

Accessible E-Learning and Teaching

Checklist for Creating and Reviewing Accessible PDF Documents

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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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: PDFs

In subchapter 2.1, you can find information on how to create accessible PDF content. However, before you proceed with the PDF file, you should first make the Word document as accessible as possible, if applicable (See chapter 1 “[Creating accessible content: Word](#)”). Changing an existing Word document into an accessible PDF document is easier. But if you only have PDF files available, go through subchapter 2.2 step by step and review the accessibility using the checklist.

An internal accessibility check can be carried out in the program Acrobat DC. [axesPDF](#) and [Kofax Power PDF](#) can also be used for this purpose. Two other programs for external accessibility checking are [PDF Accessibility Checker PAC 2021](#) and [PDF Accessibility Validation Engine PAVE](#). Possible screen readers will be covered in greater detail at the end.

1.1. Implementation in PDFs

Creating the PDF

The points listed here explain how to export a Word document into a PDF file. Initial settings are also configured here that are then paramount for the quality of the accessible PDF. It is important to treat the content and layout as distinct parts of the document. The layout determines legibility for screen readers with the help of underlying structural information (document structure tags). Only the content element is visible.

a) **Word document:**

First of all, the content should be prepared in Word as explained in the previous chapter.

b) **PDF format:**

Next, the document needs to be saved in PDF format. This file format allows for compatibility with screen readers and also keeps content immutable and virus-free.

c) **PDF export:**

The file is exported in Word (File – Export – Create PDF/XPS document). A new window then opens, where you can define the file name and storage location.

By clicking on “Options,” a window will open with the export properties that need to be configured correctly:

- 1) Include non-printable information: **Activate all options**
- 2) PDF options: **Deactivate** “Save text as a bitmap”

Adobe Acrobat Pro enables the export properties to be configured directly in the Word menu before exporting (Acrobat – Create Adobe PDF – Basic settings):

- 3) In the “Settings” tab, all checkmarks except for
“Attach source file” and “Activate extended tag creation”
should be activated.

PDF corrections

After exporting the file, a number of additional points need to be configured that are not possible in Word. The exported properties should also be checked. These aspects are discussed below.

a) Make Accessible:

The Make Accessible feature in Adobe Acrobat Pro guides you through initial (meta) information and settings that may require adjustment to ensure accessibility. These include missing form fields, images and tables, or the document title. Call up the function under Tools – Action Wizard – Make Accessible and select the relevant document. The program will then guide you step-by-step through necessary and optional features and provide assistance on how to fix barriers.

b) Internal Accessibility Check:

Adobe Acrobat Pro's internal accessibility checker then comprehensively checks your document for settings that are necessary for low-accessibility. Open your PDF document with Adobe Acrobat Pro and start the checking process: Tools – Protect and Standardize – Accessibility – Accessibility Check – Start Check. Go through the reported barriers and correct them if possible. For an overview of significant barriers, see the following section. For detailed help on accessibility report messages and how to correct them in Adobe Acrobat Pro, see [Adobe Helpdesk: Create and verify PDF accessibility \(Adobe Pro\)](#).

c) **Correcting errors:**

Corrections often have to be made manually. The aspects described here are sometimes output as issues in the accessibility check. Only some of these corrections can be made in Adobe Acrobat Pro:

1) *Document properties* (File – Properties):

Here you can find settings such as the title, author, security (permitted actions in the case of document restrictions), and document language. All of these settings have to be present and correct for an accessible document.

2) *Tags* (Document properties – Description – Advanced – “PDF with tags: Yes”).

These correspond with the Word format templates and define the structure. Accessibility requires the presence of tags. If the tags are missing or incorrect, they have to be revised. The function can be found in the navigation bar to the left of the document (Navigation bar – Tags (tag symbol)). If necessary, the "Tags" option must first be shown: Display – show/hide – navigation window – tags. Tags are of utmost importance for assistive technologies as they define the order of content. The "Read order" and "Reflow" functions are not based on the tag structure and are therefore not for assessing the structure tags.

3) *Links and references* (Tools – Edit PDF – Link):

Missing or incorrectly exported links should be fixed.

4) *Alternative text* (Tools – Accessibility – Define alternative text or

Tools – Accessibility – Check accessibility – Start full check):

This function can be used to find and add missing alternative texts.

