

Guide to Accessibility for Teaching and Learning Resources

"Accessibility is all about the ability to access. In other words, how easy is it for people with different needs to access your services or materials?"

(JISC TechDis, 2014).

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A. Why should I make my teaching and learning materials accessible?

Making your resources accessible for some, in particular those with specific learning difficulties and/or disabilities, improves accessibility for all and will reduce the number of individual adjustments you need to make.

At Swansea University, the proportion of full time students who declared a disability or other long term condition has risen from 8.3% (980 students) in 2012/13 to 12.9% (2350 students) in 2018/19.¹ The breakdown for the 12.9% in 2018/19 was:

- 4.9% (900) had a [specific learning difficulty](#) (dyslexia, dyspraxia or Developmental Coordination disorder (DCD), dyscalculia, dysgraphia, and Attention Deficit Disorder (ADD) or Attention Deficit Hyperactivity Disorder (AD(H)D);
- 3.2% (590) had a mental health condition;
- 1.2% (215) had two or more conditions;
- 1.1% (195) had a long-standing illness or health condition;
- 1% (190) had another disability, impairment or medical condition;
- 0.7% (120) had a social communication or Autistic spectrum disorder;
- The remainder (140) had one of the following: a physical impairment or mobility issues (0.3%), deaf or a serious hearing impairment (0.3%), and blind or a serious hearing impairment (0.2%).

Making accessible content is not difficult and benefits everyone. It is also a legal requirement under the [Equality Act 2010](#) that reasonable measures are taken to provide accessible content in anticipation to those with disabilities. By following the guidance below you can start making reasonable adjustments to the teaching and learning materials you provide to students before a specific need arises.

Frequently asked questions are:

Q. None of my students are disabled. Do I still have to make my web pages and resources 'Accessible'?

A. Under the Equality Act 2010, there is a responsibility to make anticipatory adjustments. This means that institutions should consider what adjustments future disabled students may need, and make them in advance.

¹ Higher Education Statistics Agency/Jisc, HEIDI Plus statistics, accessed 19-05-20

Q. Will my web pages and resources look less attractive?

A. The short answer is "No", you can still apply good design to web pages and resources which are also accessible. Most measures taken will help everyone. It's similar to using 'plain English' techniques – everyone benefits!

B. Webinars

1. General Good Practice

- When organising the webinar, ask if there are any accessibility requirements of which you need to be aware.
- Organise access for any disability support workers such as notetakers and interpreters.
- Institutions should be using one platform so that participants do not need to learn multiple ways to navigate the different systems.
- Ensure that participants are aware of the platform you are using and ensure assistance is available to assist them if necessary.
- Accessible copies of the slides should be supplied in advance to both students and any disability support workers.
- Organise your Webcam to ensure the light is falling on your face to allow lipreading, if appropriate.
- Describe the key content of all slides.
- Consider using an open microphone for some disabled participants so that they can request clarification during the presentation.
- Save the chat pane so that the presenter can answer any questions after the session, and they can be distributed.

2. Neurodiverse Conditions

For many neurodiverse conditions (dyslexia, dyspraxia, dyscalculia, ADHD, Tourette's and Autistic Spectrum conditions) a webinar involves too many inputs with video, audio, slides, whiteboard, chat, Q&A, etc.

Keep it very simple:

- Switch off audio for participants from the start.
- Switch off video for participants from the start.
- Leave the main screen set to the slides for most of the time.
- Give clear warning of changes to polls etc.
- Advise people to keep to either the chat pane or Q&A - not both.

- Advise that the presenter or an assistant will read out any questions added to the chat pane so students do not have to keep the constantly changing feed on their screen. This will also help those with slow reading speeds.
- Send out the list of questions from the chat pane and the answers after the session.
- Access to notetakers may also be required.

3. Deaf/Hearing Impaired users.

Many of the platforms used for webinars have some form of automatic captioning available and these can be used with care.

- Microsoft Teams have integrated automatic captions but experiences of this may vary.
- Zoom has recently partnered with [Otter.ai](#) for automatic captions in their Pro version but, once again, varied experiences are being reported.
- Panopto automatically transcribes videos uploaded generating captions but you need to check them before making the video available.

The accuracy of the captions can depend on available bandwidth and user-accent, but the main problems appear to be connected with the user's surroundings. Some people are using small rooms with good acoustics whilst others are using large rooms with external noise and echoes.

