be able to successfully teach the course on inclusive and accessible user testing by highlighting the different aspects that should be considered.

1.1 Target audience

The handbook has been primarily conceived for university teaching and training staff who design and or deliver education and training in User Experience (UX)-related subjects. However, many of the recommendations can also be applied in other educational contexts for professional UX training, such as in vocational education and training (VET) courses and life-long learning processes.

The overall aim is to make it easier to start making the connection to users with disabilities in all UX related courses, and to include the basics of user testing with persons with disabilities in courses made available for all students. The project partners therefore hope that the handbook and training material will be of interest to anyone interested in user-centred design in the broad sense.

An important part of teaching this subject is that the trainers have knowledge of accessibility and be able to provide an accessible training. It is crucial that they receive institutional support and help to make their course and training material more accessible.

1.2 A flexible approach to learning

The INTUX training modules have been designed to be as flexible as possible for the training organisation implementing the programme.

- **Online or face to face:** The training materials have been designed in such a way that they can be taught face to face, online or through blended learning.

- **Diverse target audience:** Different organisations implementing the training may have different priorities regarding the target audience and varying set ups, prerequisites, backgrounds, and resources. The materials have therefore been produced as a baseline that can be flexible and dynamic and moulded to suit the best interests of each training organisation.
- **Guided or self-learning:** The training modules can be used for both guided and self-learning or a mixture of these two approaches.
- **Stepwise approach:** The training modules are developed to follow the logical steps of preparing, carrying out and following up usability testing. Trainers are recommended to use the modules in this order, however it is possible to select one or two modules only, or to choose another order altogether.
- **Flexible duration:** There is no proposed duration of the training programme because this would differ depending on the organisation implementing the training and on their specific needs. The duration should be sufficient so as not to overload the participants in the training course. It should also be adapted according to the type of participants being addressed.

1.3 Set-up of training modules

The five modules are:

- **Foundational:** Planning, flexibility and back-up/alternatives.
- **Test panel set-up and diversity:** What to think about when setting up your test panel and recruiting participants.
- **Communication and etiquette:** What you need to know about disability etiquette and how to communicate in an inclusive way.
- **Assistive technology, guidance, and support:** How to support and guide users that uses assistive technology.
- **Conclusion of the test, feedback and compensation:** Important aspects to think about after conducting a test.

Each of the training modules consists of the same categories of content:

- Prerequisites
 - For students
 - For instructors
- Learning outcomes for the module
- Training content
- Examples of exercises
- Learning assessment methodology
- Links to further resources

1.4 Face to face or online

In light of the recent global challenges presented by the Covid-19 pandemic, many training institutions have adapted their approach to online education, providing students with the flexibility to choose the training format that best meets their preferences: face-to-face, online, or hybrid. This flexibility can be very positive for students with different abilities, however it also puts more pressure on trainers to understand and handle not only the pedagogical aspects but also a variety of possible technology and accessibility issues.

This handbook describes some of the main aspects that need to be considered when preparing a face-to-face training programme as well as online training.

2 Disability etiquette

2.1 What is disability etiquette

Disability etiquette entails treating, communicating with, and speaking about individuals with disabilities in a respectful and considerate manner. Many disabilities remain hidden, and, upon reflection, you will likely recognize the variations in abilities among your friends, family, and colleagues. Just as you expect others to respect your needs and preferences, disability etiquette involves making an effort to honour those of others.

Practicing disability etiquette serves to break down stereotypes and eliminate the stigma surrounding disabilities, fostering a society that values diversity and embraces empathy. By adhering to these principles, individuals can create an environment that welcomes and supports people with disabilities, allowing them to fully participate in society.

It is essential to remember that people with disabilities constitute the largest minority in the world, and their needs and preferences are as diverse as those of any other group of individuals.

Here are four fundamental recommendations to guide your interactions:

- ❖ Address the person with a disability directly, rather than speaking to their caregiver or assistant.
- ❖ Avoid making assumptions about what someone can or cannot do.
- ❖ Always ask if the person needs assistance before offering help.
- ❖ Respect personal equipment and assistive technology, avoid petting a service dog while it is on duty.

2.2 Be Attentive

Individuals with disabilities are the best judges of their abilities. Respect their ability to make choices for themselves and avoid making assumptions based on

appearances. For instance, some blind individuals prefer to navigate new environments independently, while others welcome guidance. People who use wheelchairs or walkers may use their assistive technology regularly or occasionally. Similarly, individuals who appear mobile may struggle with long-distance walking due to hidden medical conditions.

While it may seem tempting to offer assistance, it is crucial to let individuals determine their needs for themselves. Some prefer independence, while others welcome help. The key is to be attentive, ask politely, and respect their response.

Do not assume that individuals view their disability as a misfortune.

2.3 Guidelines for Social Interactions

In social interactions, strive for communication on equal terms. For example, when speaking with someone in a wheelchair, position yourself at eye level to reduce social disparities caused by height differences. Or provide real-time captioning during a team meeting to allow individuals with hearing impairments engage fully and equally with their colleagues.

Be aware that noisy or distracting environments can be particularly stressful or impossible for individuals who are hard of hearing or have difficulty concentrating.