Additional correction and review options

Besides Word and Adobe Acrobat Pro, there are other programs available that can help to review and edit PDF documents. These can all be used free of charge.

a) **External accessibility check:**

Further and more extensive accessibility checks are possible with external

tools. The tools named here can provide highly detailed error messages in certain circumstances, some of which can only be fixed with Adobe Acrobat Pro. Examples:

1) *PAC 2021*

The PDF Accessibility Checker 2021 is a free tool for use under Windows, which enables a check of PDF for accessibility. The test basis is the standard PDF/UA (universal accessibility) and since 2021 also WCAG version 2.1. The output reports can be exported as PDF.

[PDF Accessibility Checker PAC 2021](#)

Do not be put off by the extensive error messages of PAC 2021! For a detailed explanation of the errors issued, as well as video instructions (without sound) for fixing the errors in Adobe Acrobat Pro for the previous version PAC 3 (with slight visual differences in the user interface), see:

[PDF/UA with PAC 3](#)

2) *PAVE*

PAVE is a free online platform for reviewing and editing online documents. The corrected document can then be downloaded. It can partially replace Adobe Acrobat Pro in some areas:

[PDF Accessibility Validation Engine PAVE](#)

The manufacturer of the program offers a comprehensive video for getting started with PAVE on Youtube (in German language:

[Einführung in PAVE v2.0 - YouTube](#)

b) **Screen readers:**

To test the result and get an impression of how a PDF optimized for screen readers works, it can be helpful to use a screen reader. A read-out program is installed and applied in the corresponding document.

[NVDA Screenreader](#) for Windows is free and highly popular in Germany, for example. JAWS is a paid alternative to NVDA that offers extensive functions. It is available in the [Tool Repository for Visually Impaired Students of the State and University Library Bremen](#). There are also integrated options for voice

output: Apple offers for Mac and iOS devices the integrated VoiceOver, Android operating systems use TalkBack, and Windows includes Microsoft Narrator.

1.2. Checklist for PDFs

Here you can find information for reviewing your PDF document. This information is intended to help you check existing material for any barriers that may exist. You can also use the checklist at the end of the chapter for implementation. Open your PDF document and check all the listed settings step by step.

Creating the PDF

Was the content of your PDF previously created and prepared in Word according to accessible standards? ☐

We recommend considering accessibility criteria already when creating the Word document. This way, you can avoid dealing with many accessibility barriers when exporting to PDF.

Did you generate the PDF document using the export function? ☐

To make sure all the information contained in the document is correctly transferred, the Word document should be exported to the PDF document using the correct options. If the options are configured correctly, you can find the document structure tags, links, and meta information in the PDF.

PDF corrections

Did you perform the internal accessibility check in the PDF? ☐

You can run an internal check for your document directly in Adobe Acrobat Pro. The barriers detected then have to be manually resolved.

Did you export the correct meta information? ☐

The PDF should have all the document properties relevant for the intended purpose, at least the title and author. The document restrictions should also be checked and adjusted if necessary.

Are the tags present and correct? ☐

Missing or incorrect tags can be revised or automatically added in Adobe Acrobat Pro.

Do all your images have an alternative text? ☐

The alternative text for an image gives a brief and objective description of the content. Depending on the version, missing alternative texts can be added in Adobe Acrobat Pro. If images only fulfill a decorative purpose, they should be marked as decorative.

Are your links and document references present and correct? ☐

Accessibility requires correctly labeled links and references. Missing or incorrectly exported links should be fixed.

Additional correction and review options

If you did not create the PDF yourself or it was generated without taking accessibility into account, quite a few corrections will likely be necessary. If you do not have Adobe Acrobat Pro, you should consider the following steps. External checks can be very helpful, especially when new to the topic. They enable you to better understand a range of digital barriers and look out for them in your document.

Did you check your PDF using an external tool? ☐

Particularly when starting out, it can be a good idea to run a check on all PDF documents with other tools afterwards. [PDF Accessibility Checker PAC 2021](#) allows you to perform a check, including a report that can be exported as a PDF. [PDF Accessibility Validation Engine PAVE](#) enables you to check and edit documents and can replace Adobe Acrobat Pro in some areas.

Did you test the final PDF with a screen reader? ☐

Read-out programs provide an impression of how accessible PDF documents work and can also reveal barriers when used correctly. We therefore recommend testing the finished PDF document with a screen reader.

Was the final PDF alternatively checked by an expert? ☐

The trained eye of an expert can be useful in finding barriers. Do not shy away from consulting an expert if necessary.

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/>

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:

[PAC Download - PDF/UA Foundation \(pdfua.foundation\)](https://pdfua.foundation/)

PDF Accessibility Validation Engine PAVE:

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

PDF/UA with PAC 3:

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

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>