Recommendations:

- Presenters and all users wear a headset with a microphone, if available.
- Ensure all microphones are switched off when the person is not speaking to reduce background noise.

Members have reported that the use of the automatic captions on Microsoft PowerPoint are proving very useful for direct lectures but still have the problem that the captions stop, if you take the slides off the webinar screen to use a poll or show a webpage.

BSL interpretation for webinar sessions may be required so check the reasonable adjustments for any of your disabled students. When BSL is the student's first language, it can be hard to keep up with multiple threads in the chat pane. Good practice is to read out the questions and comments so that the notetaker or interpreter can convey the information.

Access for notetakers may also be required.

4. Blind/Visually Impaired users

Several blind and visually impaired users are reporting difficulty in accessing webinars and many of these difficulties can be removed with correct practice.

- An accessible version of the slides should be available in advance for everyone, but this is especially important for people who have to decide whether to listen to the presenter or the screen reader.
- The presenter should read out what is being shown on the screen. This may be content on the slide that they are talking about or equations on a virtual whiteboard. 'You cancel this by that and add this' does not help anyone.
- The 'chat' pane can be very difficult to access with a screen reader and may also contain text too small for a visually impaired person to read. It is good practice to read out comments from the chat pane.

C. Documents

This guidance applies to Microsoft Word files, PowerPoint slides, PDFs and the equivalent.

Provide materials at least 48 hours in advance (including reading lists, PowerPoint Slides and lecture notes), so students can prepare for teaching sessions.

Preliminary research shows that there is no difference to knowledge retention when slides are provided before the lecture ([British Psychological Society, 2010](#)). Students may prefer to print a copy in notes format so that they can then write alongside each slide.

1. Colours

a) Ensure high colour text contrast

Have you ever tried to read **yellow text on a white background** from the back of a lecture theatre, or in a room where there is a lot of light on the screen? It is very difficult to read. By making sure you use colours for your text that have a high contrast to the background e.g. black on white, **white on navy**, it will be easier to read from a distance and also helps those with visual impairments. Use the [Webaim contrasting tool](#) to check.

High contrasting text will also print more clearly.

b) Emphasize text or visuals using more than colour

4.5% of the UK population are colour blind ([Colour Blind Awareness](#)). If you use colour to help people understand something (e.g. green to indicate something is

correct), you also need to provide another way for people who are colour-blind to understand this distinction.

Colour and another way of formatting e.g. bold, italics, underlining, larger font, should be used to distinguish important information. You need to also emphasise it in another way as well **so those who are colour blind are not disadvantaged**.

Use this accessible colour picker tool to find colours that are accessible: [snook.ca Colour Contrast Check](http://snook.ca/Colour_Contrast_Check) (avoid NO in the results boxes for [Web Content Accessibility Guidelines \(WCAG\)](http://snook.ca/Web_Content_Accessibility_Guidelines_WCAG)).

This will tell you whether the colours contrast enough to be seen by both those with good vision and those who have certain common visual impairments (like colour blindness). The tool works by colour picking the background RGB colour code (e.g. #FFFFFF is white) and the foreground colour and inputting these in the appropriate fields for the website to check the contrast is high enough. If any No's appear in the results boxes you need to change the background or foreground colours accordingly to ensure the text is readable.

c) Choice of Colours

It is particularly difficult for people who are colour-blind to distinguish between red and green. For example, using a green tick allows everyone to see something is correct.

Use **simple colours** rather than bright contrasting colours. Avoid combining red and green, yellow and blue, green and blue and combining colours of similar tone such as dark blue and black.

Consider **printing onto different coloured paper**. Black text on a yellow background can often be beneficial.

Toned background behind the text reduces the glare of the paper and makes the text easier to read. The background should be solid colour and not textured.

To **change background colours in a PDF file** use Adobe Reader.

Download Adobe Reader (for free) get.adobe.com/uk/reader/.

Open Adobe Reader by double clicking on it.

Open the pdf file.

Select Edit > Preferences (at bottom of list).

Under Preferences:

> Accessibility (left hand pane).

Select: Replace Document Colours (right hand pane).

Select: Custom Colour.

Select: Box to the right of "Page background".

And choose the colour that you want.

Alter the text colour if you want to as well.

Press OK.