Here are additional pointers for inclusive interactions:

- ❖ Avoid interrupting or finishing another person's sentences, which is especially important for those with speech impairments or stutters.
- ❖ Be patient when waiting for a response to a question or direction, as processing information may take more time than you realize.
- ❖ Instead of repeating, rephrase sentences if the person does not understand, which is particularly crucial for those with hearing impairments.
- ❖ Do not assume a person is not paying attention just because they are not making eye contact while you speak.
- ❖ If you have difficulty understanding someone's speech, give them your full attention, and, if necessary, ask for clarification or suggest alternative communication methods.

When interacting with individuals who are deaf or hard of hearing, establish visual contact and face them directly, as many rely on lip-reading. When using a sign language interpreter, address the person who is deaf directly, not the interpreter.

When meeting someone who is blind, introduce yourself and inform them when you leave the conversation or the room. When offering guidance, offer your arm instead of grabbing theirs, and provide descriptive information about the surroundings.

2.4 Words and Terminology

Language carries power and can reflect how we perceive others. While terminology preferences may vary, here are some general recommendations:

- ❖ Use "person with a disability" instead of "disabled person".
- ❖ Avoid outdated terms like "handicapped," "crippled," or "retarded," as well as euphemisms like "physically challenged" or "differently abled".
- ❖ Refrain from using disempowering words like "victim", "sufferer" or "suffers from".
- ❖ Avoid referring to individuals by their disabilities; instead, say "She has epilepsy" rather than "She is an epileptic".

2.5 Inclusive Language and Images

People with disabilities are just as diverse a group as any other. It is important that the expressions we use, and the images we show to accompany our words or to facilitate the understanding of the content, do not promote stereotypes. It is therefore important to reflect the social diversity that exists among the different persons with disabilities. You should pay attention to represent the variety in gender, size, age, socio-ethnic background, sexual orientation, religious beliefs, place of residence (rural or urban), and so on.

- Be respectful with persons with disabilities, just like with other people. Disability etiquette explains what to pay attention.
- All persons have different abilities, and all persons with disabilities are different. Be attentive: follow their preferences, just like you would do with any person.
- Adjust your interaction to the situation of the other person. Don't be impatient or paternalistic.
- Use respectful terms when referring to persons with disabilities.
- As always, acknowledge your audience: consider the abilities of the other person and communicate in a way that they fully understand you.

3 Face to face training: considerations for accessibility

When planning a face-to-face training program or individual sessions, several crucial aspects must be considered to include students with disabilities in the training sessions.

3.1 Ensuring access to the venue

Ensuring that your participants can easily access the training venue is essential. If you have prior knowledge of your participants, you can ask for their preferences and provide information tailored to their needs in the format they prefer. However, when you are not familiar with your audience, it is crucial to make the information accessible in terms of content and format.

When describing directions to the training venue, try to avoid relying solely on visual cues. It is often better to say, "Take the second street on the left" rather than "Turn left at the big red house." Furthermore, describe the road surface, whether it is asphalt, a sidewalk, or a path with sand or gravel. If possible, provide directions that support audio and tactile orientation. For instance, walking alongside a building is usually more straightforward than crossing an empty square.

Additionally, specify if there is reserved parking for community transport like taxis or buses, as well as parking for people with disability permits, and indicate how far these spaces are from the entrance. Ensure entrances and directions are clearly marked with large, high-contrast signs and include illustrations for cognitive support. Note that Braille may not be effective outdoors, so tactile elements in the signs can enhance visibility. Place signs at a distance where the next one is visible from the previous one or provide directions to the next sign's location.

Finally, ensure that stairs and other obstacles are marked with high-contrast markings for improved accessibility.

3.2 Inside the building

Within the building, make glass doors and transparent items clearly marked to prevent harm to visually impaired users. When guiding participants through the building, ensure that the path from the entrance to various rooms, including the training room, restrooms, wardrobe, kitchen, and coffee service areas, is obstacle-free. Provide descriptions of the path in the materials given to participants.

To enhance accessibility, remove loose objects and ensure there are no obstructions under hanging cabinets and shelves to prevent visually impaired individuals from bumping into them. Mark routes and stairs with high-contrast markings and large signs. In larger buildings, consider providing large-print or tactile maps and, if possible, offer a guide until the route is memorized.

3.3 Setting up the room

In the training room, allow participants to choose their seating positions. Recognize that visually impaired and hearing-impaired individuals may have different preferences for seating arrangements. Some may prefer to sit at the front, and some might have varying personal preferences for lighting and board angle, depending on

the specific impairments. For instance, participants with macular conditions may use peripheral vision, making them appear as if they are looking out the window.

When speaking in the training room, avoid standing in front of strong light sources, such as windows, as this can cast shadows and obscure your facial expressions. To improve visibility, use contrasting colours for the frames of whiteboards on white walls, and select markers that contrast well with the board. Be mindful of lighting and reflections, both natural and artificial, on whiteboards.

Maintain appropriate lighting levels, ensuring that the general lighting is bright, warm and even, and avoids glare. If necessary, provide individual task lighting. Good acoustics are essential for all participants, especially those with hearing impairments. Minimize background noise and require participants who use screen readers or other audible assistive technology to use headphones in larger rooms.

