



Accessible E-Learning and Teaching

**Checklist for Creating and Reviewing
Accessible Websites**

**University of Bremen
The BALLON Project – Accessibility in E-Learning and
Teaching**

These checklists were created as part of the BALLON Project (Accessibility in E-Learning and Teaching), which was launched at the University of Bremen in January 2021. The aim of the project is to develop a support system for teaching staff and students for accessible digital learning and teaching at Bremen universities as part of the implementation of digital and hybrid studies. Further information and support are available directly from the BALLON Project. This document contains descriptions on how to implement accessible design as well as checklists for reviewing different formats and materials: Word, PDF documents, PowerPoint, websites, online classes, and information videos. You can also download the checklists separately on the BALLON website under “Checklists and Tools”:

[Checklist for accessible Word documents](#)

[Checklist for accessible PDF documents](#)

[Checklist for accessible PowerPoint slides](#)

[Checklist for accessible online classes](#)

[Checklist for accessible websites](#)

[Checklist for accessible information videos](#)

Checklists for Creating and Reviewing Accessible Digital Content

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Version: July 2022, second edition

Author: The BALLON Team

Email: ballon@uni-bremen.de

Website: www.uni-bremen.de/ballon

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Introduction

Barriers at universities

There are a wide range of different hurdles at universities that result in unequal access to university education and can even prevent access in the first place. These barriers are distributed across different inequality dimensions such as age, background, gender, disability, and other aspects. The resulting disadvantages experienced by some students have become further exacerbated since 2020 in the course of the COVID-19 pandemic and the associated switch to digital learning and teaching formats. This transformation posed a challenge to students, teaching staff, and the administration alike – and continues to do so in some cases. Disadvantages, including greater social distance, limited communication, and sometimes poor technological infrastructure, constitute barriers for all students, but affect students of already marginalized groups in particular. The **barriers** in e-learning and teaching raise a number of questions:

- *How should I study for an exam if the learning material is only available as an audio file, which is inaccessible to me due to my deafness?*
- *Home alone with a poor internet connection and/or with German as a foreign language – how will I ever be able to pass the course?*
- *My student is unable to read the slides – how can I make them compatible for a screen reader?*
- *What exactly are digital barriers?*

Aim and target group of the checklists

The checklists provide general **information on creating and reviewing accessible digital content**.

The checklists are aimed at everyone who is interested in supporting equal-opportunity access to digital content, with a particular focus on accessible e-learning and teaching. For this reason, they are intended especially for **teaching and administrative staff** who play a decisive role in student access to digital studies. The aim is to raise awareness of the topic of digital accessibility and provide a guide to

creating, designing, and reviewing Word and PDF documents, PowerPoint slides, websites, online classes, and information videos. Moreover, the checklists refer to helpful tools and further information. Accessible study material from teaching staff, work from students, and information material from administrative staff contribute toward a diverse and inclusive university and should be the norm. From easy-to-use forms and PDFs legible to screen readers, to high-quality online videos with live subtitles: every barrier prevented and dismantled ultimately benefits *everyone*.

Legal foundation

In some areas of university, full accessibility is already **legally mandated** – for example, by the UN Convention on the Rights of Persons with Disabilities, the Basic Law of Germany, the German Higher Education Framework Act, the Bremen University Act, and other legislation. You can find details about the legislation under “[Further Information](#)” in the “Guide for Teaching Staff: Supporting Fully Accessible Teaching” (KIS, University of Bremen, 2018). The foundation for accessible online content is provided by the global standards of the [Web Content Accessibility Guidelines \(WCAG\) 2.1](#), upon which the German [Accessible Information Technology Regulation \(BITV\) 2.0](#) is also based. These standards are currently outdated and a draft of the [WCAG 3.0](#) has already been published. As a result, Bremen universities are obligated to enable equal access to studies for all students – irrespective of social dimensions such as disabilities or illnesses.

How to use the checklists

The checklists can be accessed or used in two ways:

1. Are you about to start designing or creating materials and would like to make sure they are accessible? In this case, pay attention to the sections titled “**Implementation**” in the documents. Here you can find the aspects that should be kept in mind as well as information on specific settings in the relevant programs.
2. Have you already created your materials and would like to test their accessibility? You can review your materials yourself using the “**Checklists**.” Cross off the applicable checkpoints and use the information under “**Implementation**” to work through aspects that have not yet been fulfilled.

The checklists refer to work with the programs **Microsoft 365 Professional Plus 2019** and **Adobe Acrobat Pro**. Your software versions may differ in terms of the respective functions or presentations. You can find support at [Microsoft: Make your Word documents accessible to people with disabilities](#) and [Adobe: Create and verify PDF accessibility \(Adobe Pro\)](#).

