A Guide for the Production and Selection of Accessible Digital Educational Resources

Digital materials
Videos
Podcasts
Digital Books
Image banks
Learning Environments

Table of Contents

Writing Team

Annik Gilbert, Conseillère pédagogique au Service national du RÉCIT de l'Inclusion et de l'adaptation scolaire

Isabelle Demers, Conseillère pédagogique au Service national du RÉCIT de l'Inclusion et de l'adaptation scolaire

Martin Gagnon, Conseiller pédagogique au Service national du RÉCIT de l'Inclusion et de l'adaptation scolaire

Marie-Josée Marineau-Harnois, Conseillère pédagogique au Service national du RÉCIT de l'Inclusion et de l'adaptation scolaire

Christine Plourde, Direction des ressources didactiques, des bibliothèques scolaires et des services éducatifs à distance

Geneviève Rioux, Direction des ressources didactiques, des bibliothèques scolaires et des services éducatifs à distance

Thomas Stenzel, Conseiller pédagogique à Learn Quebec

Intro

In recent years, the accessibility of resource content has become an increasing concern for those working in the school environment. Initially, the issue was aimed at users of technological aids, but the more these accessibility features are used and applied, the more useful they are for all learners in a classroom.

The intent of this guide is to support school personnel in the selection and production of accessible digital educational resources (AER) for learners. In this document, teachers, speech-language pathologists, special educators, and educational consultants are considered to be developers of digital materials.

The first section of this document presents the history of accessibility, and a definition of accessible digital educational resources are provided. In the second section, the elements to be considered in the development of an accessible digital document, namely the principles of universal accessibility, are proposed. Examples, counterexamples and theoretical support will be provided so that the reader of this guide can have a good idea of what each of the criteria implies.

In this way, the reader will be made aware of the importance of the accessibility of documents.

1. History of accessibility

As early as 1978, Quebec was one of the first provinces to adopt a law promoting the inclusion of people with disabilities. This law was amended in

2004 to require government departments and agencies to adhere to WCAG 2.0 standards. An updated reference document was published in 2012.

In 1990, the United States passed the Americans with Disabilities Act (ADA). This is a civil rights law that protects people with disabilities from discrimination and establishes the right to accommodation. Among other things, public content, that is, any content available to the general population, must be accessible, including websites.

In 1999, the World Wide Web Consortium (W3C) published the Web Content Accessibility Guidelines 1.0 (WCAG 1.0). The goal was to establish international standards for the Web. These were updated and revised in 2008 (WCAG 2.0). The guidelines also provide a wide range of recommendations for making Web content accessible to the widest possible audience.

In 2020, the COVID-19 pandemic shook up educational practices and accelerated the use of the Web in the school system. All schools had to turn to the use of technological tools. It was found that applying WCAG 2.0 guidelines, where possible, to content produced by school counselors, teachers and students makes learning more accessible to all.

As of July 17, 2020, all new web content on public school sites must meet these standards[1].

What does this mean for our pedagogical uses of web technologies (when teachers and students use digital learning environments like Google

[1] SECRÉTARIAT DU CONSEIL DU TRÉSOR (2011-2012). *Standard du gouvernement du Québec sur les ressources informationnelles*.

Classroom or Microsoft TEAMS)? In education, one of the most common methods of relaying information is in written form - text-based resources. These can take the form of manuals, documents, or worksheets. In addition, we are increasingly using digital documents in the form of .pdf, .docx, .jpg, .xls, etc.

