

Are Open Access Ebooks Accessible?

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Poster abstract

The ideals of open access do not exclude the blind and reading-disabled, but the realities of limited funding frequently do. In this work, we survey the 36,000 open-access ebooks and chapters supported by OAPEN to determine the extent of this exclusion and to explore strategies for remediation of poorly accessible ebooks. Only 1144 of these are available in EPUB format, which is more easily used for text-to-speech or braille reading devices than the more common PDF format. Of these 1144 ebooks, we found that only 156 of these contained useful descriptions of images in alt-text attributes. 31% of the images had no descriptions at all, and most of the rest contained single words such as "image" or simply a file name.

Rapid advances in machine vision and large language models may provide useful tools towards mitigation of poor ebook accessibility. Our initial experience with these tools suggests that combinations of AI tools together with simple editing and reviewing platforms will provide a cost-effective way forward for the open access community. We are evaluating these tools for automatic description of a set of images and assessing the results. This is a first step to the development of advanced tools to deal with complex tables, graphs and figures which will improve access for all of us, not just the reading disabled.

Keywords

Accessibility, PDF ebooks, EPUB ebooks, AI, Alt-text generation

Accessibility of Open Access Books

	PDF	EPUB
Grade A	0.5%	13%
Grade B		20%
Grade C	71%	38%
Grade D	25%	28%
Grade F	2%	1%

How did we grade?

EPUB accessibility grades (1157 books):

- A (156 books) These EPUB3 files had useful alt-text and accessibility data.
- B (226 books) These EPUB3 books had accessibility data but no useful alt-text.
- C (443 books) These EPUB3 files need accessibility mitigation.
- D (329 books) These EPUB2 files will be hard to upgrade for accessibility.
- F (13 books) These books failed to download as EPUB files.

PDF accessibility grades (based on 1000 randomly sampled books):

- A (5 books): These PDFs comply with WCAG-1 and PDF-UA accessibility requirements.
- B or C (714 books): These PDFs comply with WCAG-1 requirements but fail PDF-UA accessibility requirements.
- D (251 books): These PDF fail all requirements tested.
- F (20 books): The PDFs could not be opened. (Either too big or not valid PDF)

Easy fix?

Can we improve the description of pictures, using the AI tool Claude? We tested this for 100 random images from books of the OAPEN collection. Where the publisher has made an effort to supply alt-text, they did better than the AI. The AI gets confused by characters and icons, which might be improved by changing the prompt. Ironically, AI works best for complex images.

Alt-texts: Dos and don'ts

DO

- use an empty string for purely decorative images.
- when an image is meant to convey an action, try to use a single word: "download" or "email".
- be concise.
- remember that the purpose of a cover image is to intrigue a reader.
- use the language of the text for the alt-text
- think about what an image is meant to convey

Don't

- use text like "image" or "figure 22" in alt-text. That's just taunting a blind reader.
- use the file name for alt text
- repeat what is already in a caption.
- describe details that are irrelevant to the narrative.
- describe logos. Just identify them.
- make up shit

Focus on: Alt-text

Table with three columns: picture; Publisher Alt-Text; AI Alt-Text.

The descriptions differ strongly.

- Publisher Alt-text: "img10.png"; AI Alt-Text: "The image shows a close-up view of a grey wolf standing in a grassy field. The wolf has thick grey fur, pointed ears, and is looking directly at the camera with its golden eyes. A shallow depth of field keeps the background blurred while the wolf's face is in sharp focus."
- Publisher Alt-Text: ""; AI Alt-text: "The black and white image shows a Burger King restaurant storefront. Standing in front of the restaurant are two young children, an older girl in a long dress holding a younger girl's hand. The Burger King logo is prominently displayed on a large round sign above the entrance."
- Publisher Alt-Text: "image"; AI Alt-Text: "Three Chinese characters written in calligraphy style using black ink on white background."
- Publisher Alt-text: "FIGURE 30. Advertisement for Vendome—promoted for its address, 6666 Sunset Blvd., and its proximity to the Writers Club—in the trade paper published by Vendome's owner, W. R. Wilkerson. Source: "6666 Sunset Blvd." [Advertisement], Hollywood Reporter, April 24, 1933, https://lantern.mediahist.org/catalog/hollywoodreporter1215wilk_0692."; AI Alt-Text: "The image is a vintage-style map showing the location of Sunset Boulevard and Highland Avenue in Los Angeles. It mentions "The World's Fair opens soon in Chicago, 6666 Sunset opens soon in Hollywood!" The address 6666 Sunset Blvd is highlighted, along with text promoting a new business opening there called "Hi-De-Ho!" The map uses a fun, retro graphic design style with bold lines and shapes."