How do you create accessible educational materials? 10 issues

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1. Presenting the information

Structure

* information architecture determines how materials (including images, graphs, etc.) should be published;
* it’s best to begin building the architecture of the information from the beginning stages, and to think about how to present it in the published version;
* information architecture includes the outline of the text as well as additional elements, such as graphs, multimedia clips, illustrations, exercises.

Purpose

* it’s important for each element to serve the material’s purpose – this includes the chapters as well as individual paragraphs, graphs, and illustrations;
* don’t include elements that don’t serve a concrete purpose, such as decorative elements.

Clarity

* it’s important for the structure of the publication to be simple and easy to understand by those who don’t have extensive knowledge in the given subject;
* graphs, illustrations, and so on should be placed near related text.

2. Formatting text/headings

Logical

* remember that the layout of the headings and subheadings should reflect the presentation of the information;
* make sure that the chapter titles creates a comprehensive list that gives a sense of the contents of the whole educational resource.

Unambiguous

* make sure that the titles unambiguously refer to the information presented within the chapter;
* don’t use figures of speech or metaphors in the titles.

Concise

* creative concise titles that take up only one line or a maximum of two (meaning that you only have a few words at your disposal);
* don’t use complete sentences for the titles;
* don’t repeat yourself or use redundant epithets.

3. Language/vocabulary

Simplicity

* the most important element of educational materials is conveying information, not rhetorical flourishes;
* it’s best to simplify the vocabulary and limit complicated grammar;
* avoid complex sentences and frequent interjections.

Conciseness

* in the editing stage, try to pare down the text as much as possible;
* delete repeated information and superfluous text;
* if you want to underscore important information, utilize visual methods, such as bold or italic text.

Catered toward the intended audience

* it’s very important for the language of the text to correspond to the age and abilities of the reader;
* materials for older teenagers don’t differ greatly from those for adults;
* creating materials for younger readers, try to simplify the vocabulary and grammar;
* when creating educational resources for young children, it’s worth consulting with an educational specialist who has a better sense of children’s needs and abilities at that stage.

4. Fonts

Font choice

* electronic materials are best suited to a sans serif font;
* printed materials can use a serif font (though titles are worth leaving sans serif).

Simplicity

* select simple, not “wacky” fonts;
* materials for children should utilize fonts that are easy to read.

Size

* in the case of scalable materials (such as websites) the size of the font is not important, since readers can adjust the font themselves;
* in printed materials, use a “standard” font size – around 12pt.;
* in printed worksheets, use a slightly larger font and make sure to maintain space between questions and exercises.

Emphasis

* if you want to emphasize a specific point, use a visual emphasis, such as bold or italic text;
* remember to use this sparingly – an entire paragraph in italics or bold becomes difficult to read.

5. Color/contrast

Color contrast

* the contrast ratio can be calculated with the help of a calculator, such as <http://contrast-ratio.com/>;
* make sure the contrast ratio between the text and background is at least 4.5, though above 7.0 is best;
* the contrast ratio of headers and titles can be slightly lower than for the main text;
* print the materials in black and white – if the colors between the text and background are too similar, many readers will have difficulty reading.

Color combinations

* black and white – a good combination with high contrast, easy to read;
* black and yellow – useful for underscoring important information, high contrast, for sparing use;
* black and red – a bad combination, people with colorblindness have difficulty distinguishing between red text on a black background (better: black and yellow or black and orange);
* green and red – a bad combination, little contrast between the colors;
* white and light blue – a bad combination, little contrast between the colors.

6. Background & graphics

Uniformity

* remember that the background of the text should be a solid color, or a gradient;
* don’t place pictures or illustrations on the background unless they are edited with a strong filter that equalizes the color contrast.

Avoid distractions

* the background should not divert the reader’s attention from the text;
* try to limit decorative pictures and elements to a minimum;
* avoid animation, audio recordings, or videos that only serve a decorative purpose.

Text as graphics

* it’s very important not to use graphics in the place of text (for example, don’t use photographs of text in the place of actual text on websites) as this makes it potentially inaccessible for those using text-to-speech services;
* when using security measures such as CAPTCHA, remember to always include options for people who are blind or visually impaired.

7. Graphs/diagrams/tables

Descriptions

* all graphs, diagrams, and tables should include alternative text and/or be described in the main text;
* remember to explain and interpret all graphs and diagrams in the body of the text.

Visibility of data

* it’s important that the different categories presented on a graph are visually distinct, not just in shade but in color, so as to improve accessibility for those who are color blind (for example, using gray scale or yellow-orange-red, but not green-blue-red);
* remember that graphs and diagrams need labels that present different categories and values on each axis so they can be easily read;
* for line graphs, use differing line styles and thicknesses rather than different colors.

8. Timers and time constraints

Materials with limited reaction times

* as best as possible, avoid using mediums resources with a limited time to answer, as they are more inaccessible for people who use assistive technology, have limited mobility, or are unfamiliar with the technology;
* a good solution when using timed materials is to have the time limit displayed on the page, as well as a button that can increase the limit (such as a button that states “I need more time”).

Timed quizzes

* when a time limit is necessary, set a time that is higher than what you’d need in the “real world”, so as to make it easier for those who use assistive technologies;
* make sure quizzes can be taken more than once, in case technological problems cause difficulties the first time around.

9. Alternative texts

Elementy graficzne

Graphic elements

* remember to describe graphics in alternative text or include a description in the main body of the text (<https://en.wikipedia.org/wiki/Wikipedia:Manual_of_Style/Accessibility/Alternative_text_for_images>);
* make sure that the alternative text is not a description of the graphic or table but is instead a summary;
* it’s best that the alternative text has a maximum length of one sentence and contains the most important information contained in the graphic or table;
* make sure that decorative graphics or elements contain empty alternative text (alt text = “”) which is different than not including alternative text.

Multimedia elements

* as best as possible, attach a transcript of audio recordings or a summary of the main points in the body of the text;
* video recordings should contain subtitles or be summarized in the body of the main text;
* if the video is uploaded to a streaming website , it’s often possible to select automatically generated captions – that way, you won’t have to prepare them yourself.

10. Compatibility

Technological accessibility

* it’s important that the educational materials don’t use brand-new technology that is only available on new browsers, computers with large hard drives, etc.;
* it’s best that web-based educational materials are available on the most common Internet browsers (Firefox, Chrome, Internet Explorer);
* avoid media that requires a lot of data (such as UHD video).

Links

Learn more:

* <https://www.wuhcag.com/wcag-checklist/>
* <http://contrast-ratio.com/>
* <http://insideaccessibility.blogspot.com/2015/03/basic-web-accessibility-for-low-vision-users.html>
* <http://insideaccessibility.blogspot.com/2016/03/accessible-charts-and-diagrams.html>
* <https://usability.yale.edu/web-accessibility/articles/wcag2-checklist>
* <https://accessibility.psu.edu/guidelines/wcag2/>
* <https://webaim.org/standards/wcag/checklist>