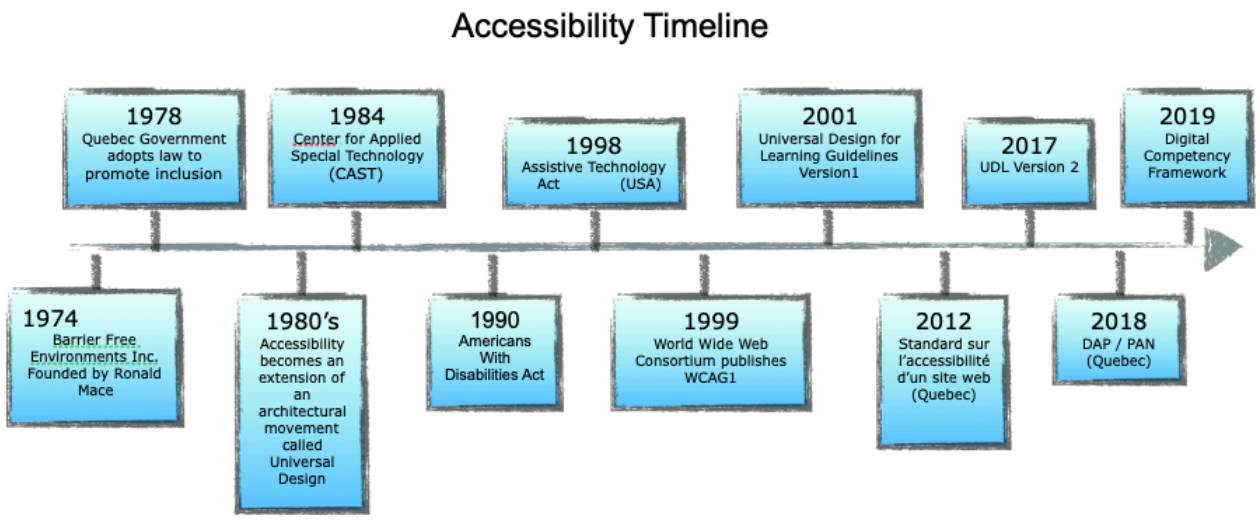
Unfortunately, for a wide variety of reasons, printed text resources often present an impenetrable barrier to "print disabled" students. This is true of digital materials as well. However, there are techniques that can maximize the accessibility of textual information, whether it is paper or digital. These techniques will also benefit students' independence, self-esteem, and personal success.

Making simple changes to the way information is presented can make a big difference for students and their families.

In 2018, the MEES presented the Digital Action Plan with a budget of $1.186 billion from 2018 to 2023 and 33 measures to accelerate the "digital shift" in Quebec's education system. Three areas were addressed: robotics (programming), creative labs and devices to support the other two. Because of the pandemic, in the years 2020 and 2021, much of this funding was invested in equipment to meet the need for student access to online learning.

Action 01 of the plan (NAP) was to establish a cross-curricular digital competency framework at all grade levels. The Digital Competency Framework, released in 2019, includes 12 dimensions. It is an extension of the cross-curricular competencies that are part of the QEP.

Beginning in 2018, with the development of the RÉCIT, a Distance Education (FAD) pilot project implemented online courses for Secondary 4 and 5 subjects. In order to make them accessible, the Direction des ressources didactiques et pédagonumériques of the MEQ created a working document for the ADF team entitled Application des normes d'accessibilité numérique pour la formation à distance (FAD). This guide presents three levels of accessibility for different types of digital resources. Meeting the criteria for level 1 will help meet the needs of students with significant literacy challenges when they use assistive features such as text-to-speech and dynamic word tracking to access content.



1974: Barrier Free Environment Inc. is founded by Ronald Mace

1978: The Quebec government passes a law to promote inclusion

1980s: Accessibility becomes an extension of an architectural movement called Universal Design.

1984: Center for Applied Special Technology (CAST)

1990: Americans with Disabilities Act (USA)

1998: Assistive Technology Act (USA)

1999: World Wild Web Consortium publishes WCAG1

2001: Version 1 of the UDL Guidelines

2012: Quebec standards on website accessibility (updated 2019)

2017: Publication of the UDL Version 2

2018: Implementation of the Digital Action Plan

2019: The Digital Competency Framework is published by the MEES

(2022**:** All websites and web content on public school websites must meet accessibility standards.)

2. Accessible Digital Educational Resource (ADER)

2.1. Definition

For the purposes of this document, an accessible digital educational resource (ADER) is teaching and learning material delivered to students in digital form that meets the needs of everyone in an inclusive manner.

An ADER can take many forms: text, images, video, or audio. Some of these forms (digital text and images) may be printed to paper after being designed in a digital format. Considering accessibility when creating ADERs will promote better understanding of the content, regardless of the medium.