NB. It remembers your settings and will open the next pdf with the new background colour. Beware as one of the blue backgrounds is the same colour that Word uses for URLs.

2. Use legible font sizes and styles

- Use Sans-Serif, cross-platform compatible fonts e.g. Arial, Tahoma, Verdana, Helvetica, Calibri, Candara, Corbel, Segoe, and Gill Sans. Avoid Serif fonts such as Times New Roman, Courier and Palatino.
- Use font colours that provide good contrast to the background colour (e.g. black on white, white on navy). A cream background is often more accessible than pure white.
- Minimise the use of bold, italics, different coloured text and the block use of capitals. Avoid underlining, except for links.
- *Italicised* text - is more difficult to read on a screen.
- CAPITALISED text - IS MORE DIFFICULT TO READ.
- Ensure that hyperlinks are **underlined**.
- Use **bold text** only for emphasis.
- Some screen-readers will only pause when they encounter a **full-stop, question mark or semi-colon**. Therefore, if you don't add these to the end of each bullet point, visually impaired students may hear each point read out in quick succession, without any pause indicating the end of each point.
- Avoid backgrounds which are overly 'fussy' and do not overlay text on a picture unless the text is on a banner.
- Avoid adding text boxes because these cause difficulties for screen readers.
- **Word documents:** use a **minimum of 12 point** type face. If using subscript or superscript consider enlarging to size 14 (e.g. CO₂).
- **PowerPoint slides** (or equivalent):
 - Guidance on accessibility is available from [Microsoft](#).
 - absolute **minimum 24 point** text size for presenting in **small (< 50 seat) lecture theatres** with 45 bold for titles and

- **minimum 28 points** for text projected in **large (50+ seat) lecture theatres** ([Holzl in Apperson, Laws & Scepansky, 2006](#)).
 - Use standard slide layouts and templates where possible, **check order of information** using the [Reading Order pane](#) to ensure accessibility for those reading slides using screen readers.
 - Bullet points assist in making slides easier to follow, but don't overdo them.
 - Avoid animations and sounds if not crucial to content of presentation. Animations may cause screen readers to read the slide twice.
- Avoid using Prezi, as it is not compatible with screen reading software. If you need to use it follow the [guidance on making Prezi more accessible](#).

3. Format and design

- Make the **layout simple**, linear, logical and consistent.
- Use clear margins and **align text to the left** rather than full justifying it. Full-justified text (which aligns to both the left and right edges) creates rivers of white space and slows reading.
- **Limit the amount of text** on each page / slide and use appropriate spacing between blocks of text to make it easy to read.
- Avoid hyphenation.
- **Break blocks of text up** using sub headings, bullet points and images/diagrams which support the text. Use [heading styles](#) to create a clear document structure and to help with navigation (keep headings in order and numerically ascending).
- People using screen readers rely on **headings** to navigate web pages and documents. If you jump from a heading 2 (the name of your course for example) to a heading 1, or a heading 4 in the content, those using screen readers will not understand the correct hierarchy of the page. In the (default) text editor that means using the large, medium, small headings in the correct order, starting with large.
- **Tables are for tabular data and** should not be used to control where items appear on your page. There are other, accessible ways, to [lay out elements](#) on your page. For example, if you need an image to appear alongside some text on a web page, you should change its alignment instead. Keep table structures simple.
- Put the **table headings at the top of the columns**, in the first row. Specify and [repeat the table header row](#).

- [Add meaningful alt text](#) and [informative captions](#) to explain your table or graph to visually impaired readers.
- Number pages.
- Make sure any photocopied resources are of sufficient print quality.
- Use meaningful descriptions for hyperlinks such as the name of the document or subject of the page the hyperlink is linked to, rather than “click here”.
- Don’t use figures of speech and idioms, for example “it’s raining cats and dogs”.

4. Images

- People who have a visual impairment using a screen reader to view a web page or a document (such as PowerPoint) will have image descriptions read to them in lieu of seeing the image. Make sure you describe your images concisely and accurately. [Add alternative text](#) to your images to provide a description for screen reader users.
- Pictures should be to the left of text or at the end of paragraphs with space between the text and the image.
- Rewrite any text that appears in an image. However, if using the image in a quiz, be careful not to give away the answer in the image description.
- Do not put text over images, for example, where an image has been set as a background, as this can make the text hard to read.
- Use the [Advance HE clear print checklist](#).