In larger rooms, consider using microphones, speakers, and induction loops for better sound quality and accessibility.

- Make sure that participants can get to the training venue. Provide route guidance (both format and content) that is accessible for persons with any abilities. Mark any obstacles in the way.
- Use signs that are well visible to indicate the way to the classroom in the building and also provide guides. Make sure that the path has no obstructions, and mark any possible obstacles you cannot remove.
- Set up the classroom so that people can choose their ideal seating. Be mindful of proper lighting and acoustics.

4 Online training

4.1 Video conferencing and collaboration tools

One of the most critical decisions in the realm of online training revolves around the choice of video conferencing and collaboration tools. Choosing the right video conferencing and collaboration tools is a pivotal decision for online training. It is recommended to carefully review the accessibility statement of any tool under consideration and to explore recent online discussions and recommendations before making a final selection.

The goal of this chapter is not to endorse a single, specific video conferencing tool. The landscape of these tools is continually evolving and updating, often improving accessibility, but occasionally introducing new challenges.

An inclusive video conferencing tool should inherently encompass features such as integrated closed captioning, the capacity to spotlight sign language interpreters, and seamless compatibility with assistive technology for both input and output, thus ensuring that it caters to the diverse needs of all users.

Examples of online video conferencing tools providing basic accessibility features at the date of creation of this handbook, in alphabetic order:

- [Google Meet](#)
- [GoTo Meeting](#)
- [Microsoft Teams](#)
- [Slack](#)
- [Webex](#)
- [Zoom](#)

It is important that the students know well in advance which platform will be used for the online training, so they have time to do the necessary preparations. Additionally, it is useful to make available accessible information with guidance or a manual, on how to access the platform, ideally provided by the training organisation (university). For example, a document in easy read, with the steps to follow to connect and use the platform, accompanied by screenshots.

4.2 Conducting an online training

Online meetings can often be quite exhausting due to the limitations in seeing and interacting with other participants compared to the dynamics of face-to-face meetings. Consequently, it is crucial to acknowledge this fact and proactively incorporate regular breaks into your agenda. Furthermore, active engagement with participants by pausing, asking questions, or conducting exercises becomes essential.

This is important for all students but maybe even more important for students with different types of disabilities.

Before starting the online training sessions, we suggest considering the following points:

- **Time management and pace:** If the training or discussion moves too quickly, it can be inaccessible to some students. When using videoconferencing tools, like the ones mentioned previously, various challenges may arise, including audio, visual, and chat issues. It is important to be mindful of these potential problems and adjust the pace according to the needs of your group.
 - Check in on people's understanding throughout the training and reiterate key points at regular intervals.
 - Ensure that participants speak one at a time.

- Ask students to request their turn to speak by using the “raise the hand” function (or similar) or by alternative ways such as the chat box.
- Record the meeting (always seeking prior permission from all students). 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.

It is important that students understand the schedule of the course and the evaluations, that they can anticipate them and be well informed about any changes.

- Provide in advance the evaluation criteria and the schedule of the periodic follow-ups measuring the students’ achievement, so that the students know what is expected.
- Share information in advance about the type of format used to evaluate the students.
- Set-up a calendar (by trimester or by month if necessary) to help understanding the schedule, reflecting school and vacation periods, marking important exams/tests. It may also mark the relevant study periods, to assist students in the planning. When changes occur, it is important to reflect them in the calendar.
- Provide advance, written information about the activities planned, as well as timely information about any changes or cancellations.
- Ensure that the changes are understood by the students.
- **Audio:** An online training session involving many students may be noisy and quite hard to follow.
 - Consider using an external mic if you are hosting the meetings in order to improve sound quality.
 - Speak clearly and try to limit background noise.
 - Use a video conferencing system that supports closed captions and/or transcripts and turn on closed captions (many of the conferencing tools offer auto-captions).
 - Ask students to turn off their audio when they are not speaking.
 - Ask participants to introduce themselves when starting to speak.

- If you are using slides, try to share your notes or transcript so that students can read along as you present.
- Allow transcript to be used for students who need it.
- **Visual:** Visual images on slides are helpful, especially for those who need support reading or communicate through images or pictures. However, it is also essential, beyond providing alternative text descriptions for images, to verbally explain both the slides and the images for students who are unable to see them or cannot see them well.
 - Share any documentation that will be presented prior to the training, so students have time to go through it beforehand and use them during the training.
 - When using slides, read out the content of the slide and describe meaningful images.
 - Ask participants to introduce themselves when starting to speak.
 - If you are sharing a website, include the link to the website in the chat so students can access and read through themselves.
- **No online access:** not everyone has an internet connection at home, or some people may live in rural areas where the connection is too weak to support video conferencing facilities. In these cases, it is important to offer an alternative, such as joining by phone.

- Choose the right online tools for your classes, making sure they have the required accessibility features. Ensure that the students know in advance about the choice of tools.
- Adjust your online training: make it interactive, insert breaks, make sure that every student can follow it, that they understand what is spoken and what is shown.
- Share information about the organisation of the course in advance, so students can prepare for it.