2.2. Context

ADERs have great potential in teaching/learning contexts. Among other things, they can meet the diverse needs of all students, including those who are users of assistive technology.

2.3 Why think about accessibility when producing and selecting ADERs?

When delivering a document, we want every student to be able to understand its content. Therefore, considering accessibility when creating a document helps to alleviate barriers that students may encounter when reading it (e.g., insufficient contrast, hard to decode font, etc.). While adherence to accessibility criteria may seem demanding, overall it does not interfere with the creativity that can be demonstrated in the production of ADERs.

With the advent of digital technology, the presentation of information has changed: one need only think of the structure of Web sites and interactive documents. Our way of reading has adapted to this new organization of information. In fact, academic research is studying the differences between reading on paper and reading in digital media, which is why it is important to ensure that the materials given to students meet the digital standards for document production.

Some articles about dealing with reading on screen:

- Reading on-screen vs reading in print: What's the difference for learning?
- Online Reading Strategies for the Classroom
- Digital reading strategies to improve student success
- Teach students how to read and understand digital text

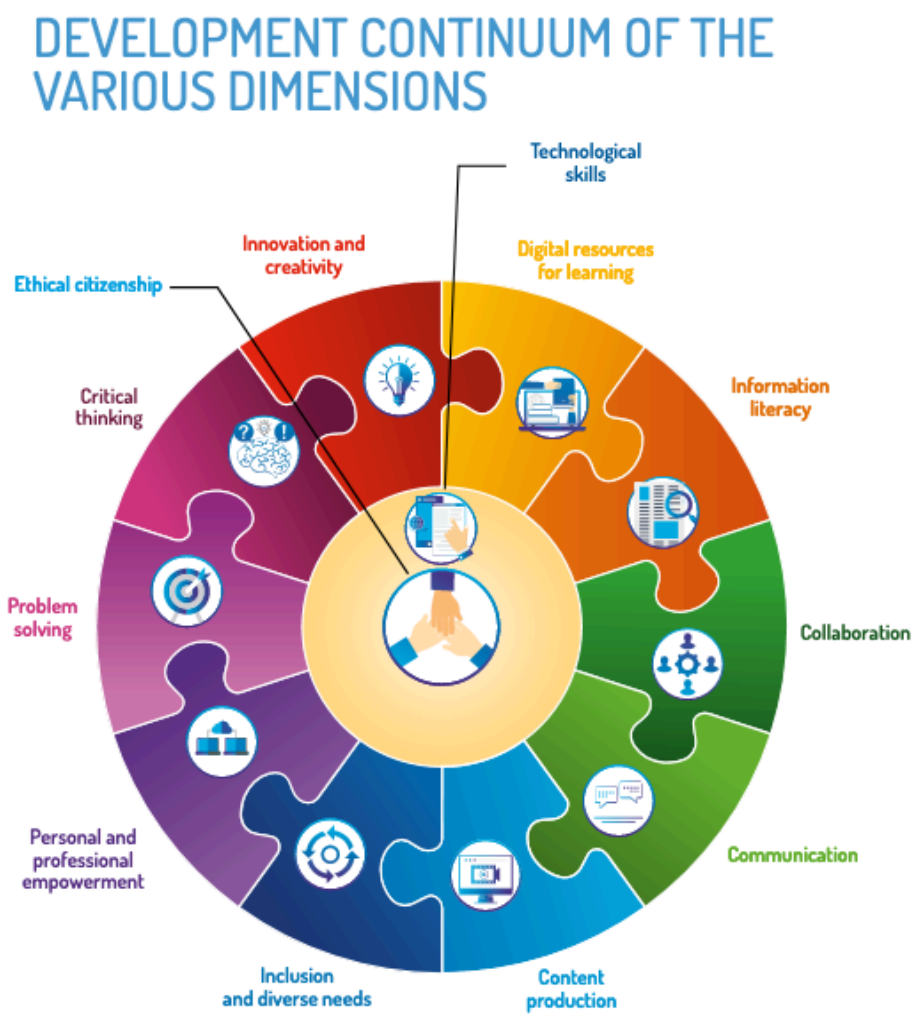
Here are some pedagogical reasons why thinking about document accessibility is essential for all students:

- Enabling students to access information.
- To promote student social inclusion.
- Enabling students to be independent.
- Enabling students to succeed.
- Enabling students to reach their full potential in the different spheres of their lives.
- Enabling students to focus on understanding the information by avoiding cognitive and visual overload.
- Offering students content that corresponds with their age.
- Work around a student’s learning difficulties.
- Supporting reading comfort.
- Have high expectations of students.