5. Equations

- Use large fonts for embedded equations (at least 14 point type face).
- If using [LaTeX](#) for any documents, put the font size/colour in the style file and make this available to students – they can edit it themselves as required.
- Accompany any visual material with visual/audio descriptions – this can help all students.
- Think about how equations and formulae etc. can be read aloud directly:
- Screen readers such as Jaws, Read Aloud, and Voice Over, can read equations created in [MathML](#) or LaTeX Types, including equations created in Microsoft Word or PowerPoint 2010 (or later).

- Use [Mathtype](#) in Microsoft Word documents to create documents with equations that can be read aloud directly.
- If publishing Maths on the web, use MathML or LaTeX for the equations and [MathsJax](#) to render them.
- Find out [how to use Microsoft Word to create MathML equations.](#)
- Find out [how to produce accessible equations for the web.](#)
- [Supporting students in STEM with colour visual deficiency](#)

6. Advice on disabilities

Look at posters on [making resources accessible](#) for students with:

- Autism.
- Dyslexia.
- Anxiety.
- Visual impairments including those who use screen readers.
- D/deafness and hearing impairments.
- Physical disabilities.

7. Linking to resources

A recent study at UCL has found that some students find links opening in new windows annoying.

It is also an accessibility issue as everyone, (but especially those with visual impairments and inexperienced web users), sometimes [rely on using the back button](#).

Students who want links to open in new windows can right-click or Ctrl+click to do this, but blind and non-technical people are less likely to know how to open the link in the same window.

The only time you should open links in a new window is:

- ✓ When you have warned the person this is about to happen; and,
- ✓ If the link is taking the person to a page to help them fill in a form.

This article makes a good case for opening links in the same window, with reference to [usability](#) expert Jakob Nielsen's research on [opening applications in a new window](#).

When linking text, don't use 'Click here', instead describe what will happen when someone clicks on the link (W3C 2016):

E.g. Use our [interactive travel map](#) to discover how long it will take you to travel to Swansea from all major UK cities.

Therefore, when it is read out loud with a screen reader a visually impaired person knows where the link will take them. Often, a blind user will navigate a page using the headings and links, so understanding the link's purpose without having the refer to the surrounding text is useful. This helps everyone understand what the link is for and can help people who are scanning text quickly to more easily identify a link they wish to access.

8. Check accessibility

You should make sure you are providing files that are accessible to students. If you use any external digital tools you should **check them for usability and accessibility** using web2access.org.uk.

a) Accessible PDFs

- If your document is a PDF, make sure that the content can be read by screen readers and is appropriately tagged e.g. as a heading, image, table, etc.
- Depending on the method you use, saving a document as PDF sometimes converts text to images. An easy way to determine whether the text in a PDF is still text, is to select, copy and paste the text from the PDF into a text editor like Notepad or Word. If you can't do this, it is likely the PDF conversion process has changed the text into an image, which is not accessible to screen readers. Saving documents directly from Microsoft Word, rather than printing to PDF, should create accessible PDFs for you.
- With sufficient care, PDFs can be read by a range of technologies and on different devices, such as smart phones, tablets and computers.
- The UK Government has [guidance on creating accessible PDFs](#)

b) Accessible Microsoft Office documents

- You can check [PowerPoint](#), [Word](#) and [Excel](#) files for accessibility issues using the [Accessibility Checker](#). This tool then explains why it's important and how to fix each issue.
- Share your documents in an editable format if you can so that students can change the font sizes or background colour to suit their needs.
- Make your documents easy to print as some students may suffer from cognitive fatigue or migraines as a result of long periods reading online.

D. Websites

- Paragraph text should be 16px. Font sizes should never be smaller than 10px for screen or print - this might be suitable for copyright information (W3C 2010).
- Use a browser extension to see what font sizes are being used on websites.

Use [Fount](#) to identify web fonts on any site.

Install the '[WhatFont](#)' extension for Chrome.

Install the [Font Finder](#) for Firefox.

- [WAVE](#) is a web browser add-on which renders an accessibility report as visual markers on any given web page, along with commentary in a sidebar.
- Use an [accessibility checker](#) yielding a more technical report.
- Look at the [WCAG](#) web content accessibility guidelines.