5 Accessible training material

5.1 Information formats

Users with diverse abilities often have varying preferences for how they access information, such as black print, large print, Braille, text accompanied by illustrations,

icons and similar to support understanding, audio, or various digital formats. Ensuring that the original digital source is accessible serves as a foundational step in simplifying the process of converting content into the desired format.

Information presented solely on paper should typically be avoided, except when specifically requested by a student, as it can present significant challenges or even be entirely inaccessible to users who depend on assistive technology for reading.

Similarly, when limiting the format, for example for how an assignment is expected to be delivered, it is important to propose alternative means and formats that the students can use.

Here are some fundamental accessibility principles to keep in mind when creating your informational materials:

- **Use clear, consistent layouts for presenting content.** This can be achieved in part by consistently using templates in word processing software, presentation software, content management systems and learning management systems. Consistent layout is important for all users, but essential for people with cognitive impairments.
- **Use correctly nested headings to structure documents.** Word processing software such as Microsoft Word provides styles for headings. Using these heading styles has several benefits: apart from ensuring a consistent visual layout of the headings, they allow users with assistive technology to navigate the document by jumping from heading to heading, they allow you to automatically generate a table of contents, and they can be used to generate a hierarchical list of bookmarks when you export the document to PDF.
- **Use descriptive link text for hyperlinks.** Use "[Web Content Accessibility Guidelines 2.1](#)" instead of "[click here](#)" or the document's URL. This is useful for all users but essential for users with assistive technology.
- **Avoid creating PDF documents.** Use HTML for presenting learning content in a learning management system. HTML is much easier to make accessible than PDF and can be easily adapted in the browser to fit the learner's needs or preferences. Another option is to publish the content in ePub format, as an accessible e-textbook. PDF can be provided as a secondary format; in which case it should still meet accessibility criteria. This is again important for all users but essential for users of assistive technology.
- **Provide text alternatives for images and other non-text content.** A text alternative should serve the same purpose as the non-text content. A short text alternative (e.g., for simple images) can be added as a type of metadata that is not visible to sighted users. Longer text alternatives (for complex

images or diagrams) can be provided in text since they can also benefit sighted users.

- **Use highly legible fonts and plain backgrounds.** A font size of 12 points or 16 pixels is recommended. Sans-serif fonts that were designed for reading on screens include Verdana, Trebuchet MS and Calibri. Serif fonts designed for reading on screens include Georgia, Cambria and Constantia. However, there is no such thing as an “accessible font” that works for everybody, even if that is sometimes claimed. Users with reading- and writing difficulties have just as individual preferences to fonts as other users. Good readability is important to all users, and even more when reading on a small screen or in bad light conditions, as well as essential for people with visual impairments and reading and writing impairments.
- **Typography.** Avoid italics and text in capital letters. Line lengths should ideally be in the range of 80 characters. Avoid splitting words at the ends of lines. Do not use justified text. This is important for all users but even more for people with reading and writing impairments.
- **Use high-contrast colour combinations.** Colour contrast can be checked using tools such as the [TPGi Colour Contrast Analyser](#) (for Microsoft Windows and Mac OS). This is important for all users but essential for people with visual impairments including colour blindness and reading- and writing impairments.
- **Make sure that colour is not the only distinguishing feature.** Use other distinguishing details also (e.g.: do not only make a link blue, but also underline it). This is important for all users, but essential for people with visual impairments including colour blindness and cognitive disabilities.
- **Provide closed captions for video and transcripts for audio content.** This is very useful for all users, not only for people who speak another language, but essential to hard of hearing users. Always use closed captions that can be switched on and off by viewers. This is important to make sure the captions do not disturb people who struggle with focus and concentration. Open or “burned-in” captions are always present and therefore may disturb some users. Closed captions may also allow for styling options to cater for user preferences.
- **Provide audio description for pre-recorded video.** A video typically conveys information through the images also, not only via speech. It is important that blind and visually impaired students have access to such useful information. Therefore, videos should have an audio description (in a separate audio track), that includes descriptions of all essential visual information in the prerecorded multimedia content. Similarly, make sure that you describe

important visual elements included in your presentation, be it a video or images.

- **Make sure that all content and functionality can be accessed using the keyboard alone.** This is essential for people who use assistive technology for input, for example devices for persons with motor impairments, and also for blind users with screen readers.

5.2 Accessibility support for users

The main features of Microsoft and other office type software include tools for persons with disabilities and instructions on how to enable accessibility support:

- 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](#))
- Accessibility features in **PDFs** ([all platforms](#))
- Accessibility support for **Google Docs, Sheets, Slides & Drawings** ([Computer](#), [Android](#), [iOS](#))

5.3 Basic guidance for creating accessible documents

Below you can find resources on how to ensure accessibility features for your documents:

- Make your **Word** documents accessible to people with disabilities ([Windows](#), [macOS](#), [iOS](#), [Android](#) and [Web](#))
- Make your **PowerPoint** presentations accessible to people with disabilities ([Windows](#), [macOS](#), [iOS](#), [Android](#) and [Web](#))
- Make your **Excel** documents accessible to people with disabilities ([Windows](#), [macOS](#), [iOS](#), [Android](#) and [Web](#))
- Create and verify **PDF** accessibility in Adobe Acrobat Pro ([Windows and Mac](#))
- Make your **Google Doc, Slides and Sheets** more accessible ([Windows and Mac](#))
- Creating accessible ePubs ([Accessible ePub Guide](#), [Guide to create an accessible ePub](#), [WordToEPUB for Windows](#))

5.4 Checking that content is accessible

It is always advisable to check the accessibility of your material before using it. Below you can find some basic information on how to use the built-in accessibility testing tools in the Microsoft Office suite and in Adobe Acrobat. Please, be aware that these steps can change with time, however, the following instructions might serve as indications even then.