- Save time for school personnel.

Digital technology has opened the door to accessibility and provides access to information to many more people. When producing ADERs all twelve dimensions of the digital competencies are engaged, but primarily Dimension 7 (Content Production) and Dimension 8 (Inclusion and Diverse Needs) of the Digital Competence Development Continuum are activated. Digital competence is therefore actualized as much in the choice of ADERs as in their production.

This is also true for all students: why not make them aware of the accessibility of their own productions?



3. Levels of accessibility for a digital educational resource

Level 1, the minimum accessibility threshold, includes all the criteria that meet the needs of 70% of students with special needs. Compliance with these accessibility criteria makes the text usable and compatible with reading and writing assistive functions. It is expected that, where possible, all ADERs (accessible digital educational resources) will achieve Level 1 accessibility.

Level 2, includes additional criteria that make information accessible to 85% of students with special needs. Meeting these accessibility criteria allows students to use assistive reading, locating, and navigating features and provides them with alternative options (alternate formats) to access the full content of the resources. Although this level is not mandatory, it is advisable to tailor ADERs (accessible digital educational resources) to meet the criteria of Level 2.

Level 3, the optimal threshold, combines all accessibility criteria. Compliance with the criteria for this level makes it possible to reach 90% of students with special needs. Regional support persons and educational consultants are the most competent to target the needs of these clienteles and to evaluate the actions to be taken in order to consolidate level 3.

(Web Link to interactive version of Level 1 Criteria: https://dca.learnquebec.ca/accessible-ders-level-1/)

Level 1 Criteria

1.1 Ensure that textual content (eg: texts, tables) are usable and compatible with reading and writing assistance functions.

To do this:

1) Check that it is possible to select the text.
2) Ensure that it is possible to "copy" and "paste" the text into an external document (eg: a Word document).
3) Ensure that all documents are "unlocked", i.e. permissions for access are enabled.
4) Use a sans-serif typeface (e.g., Verdana, Ubuntu, Tahoma), i.e. a font whose letters do not resemble each other (eg: Il, 1l, lt).
5) Provide alternative means when colour is used to convey information
6) Ensure that the color contrast is sufficient between the font and the background (favour black on white, yellow on black, white or yellow on dark blue).

7) Ensure that the space between lines of text (line spacing) is at least 1.5 points.
8) Align text content to the left.
9) Avoid initials or other symbols that prevent or interfere with the reading of text by voice synthesis.
10) Ensure that pagination is present at all times in documents.
11) Prioritize Headings (Heading 1, Heading 2, etc.) and sub-headings.
12) Add digital anchor points in the table of contents (eg: a hyperlink on each of the Headings and sub-headings present in the table of contents leading to the corresponding place in the resource).
13) Ensure that the sections in the resources provided to students for collecting their written answers or their written productions allow the use of writing aids and revision-correction, in particular the use of the following help functions: word prediction and spelling and grammar proofreading.
14) Avoid putting an image as a background.

1.2 Arrange the textual content in line with the visual content (eg: images, works of art)

To do this:

1) Make sure images are not surrounded by text.
2) Select text wrapping mode "Break Text"(Google) or "Above and Below"(MS WORD) for playback of images, symbols, logos, etc. by text-to-speech or screen reader.

Level 2 Criteria

2.1 Ensure that navigation respects the order in which information is presented and is user-friendly.

To do this:

1) Name hyperlinks so that the key words contained in the text are found in its title.
    - It is important not to write "Click here" since this does not allow students using the reading aid functions to have an overall idea

of the content of the linked document or of the website to which the author refers.