E. Projected materials -check the size

- When **projecting a website**, you can zoom in to make the font size larger. Use the browser menu or these keyboard shortcuts on Windows:

Ctrl+plus key to zoom in.

Ctrl+minus to zoom out.

Ctrl+0 to reset the page to the default size.

- In **PowerPoint** you can use the zoom function: either Ctrl+plus key to zoom in or Ctrl+minus to zoom out and RT click to reset. Or you can use the Magnify Icon at the bottom left of the Slide when showing in Presenter View.

F. Video files

Make sure that the videos that you provide are accessible. A student may have a British Sign Language interpreter or palantypist (someone who types out everything that is said) or a notetaker. If this is the case for any of your students, arrange for the interpreter, palantypist or notetaker to have access to the online lectures.

Making videos accessible could be done in a number of ways:

1. Existing videos:

- Add [captions, subtitles, audio descriptions or transcripts](#) for hearing and visually impaired users.

- How to [add subtitles and closed captions to YouTube videos.](#)
- Download the [STAMP subtitling add](#) in to add captions to videos in PowerPoint.
- For videos that are already online and not your own, subtitles are often available already. Check to see if this is the case. If you see subtitles, check them. These are sometimes done automatically and some of the text may be inaccurate, however, accuracy is improving all the time.
- If there are no subtitles already, or if the automatic subtitles are poor quality, contact the owner and let them know about this problem.

2. Videos you have created:

- **Upload video transcripts** or notes (where these already exist).
- Often when you produce videos you will write a script, or notes to outline what you will cover. These can be very useful for students, especially those with disabilities. If you have this text it is good practice to upload a copy alongside your video. This may be in the VLE, or within YouTube or Vimeo.
- A [best practice guide on subtitling](#) has been authored by Neil Roberts from the UCL Ear Institute.
- **Add visual descriptions** Visual, or audio descriptions are narration that describes actions on the screen, usually between pauses in dialogue, or sometimes during dialogue, if necessary. Here's how to [add audio description to YouTube videos.](#)
- Subtitling/transcript provision has also been shown to benefit students with English as an additional language or who have specific learning difficulties. Also consider how video is generally watched online these days, especially on mobile devices: videos overwhelmingly are subtitled. Students expect this and are more likely to watch your video if it has subtitles, because they'll be able to watch it anywhere, whether or not they have headphones. The bottom line is: **subtitling benefits everyone.**

G. Audio files (e.g. podcasts)

A written transcript should be available for any audio resources you share with your students.

1. Existing audio:

Many podcasts do offer transcripts already – check. If not, ask the owner if they can.

2. Audio you have created:

If you are providing your own audio file, there are many easy ways to create a transcript from this: e.g. Go-Transcribe, Voicebase, or [here is a list of other transcription software including some that are free.](#)

H. Canvas

Canvas is built with [accessibility](#) in mind. The pages tool has an inbuilt accessibility checker and using the rich content Editor provides a range of features to support access. Module layout enables students to navigate course materials so each should include:

- An introduction page.
- Headings to sub-divide the menu links.
- Descriptive titles for all activities.
- Indentation to define the content's hierarchy.

I. Useful resources and tools

Develop a more **inclusive approach** to your role with the [SALT inclusivity module](#). Make sure you are logged on to the VLE to access the course.

SALT accessibility for **teaching guidance** salt.swan.ac.uk/category/resources-for-teaching/rft-accessibility/

Digital accessibility salt.swan.ac.uk/digital-accessibility-regulations/.

Accessibility for **deaf students** ndcs.org.uk/blog/remote-learning-in-higher-education-for-deaf-students/

Guidance for **visually impaired learners** rnib.org.uk/young-people/starting-university, rnib.org.uk/rnibconnect/web-accessibility-people-disabilities and pocklington-trust.org.uk/covid-19-student-support

Guidance on **accessible presentations** w3.org/WAI/teach-advocate/accessible-presentations/

Explore the [guidance from Jisc](#) on making resources accessible.

AbilityNet: [Producing accessible materials for print and online](#) and [Creating accessible content](#).

UK Association for Accessible Formats (UKAAF) – [Creating clear print and large print documents](#).

University of Kent [accessible resources list](#).

University of Edinburgh's [guide to creating accessible materials](#).

[MOOCAP](#) open educational resources accessibility project.

J. References

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NADP Ensuring your online webinars are inclusive (supplied by the Transcription Centre)

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