5.4.1 Accessibility checker in Word

1. Select File > Info.
2. Select the “Check for Issues button” in the “Inspect Document” area.
3. Click the “Check Accessibility” command to launch the task pane.
4. Or type in “Accessibility checker” in the Search field.
5. A list of “Errors” and/or “Warnings” may appear.
6. In recent versions, the tool is also available using the “Check Accessibility” button in the Review tab. The button also offers direct access to more accessibility tools, like the Alt Text Pane, the Navigation Pane for document structure overview, and the ‘Focus’ immersive view, and to the Accessibility settings.

5.4.2 Accessibility checker in PowerPoint

1. Select File > Info.
2. Select the “Check for Issues button” and choose “Check Accessibility”.
3. In the Check for Issues drop-down menu, select Check for Issues.
4. Or type in “Accessibility checker” in the Search field.
5. Select the “Review tab”, then choose “Check Accessibility”.
6. In recent versions, apart from the Accessibility checker, an Accessibility tab also opens up automatically, offering further accessibility tools, like the Alt Text Pane, the Reading Order Pane, an “Inspect without Color” function, the spell checker, subtitles/captions tools and others.
7. In recent versions, the tool is also available using the “Check Accessibility” button in the Review tab. The button also offers direct access to the Alt Text Pane, the Reading Order Pane, the Accessibility settings and an Accessibility help.

5.4.3 Accessibility checker in Excel

1. Select File > Info.
2. Select the Check for Issues button.
3. In the Check for Issues drop-down menu, select Check for Issues.
4. Or type in "Accessibility checker" in the Search field.
5. The Accessibility Checker task pane appears next to your content and shows the inspection results.
6. In recent versions, apart from the Accessibility checker, an Accessibility tab also opens up automatically, offering further accessibility tools, like the Alt Text Pane, spell checker, selected formatting tools, naming tools and an Accessibility help.
7. In recent versions, the tool is also available using the "Check Accessibility" button in the Review tab. The button also offers direct access to the Alt Text Pane, the Format as Table style shortcut, the Unmerge Cells command, the Accessibility settings, and an Accessibility help.

5.4.4 Accessibility checker in PDF (Acrobat Pro)

1. Open the document.
2. Add the Accessibility Tool to your Toolbar: Click on the Tools Tab > Click the Add button below the Accessibility Tool.
3. Return to Document View: Click on the Document Tab.
4. Open the Accessibility Toolbar: Click on the Accessibility Tool in the Toolbar on the right side of the window.
5. Run a Full Check of the document: Click on Accessibility Check in the Accessibility Toolbar on the right side of the window > Click on Start Checking to run the Accessibility Checker.
6. View the results:
 - a. The Accessibility Checker panel will be opened on the left side of the window.
 - b. Click on each category to expand that section:
7. A red X indicates that the test was failed.
8. A blue question mark indicates that the test must be done manually.
 - a. Some items can be fixed automatically by Acrobat, and some will need to be fixed manually.

- b. Right-click on each item to see if they can be automatically fixed.
9. If the item cannot be fixed automatically, click on Explain to open the item's section in the Acrobat User Guide.
10. You will find a description of the reported issue and directions on how to fix it.

- Make sure that both the format and the content of your training materials are accessible. They should have a clear structure, a clear design, a clear language, and alternative presentations where necessary. And everybody should be able to navigate them, no matter their abilities.
- Make your documents accessible. Check out the publicly available information on the accessibility features of the main document formats, on how to ensure that they are accessible and how to check whether they are. That way you can make sure that all your students have access to the information you provide in your documents.

6 Teaching strategies

Ensuring that training is accessible to all students, regardless of their abilities, is of paramount importance. This involves embracing the principles of Universal Design for Learning (UDL).

Accessibility forms a core element of Universal Design for Learning, but UDL encompasses a broader range of considerations. Accessibility aligns with the first principle of UDL, which emphasizes the provision of multiple representations of information. This principle reflects the understanding that “if you cannot reach them, you cannot teach them”. In essence, it underscores the significance of accommodating diverse learning needs by offering information in various formats and modalities, thereby making education more inclusive and effective.

Below are several tips for teaching an accessible course. These tips come from a variety of resources, including [DO-IT's “20 Tips for Teaching an Accessible Online Course”](#):

- Make sure that course participants can see you well, especially your face and upper body. Adapt the lighting if necessary.
- Make sure that course participants can hear you well. In a big classroom or a lecture theatre, the sound system needs to be adequate.