Alternatively, you can use OpenOffice or LibreOffice. You can find guides for these programs here: [Accessible PDFs with OpenOffice and LibreOffice](#). In addition to Adobe Acrobat Pro, you can also use [axesPDF](#) and [Kofax Power PDF](#).

1. Creating accessible content: websites

The checklist provides step-by-step guidance on how to remove barriers from existing websites and thereby improve accessibility for all readers. We recommend the [WAVE Web Accessibility Evaluation Tool](#) for help reviewing your website. It can quickly and clearly check a wide range of points, including formal aspects like structural elements, the heading hierarchy, and alternative texts. The program also identifies potential barriers and suggests ways to resolve them.

In addition, the [BIK “Easy Checks”](#) provide an easy-to-understand breakdown of possible barriers as well as guidance on how to check and resolve them. The guides are particularly useful if you only have a limited knowledge of HTML.

For a screen reader check, we recommend [NVDA Screenreader](#) for Windows, which is free and highly popular in Germany. It lets you check whether all texts can be discerned and read out.

1.1. Implementation of websites

Since most adjustments to websites still occur after, not before, launch, a detailed implementation guide is not necessary.

Use the checklist below to avoid any barriers on your website or find out more here:

[How to meet WCAG 2.0. A customizable quick reference on Web Content Accessibility Guidelines \(WCAG\) 2.0 requirements \(success criteria\) and techniques.](#)

1.2. Checklist for websites

Here you can find information for reviewing your website for potential barriers. Open the website and check the listed settings step by step.

General

Is your source text complete and structured logically (header layers)?

All content should be correctly labeled, including table markups, header attributes, and label elements.

Have you formatted the text accessibly in the website system?

The text should be left-aligned and without justification.

Is your font sans-serif and large enough?

Use sans-serif fonts like Arial or Calibri in a font size of at least 14 pt to ensure legibility.

Is the color contrast for all content high enough (minimum: ratio 4.5:1)?

Check your content has enough contrast – both in black and white and for color content. No red/green contrasts may exist, and the content should still be discernable in black and white.

Do your color elements follow the multi-channel principle?

Highlighting should satisfy the multi-channel principle. Do not just use a color effect for highlighting, but combine it with bold print, etc.

Is an English version of your website available?

In the university setting, every German website should also have an English translation to improve accessibility.

Is the language used clear and appropriate for the target group?

The language used should be based on the target groups and also meet the normal requirements of the University of Bremen. Make sure your content is written in clearly structured language with easy-to-understand sentences or bullet points.

Are foreign words listed in a glossary?

Have you explained all abbreviations and foreign words or listed them in a glossary?

Are all your links and cross-references formatted?

Are all links formatted as a link and are they labeled with a link text and screen tip?
Both must reflect the content or destination of the link.

Is the full website also usable via keyboard?

All the functionalities of your website should also work via keyboard interface. The focus should be on the currently selected element, visible via a graphical change for example.

Is your content legible in common browsers when enlarged?

Apart from subtitles and image captions, it should be possible to enlarge the text content by up to 200% without making the content unreadable.

Does your website contain an accessibility statement?

According to current guidelines, your website needs to contain a statement on accessibility.

Does your website contain a feedback option for barriers?

According to current guidelines, your website needs to contain a feedback option for reporting possible barriers.

Are simple language and (German) sign language available?

Information should be available in simple language and (German) sign language. This means that information on content, navigation, the accessibility statement, and information on further content should be in these languages.

Does your final website meet all legal requirements?

By the end of the transition period until February 12, 2022, the websites of public organizations need to comply with the accessibility standard according to EU Standard EN 301 549: [Implementation Decision of the Commission of the European Union on the Harmonized Standard for Websites and Mobile Applications](#).

Have you informed all responsible contacts about accessibility?

As multiple people are typically responsible for a website, you should ensure that everyone involved has been informed and briefed on the importance of accessibility.

Have you tested your website with a screen reader?

Read-out programs provide an impression of how accessible websites work and can also reveal any remaining barriers when used correctly. It is therefore a good idea to test the finished website with a screen reader.

Has your website been tested by experts?

Experts can be helpful, especially if you are not particularly experienced in the topic of accessibility. Do not shy away from consulting an expert if necessary.

Has your website been tested with accessibility checkers?

Perform a check on your website using a tool like the accessibility checker [WAVE Web Accessibility Evaluation Tool](#).

Integrated media

Do all your images have an alternative text or image description?

Following the multi-channel principle, information in graphics must also be available via a non-visual channel. An alternative text is added as an image description for this purpose.

Have you marked design elements as decorative?

Where images are only intended for layout design, they should be formatted accordingly.

Have you avoided using CAPTCHAs?

CAPTCHAs can pose a barrier, so avoid using them or choose an accessible alternative.

Are image types appropriate for the purpose (grid/vector)?