2) Ensure that hyperlinks are presented properly and that they can be easily found in resources.
    - Underlined in the text and/or in a different color from the text.

3) Determine a reading order by cell for tables.
    - Reading assistance software tends to read tables row by row.

2.2 Provide a title and a textual equivalent to visual content (e.g. images, works of art) and a clear title for audio content (e.g. podcasts, audio books), so that they can be read by text-to-speech and screen readers

To do this:

1) Replace the name of the visual or sound content file with a meaningful title.
    - A meaningful title must be added to any visual or audio content that is on the platform or in the documents posted on it (eg: image_of_a_red_rose.jpg and not image003.jpg).
    - In the case of an image, the title should summarize the content of the image so that the visually impaired student can have an idea of its content when the image is read by text-to-speech and / or a computer screen reader.

2) Where possible provide an Alt text;

3) Provide a textual equivalent (descriptive text) to visual content.
    - In addition to the title and Alt Text, a description of the content of the image should accompany “informative images” posted on a platform so that students with visual impairments can develop a mental image.

- Informative images add additional information to a text, while decorative images are usually chosen to add decorative elements to a text.
- If the number of informative images deposited on a platform is too numerous, it is possible to target the images that add the most information to the text and to describe only those images. The goal is to avoid cognitive overload in students while reading.

Level 3 Criteria

3.1 Determine the reading order of the document (as per level 1)

To do this:

1) Apply as many of the components of level 1 as are appropriate for your ADER.

3.2 Offer a textual equivalent (subtitling or transcription) to videos in order to promote access to textual content for not only blind or deaf students, but all who could benefit from these features.

To do this:

1) Offer subtitling in videos.
2) Provide a transcript of the video by adding it below the video or by adding a hyperlink that allows the student to download the transcript.
3) Provide a transcript of the audio file (e.g. podcast) below the file by adding a hyperlink that allows the student to download the transcript.

Bibliography:

Alcott, Lisa. "*Reading on-screen vs reading in print: What's the difference for learning?*" (2021), https://natlib.govt.nz/blog/posts/reading-on-screen-vs-reading-in-print-whats-the-difference-for-learning

"*An Overview of the Americans With Disabilities Act"*, https://adata.org/factsheet/ADA-overview

Brun-Mercer, Nicole. "*Online Reading Strategies for the Classroom",* (2019), https://files.eric.ed.gov/fulltext/EJ1236175.pdf

CAST, https://www.cast.org/

"*Digital Action Plan for Education and Higher Education*", (2018), http://www.education.gouv.qc.ca/en/current-initiatives/digital-action-plan/digital-action-plan/

"*Digital Competency Framework*",(2019), http://www.education.gouv.qc.ca/fileadmin/site_web/documents/ministere/Cadre-reference-competence-num-AN.pdf

Fingal, Jerry. "*Teach students how to read — and understand — digital text*", (2020), https://www.iste.org/explore/learning-during-covid-19/teach-students-how-read-and-understand-digital-text

Hopman-Droste, Rachel. "*Digital reading strategies to improve student success*", (2022), https://www.pearson.com/ped-blogs/blogs/2022/01/digital-reading-strategies-to-improve-student-success.html

"*Public Law 105 – 394 – Assistive Technology Act of 1998*", https://www.govinfo.gov/app/details/PLAW-105publ394

"*Ronald Mace*", https://en.wikipedia.org/wiki/Ronald_Mace

SECRÉTARIAT DU CONSEIL DU TRÉSOR (2012), « *Standard sur l'accessibilité d'un site web, (SGQRI-008-01)* », https://www.tresor.gouv.qc.ca/fileadmin/PDF/ressources_informationnelles/AccessibiliteWeb/access_web_ve.pdf

SECRÉTARIAT DU CONSEIL DU TRÉSOR (2019), « *Standard sur l'accessibilité des sites Web, (SGQRI 008 2.0)* », https://www.tresor.gouv.qc.ca/fileadmin/PDF/ressources_informationnelles/AccessibiliteWeb/standard-access-web.pdf

"*Web content accessibility Guidelines (WCAG) 2.1*", (2022), https://www.w3.org/WAI/standards-guidelines/