- When presenting visual information such as diagrams, graphs and flow charts, do so in such a way that course participants with vision impairments get all the visual information.
- Make sure the content is presented in multiple ways. For example, when using a video, make sure it is captioned. A transcript is nice, however when you write, you present content differently than when presenting it in a video.
- Acronyms and jargon should be defined (or avoided).
- Instructions and expectations should be clear.
- Make sure that examples and assignments are relevant to a diverse audience (older students, male vs female, from different disciplines).
- Make sure that outlines and other scaffolding tools are provided.
- Make sure to provide adequate opportunities for practice (sometimes optional extra materials for students who want to do a little bit more).
- Provide adequate time for activities, projects, and tests (for example, you can ask the program manager to open the class one week before it starts, so students can get ahead, in case they get too busy later).
- Provide feedback on parts of an assignment (if it is a bigger assignment).
- Provide options for communicating or collaborating.
- Provide options for demonstrating learning (sometimes there are options for the same task, sometimes a multiple-choice test, sometimes creating a video).
- Consider recording the lecture, so that students can listen to it again later.

- Follow the principles of Universal Design for Learning.
- Make sure, all students get all the information.
- Engage your students with a varied set of tools and assignments, in a way that can be adjusted to their needs.
- Provide different options and ways for students to demonstrate their knowledge.

7 Training formats

The recommended usage of the training material ranges from the combined use of modules in a single workshop to an extended and more comprehensive training course. It is essential to tailor the content to align with the specific requirements, existing knowledge, and interests of the target audience, following a learner-centred approach.

These training materials are adaptable for both online and on-site training and can also be effectively employed in a blended format. Below, trainers can find an illustrative example of how to structure a single workshop and create a comprehensive training package using the provided content.

Trainers are advised to allocate ample time for interactive and engaging learning activities, practical exercises, foster reflection and evaluation, and incorporate well-established educational methods such as brainstorming and focus groups, among others.

Moreover, the design of learning activities should take into consideration the diverse needs and abilities of all participants.

7.1 Example 1: Workshop

The training material can be used in a workshop setting (e.g., 100 minutes training), to raise awareness and to provide an introduction and an overview to the subject of user testing with persons with disabilities. The section numbers in parenthesis indicate the relevant parts of the training material.

Introduction (10min)

- ❖ Share the learning objectives for the workshop.
- ❖ Encourage the audience to participate and share their experience.

Part 1: Foundations (10min)

- ❖ Outline the necessity of digital accessibility. (section 1.1)
- ❖ Provide an overview of user needs. (sections 1.1, 1.3)
- ❖ Explain why it is important to involve persons with disabilities in user testing. (section 1.2)

Part 2: Diversity (15min)

- ❖ Provide important aspects for recruiting users with diverse user needs. (sections 2.1-2.3)
- ❖ Explain the importance of providing support and guidance. (section 2.4)

Part 3: Communication (40 min)

- ❖ Discuss how to communicate respectfully with users with disabilities. (section 3.1)
- ❖ Show examples of inclusive materials and set-up. (sections 3.2-3.5)
- ❖ Work in groups: each group sets up a testing scenario.
- ❖ Discuss the groups' work.

Part 4: Assistive technology (10 min)

- ❖ Give examples of assistive technology (AT). (section 4.1)
- ❖ Discuss the importance of considering AT in user testing. (sections 1.2, 2.4, 4.2)

Part 5: At the end of the test (10 min)

- ❖ Outline how to finish a test session. (sections 5.1-5.2)
- ❖ Highlight the importance of compensation. (section 5.3)
- ❖ Discuss how to give feedback. (section 5.4)

Conclusion (5 min)

- ❖ Summarise the key points of the workshop.
- ❖ Provide additional resources for participants who want to learn more.

7.2 Example 2: Detailed training course

The training material can be used for a detailed training course (e.g., 8-15 units, 60-90 minutes per unit), aiming to reach an in depth understanding of the topic, with emphasis on both theoretical, and practical knowledge transfer. The section numbers in parenthesis indicate the relevant parts of the training material.

Unit 1: Introduction

- ❖ Allow participants to share their experience and their user needs.
- ❖ Share the agenda and the learning objectives for the training.
- ❖ Discuss expectations, wishes, needs, and interests.
- ❖ Assess the knowledge of your training group on user testing and accessibility.

Unit 2: Accessibility and user needs

- ❖ Outline the necessity of web accessibility. (section 1.1)
- ❖ Go through the most important terms and definitions. (section 1.1)

- ❖ Discuss accessibility needs related to various disabilities. (sections 1.2-1.4)
- ❖ Show real-world examples of accessibility issues. (sections 1.1, 1.3)

Unit 3: Accessible testing environment and flexibility, recruitment

- ❖ Explain recruitment basics (disability, assistive technology, age, gender etc). (sections 2.1-2.3)
- ❖ Discuss how to best reach testers. (section 2.2)
- ❖ Show examples of testing environment. (sections 2.3-2.4, 3.5))

Unit 4: Inclusive and respectful communication

- ❖ Discuss key items of disability etiquette. (section 3.1)
- ❖ How would you feel if someone spoke to your companion instead of to you?
- ❖ How do you feel when someone refers to you as “the shy/tall/bald person” or similar?
- ❖ How would you react when people you do not know come too close or start touching your things?
- ❖ How do you feel when someone makes assumptions about your abilities?