Generally, besides the appropriate data formats, you should only use images when their size and resolution satisfy an accessible standard of quality. The black and white view should also still be clear here.

Do all videos contain subtitles, sign language, or an audio description?

Video files should contain subtitles, including a translation into (German) sign language if necessary. Moreover, audio descriptions or video descriptions are necessary.

Are written transcripts available for all your audio files?

A transcript or audio description should be created and provided for the audio files you use.

Have you correctly implemented and labeled control elements?

Accessible control elements include a label that describes their purpose.

Are audio control elements available for pausing?

Audio or video content that plays automatically and lasts for more than three seconds should have a pause option and volume control.

Have you refrained from flashing content?

Avoid using any content that flashes more than three times a second. Flash effects can trigger epileptic seizures, for instance.

Special plug-ins

Were integrated contents from external sources like databases and ticket systems created in an accessible manner?

Plug-ins should also be accessible. Generally, you are not responsible for them as the content owner. But if you are responsible, you should make sure the plug-ins meet accessibility standards.

Do newsletters offered on your website meet accessibility standards?

If you offer a newsletter, make sure it is also free from barriers.

Are forms controllable via keyboard and are all fields labeled?

All form control fields must be labeled according to their properties. Moreover, like the rest of the website, it must be possible to navigate the form via keyboard interface.

Further information

Contrast Checker:

<https://contrastchecker.com>

Corporate design of the University of Bremen:

<http://www.uni-bremen.de/corporatedesign>

KIS and kivi, University of Bremen (2020): Guide for Teaching Staff.

[LoB Broschuere 2020.pdf \(uni-bremen.de\)](#)

ZMML, University of Bremen (2021): Accessible Digital Teaching. Tips for Teaching Staff: General, Lectures and Seminars, Accessible Documents and PowerPoint Presentations:

<https://www.uni-bremen.de/zmml/lehre-digital/zugaengliche-digitale-lehre>

List of links

Accessibility checker test:

<https://www.einfach-fuer-alle.de/artikel/test-werkzeuge/>

Create and verify Adobe PDF accessibility (Adobe Pro):

<https://helpx.adobe.com/de/acrobat/using/create-verify-pdf-accessibility.html>

axesPDF:

<https://www.axes4.com/de/produkte-services/axespdf>

BALLON:

<https://www.uni-bremen.de/digitale-transformation/cdo-projekte/ballon>

Accessible Information Technology Regulation (BITV) 2.0:

https://www.gesetze-im-internet.de/bitv_2_0/BJNR184300011.html

Accessible PDFs with OpenOffice and LibreOffice:

<https://www.netz-barrierefrei.de/wordpress/barrierefreies-publizieren/barrierefreie-pdfs/barrierefreie-pdfs-mit-openoffice-und-libreoffice/>

Implementation Decision EU 2021/1339 of the Commission:

<https://eur-lex.europa.eu/legal-content/DE/TXT/HTML/?uri=CELEX:32021D1339&from=DE>

Tool Repository for Visually Impaired Students:

<https://www.uni-bremen.de/studium/rund-ums-studium/barrierefreies-studium/lernhilfsmittel-raeume/hilfsmittelraum-fuer-sehbeeintraechtigte-studierende/>

Kofax Power PDF

<https://www.kofax.de/products/power-pdf>

Microsoft: Make your Word documents accessible to people with disabilities:

<https://support.microsoft.com/de-de/topic/gestalten-barrierefreier-word-dokumente-f%C3%BCr-personen-mit-behinderungen-d9bf3683-87ac-47ea-b91a-78dcacb3c66d>

NVDA Screenreader:

<https://www.nvaccess.org/>

PDF Accessibility Checker PAC 2021:

<https://pdfua.foundation/de/pdf-accessibility-checker-pac>

PDF Accessibility Validation Engine PAVE:

<https://pave-pdf.org/>

WAVE Web Accessibility Evaluation Tool:

<https://wave.webaim.org/>

PDF/UA with PAC 3:

<https://www.barrierefreies-webdesign.de/knowhow/pdf-ua/>

Create and verify PDF accessibility (Acrobat Pro)

<https://helpx.adobe.com/acrobat/using/create-verify-pdf-accessibility.html>

WAVE Web Accessibility Evaluation Tool:

<https://wave.webaim.org/>

Web Content Accessibility Guidelines (WCAG) 2.1:

<https://www.w3.org/TR/WCAG21/%23contrast-minimum>

Web Content Accessibility Guidelines (WCAG) 3:

<https://www.w3.org/WAI/standards-guidelines/wcag/wcag3-intro/>

How to meet WCAG 2.0. A customizable quick reference on Web Content Accessibility Guidelines (WCAG) 2.0 requirements (success criteria) and techniques:

<https://www.w3.org/WAI/WCAG21/quickref/?versions=2.0>