Unit 5: Inclusive test materials and alternative formats

- ❖ Discuss pros and cons of different types of test materials (physical and digital). (section 3.2)
- ❖ Describe alternative formats and how to produce them. (section 3.3)
- ❖ Explain the need for support and guidance. (section 3.4)

Unit 6: Assistive technology

- ❖ Describe assistive technologies that affect mobility and orientation (coming to the test-centre, entering the building). (section 4.1)
- ❖ Describe assistive technologies that have an impact on the room. (section 4.2)
- ❖ Describe assistive technologies that have an impact on the test. (section 4.2)
- ❖ Discuss work arounds and problem solving related to assistive technology in the test situation. (section 4.3)

Unit 8: Conclusion of the test, feedback, and compensation

- ❖ Describe how to end a test session. (sections 5.1-5.2)
- ❖ Discuss the need for compensation. (section 5.3)

- ❖ Outline good practices for providing feedback to testers. (section 5.4)

Unit 9: Practice

- ❖ If possible, let students set up a user test with real users who are informed about the context.
- ❖ Let the pilot testers provide feedback to students.
- ❖ If that is not possible, let students practice what they have learned by setting up tests and testing each other.

Unit 10: Summary, Conclusion & Assessment

- ❖ Recap the key points of the training.
- ❖ Provide additional resources for participants who want to learn more.
- ❖ Assessment of the acquired knowledge.

8 Background information for the training modules

There are many different reasons behind teaching UX-students user testing with persons with disabilities, for example political, philosophical, legal, economical, moral... As an introduction to discussing this, we have provided a couple of examples:

8.1 Examples of background perspectives

1. Opening Doors to Job Opportunities for Students

The European Union's Web Accessibility Directive, established in 2016, and the European Accessibility Act, passed in 2019 (to be implemented across the EU in 2025), have heightened the need for expertise in accessibility. For many Information and Communication Technology (ICT) products and services marketed within the European Union, accessibility is shifting from being an option to a requirement. Familiarizing students with web accessibility equips them with the skills to develop accessible ICT products. European standards will mandate that ICT products and services adhere to accessibility guidelines. Consequently, understanding how to test with users with disabilities has advantages that extend beyond the realm of ICT, even for those not legally obligated to prioritize accessibility.

2. The Power of Designing for Everyone

Some inventors who contributed to the typewriter's development, such as Agostino Fantoni and Pellegrino Turri of Italy, and Charles Thurber of the United States, aspired to create a device that enabled blind individuals to write. Dean Kamen's work on the iBOT, a self-balancing powered wheelchair, served as the foundation for the Segway. OXO's Good Grips kitchen utensils were designed to cater to a broad

spectrum of users, including those with arthritis and low vision, and have garnered popularity among a wide audience. Similar advantages can be found in the digital domain.

3. Embracing Diversity and Complexity in Design

In IT and design education, the business case is not the sole rationale for teaching inclusive design. Teaching inclusive design equips students to address conflicting priorities, such as "exploring and solving, simplicity and universality, provoking and respecting, feeling and testing, expression and meaning." These seemingly contradictory priorities, as noted by Graham Pullin, provide a means to control force, position, and direction. Jutta Treviranus, from the Inclusive Design Research Centre in Toronto, Canada, has authored valuable articles on this subject. For example, "Preparing a next generation that understands the value of human diversity and can navigate complexity" (July 16, 2019) and "Inclusive Design: The Bell Curve, the Starburst, and the Virtuous Tornado" (April 22, 2019).

4. Designing for Our Future Selves

With age, individuals commonly encounter age-related functional limitations. Contrast sensitivity diminishes from the age of 40, hearing impairment becomes more prevalent after 50, and motor skills may decline, often after 50, due to conditions like arthritis and Parkinson's Disease. Accessibility affects not only people with disabilities and retirees but also a significant portion of the workforce. It is important to note that even those who do not categorize themselves as "disabled" or "people with disabilities" eventually experience impairments as they age. This data underscores the fact that accessibility is not only relevant to specific groups but also to a broad demographic, including our future selves.

8.2 Strategies and methodologies for teachers

Teachers may increase motivation and understanding through:

- activities that help better understand the diversity of user needs;
- combining theory with practice.

1. Engage in learning activities that encourage students to develop a broad understanding of the variety of users and user needs

To be able to develop and design accessible products and services, ICT professionals need to consider the varying needs of different users. This means challenging preconceptions about who is the user and what are the user needs. A central part of developing both an understanding of accessibility and the ability to implement accessibility in design and development is therefore to learn about a wide variety of users and user needs. This can be done in several ways, ranging from working with personas to meeting and working together with persons with different abilities.

2. Invite persons with disabilities to collaborate on the course and engage with the students

The best way to get an understanding of whether an interface work for all users in practice is to learn from people that know about accessibility challenges from their own experience and who can show what works and what does not work for them in different digital interfaces. Depending on the level of ambition, the interaction can be everything from a lecture to assignments where the students are working in teams together with persons with disabilities.

3. Combine theory with practice: Integrate practical assignments at different levels in the courses

User testing with persons with disabilities is not a purely practical subject. It involves both understanding the rationale for and the principles behind different user needs and assistive technology, as well as the ability to apply these principles in practice. Theory and practice go hand in hand, and teaching both together reinforces the learnings and helps to develop application strategies that will be useful for the students in their professional life.

4. Provide and discuss good practice and bad practice examples

Using existing examples is a good way to connect practice and theory, to explain concepts and to provide points of orientation. It helps to understand what to avoid and what to strive for in inclusive user testing. Students then can combine these examples and create their own solutions. Practices can be best exploited, if they are not only explained by the trainer, but also discussed by the students.

5. Connect training on user testing with persons with disabilities to the student's other courses to ensure that the courses together prepare students to practice inclusive design in their professional role.

Web accessibility is always practiced within specific professional contexts. While there are core competencies common base of learning, connect learning activities to the students' concrete ability to implement techniques for accessibility in interfaces. The practical ability can be defined differently according to the subject of the course. It could for example concern to develop and design products that are accessible, or to apply criteria of accessibility in procurement procedures. The important factor here is that accessibility needs to be practiced to make an impact. Concretely, this means that the content of the lessons in web accessibility should include examples and exercises that relate to the specific study programme followed by the students.

8.3 Assessing and strengthening the capacity for delivering courses

1. When developing and delivering a module on accessibility, incorporate accessibility in the teaching material and delivery

Students learn by example and practicing what you preach is the best way to get the message across. Accessibility is to its nature a practical concept, and a skill to be applied also in educational situations. It does not only concern the digital materials used in the courses, but also in general the way in which information is packaged and provided to students. This impacts everything from digital presentations to handouts and materials.

2. Use student surveys to assess and fine-tune the web accessibility modules and courses

Student surveys are useful to gather information for the development and fine-tuning of courses and modules. Handing out a survey in preparation of the course to assess the level of knowledge among students will help you set the right level of the course for this particular group. The information can also be compared with a survey after the course was completed, to evaluate how much the students learned.

3. Web accessibility in relation to other courses: Make the connection to accessibility in all relevant teaching topics

Accessibility is important to all users of digital interfaces and IT, which means that whatever your students end up working with in the future, they will need basic knowledge of how user needs interact with accessibility issues. In addition, it is easier to learn and remember new concepts when they connect to issues that are familiar and recurring. Therefore, introducing basic accessibility principles and concepts in the context of general teaching on subjects such as interface design, service design or development techniques will both facilitate the student's assimilation of the topic, and also make the learnings easier to remember and use in practice.

4. When asking students to assess the course or module on accessibility, be sure to connect the course or module to the objectives of the overall ICT programme that the students follow

The assessment of the courses is best done using the same means that are applied to all courses and programmes. This is to be able to compare the assessment with evaluations of other modules that are included in the ICT programme or course. From a didactic point of view, it is important to send a signal to both the teachers and students that web accessibility is not a specialist subject, but a normal part of all ICT education. Using the same evaluation methods, for example surveys, across all subjects ensures that the results of the evaluation can be taken into account in the

context of further developing the broader ICT programmes, together with other courses and modules.

5. Networking with colleagues and external contacts: Join forces with colleagues to create a working group on accessibility

Implementing accessibility is always teamwork – all web professionals that work with a specific interface need to apply accessibility principles that are relevant to their expertise, whether it has to do with design, development or content. The equal repartition of responsibilities is also a strength, as a team can provide both more incentives and support to work with accessibility. The same principle can be applied to teaching. Web accessibility should be included in all subjects that are core to ICT students, whether they are studying 19 design, development or communication. In this context, teachers within different disciplines can benefit from cooperating on developing courses and modules. Within the IWAC project, partner organisations successfully tried joint workshops where teachers responsible for different courses colleagues met up to learn more about accessibility through the MOOCs created in the project. These kinds of workshops could be expanded to regular meetings for mutual support and inspiration.

8.4 Suggested methods to involve students

The following section contains indications and examples for methodological approaches to approach learners and teach the modules and units:

1. Open discussion & self-reflection

- What do you know about [digital accessibility]?
- What springs to mind when you hear the expression [accessible user testing]?
- Why is [flexibility] important?
- Discuss [common user needs and accessibility issues]
- Reflect on personal experiences
- Discuss the influence of [Assistive Technology usage]
- Use a collaborative document, e.g. a FAQ (Frequently asked questions)

2. Familiarise participants with the topic

- Provide participants with a comprehensive overview
- Explain the purpose, importance, advantages of [inclusive user testing]

3. Practical sessions

- Discuss / present examples
- Set up an inclusive user testing session

- Pique your students' interest by offering perspectives on why inclusive user testing is relevant for their professional future.
- Provide practical assignments and first-hand experience, not only theory.
- Connect the course on inclusive user testing to other elements in the students' curriculum, integrating it into the overall ICT programme.