



Guide to creating accessible e-learning content



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Introduction: What is “accessible” e-learning content?

Imagine an organization where all employees are required to undertake mandatory compliance training. In the wake of the Covid pandemic, where Learning and Development (L&D) teams have had to make the switch to a digital learning environment, ensuring all employees gain access to this course looks a bit different. With varying abilities and needs when it comes to accessing content, it is important to give every employee equal training experience. An employee with hearing loss cannot have the same experience as another learner merely with a speaking video, as they require captions or a script panel to tag along with the visuals. The non-accessible content impacts access to e-learning courses immediately and such an employee may experience exclusion.

Owing to the digitalization of training content, L&D have had to find a way to meet Accessible Learning Content standards within e-learning course to enable employees of all different learning backgrounds to derive maximum benefit from courses. For example, to facilitate e-learning for employees with hearing loss, a few content ideas could include adding captions to the videos, providing transcripts to the audio segments, and avoiding audio input in an interactive course. This enables the learner to access the course content, answer questions about the topic and be on par with their peers.

Chapter 1

Why should we make learning accessible?

In many cases, the education system is not accommodative enough to handle the differences between learners and offer appropriate training and teaching methodologies.

First and foremost, there is a need to ensure that all employees of an organization can comprehend and utilize the information they receive from e-learning courses in an effective manner. Thus, accessibility is paramount, as it impacts the way the employees learn, act, and execute their work.

An educator must provide equal access to all learners, no matter what. In some countries, such as the United Kingdom (UK), this facility is also mandated by law. Equality Act 2010 specifically states, “In the case of disability, employers and service providers are under a duty to make reasonable adjustments to their workplaces to overcome barriers experienced by disabled people.”

More than 15% of the world lives with some form of a disability. Therefore, it is important that everyone, including those with a disability, has uniform educational opportunities and access to the same information. More importantly, assistive learning technologies, when embedded in a course, enable interactive learning. They motivate students with different abilities to participate and contribute to a digitized learning environment. Additionally, the workplace is enhanced when different workers can contribute productively to the best of their abilities.

Chapter 2

An explanation of various Accessibility Standards

Modern corporations employ a diverse workforce with varying abilities and skills. It is imperative that every employee is offered the same accessibility to learning on the job and over different media. Such standardization is better constructed and enforced by governments, rather than private bodies. Hence, the need for standards is critical.

Accessibility standards across the world

The laws and standards mandating accessibility vary greatly across the world. The two most used accessibility standards used in the United States are:

1. Web Content Accessibility Guidelines - WCAG

It is a set of standards for web design for guiding e-learning accessibility efforts. These best practices are maintained by the World Wide Web Consortium (W3C). This organization is focused on developing optional open web standards. Though WCAG is not mandatory, it is an important tool for e-learning developers for developing accessible courses

2. 508 Compliance

Section 508 of the Rehabilitation Act of 1973 ("Section 508"). In the United States, this serves as a primary guideline for accessibility in government institutions. Further, Section 504 of this Act and the E-government Act provide for equal access to public education for individuals with disabilities, while encouraging accessibility of government information.

Section 508 specifically determines the accessibility standards for government websites. The Americans with Disabilities Act of 1990 (ADA) requires employers to provide equal access to computer systems and other technology. Under this section 508, agencies must give comparable access to disabled employees as is made available to others. Members of the public and federal employees with disabilities seeking information or data from a federal agency should have equal access to information and data. The service provided should be comparable to that provided to other members of the public without disabilities.

Usage of an alternative design or technology resulting in equivalent or greater accessibility and usability by individuals with disabilities is permitted. Such solutions to make this possible include font controls or audio on mobile devices.

Other standards

Additionally, there are other standards termed as the Equality Act 2010 in the UK. This act expressly mandates “In the case of disability, employers and service providers are under a duty to make reasonable adjustments to their workplaces to overcome barriers experienced by disabled people.” The Equality Act (UK) is equivalent to Section 508 in the US.

- **State regulations on Accessibility in Private Domain**

The US Department of Justice under ADA has developed technical standards for private companies’ “public accommodation” web sites. These sites are to be accessible to people with disabilities. The U.S. Access Board develops Information and Communication Technology (ICT) accessibility standards governing Federal procurement practices.

In response to market trends and innovations in technology, the Access Board updated and reorganized Section 508 Standards and Section 255 Guidelines. It also linked these requirements with other European Commission guidelines, along with the Web Content Accessibility Guidelines (WCAG 2.0). Standards have been developed to ensure all learners can access online learning materials equally.

- **Actuating ICT in real time usage**

When agencies procure, develop, maintain or use ICT for users with disabilities, it is important to identify their needs. This is to determine how they will perform functions supported by the ICT and how it will be developed, installed, configured, and maintained to support them.

Chapter 3

How to provide and create accessible e-learning: Tips and best practices

While designing accessible e-learning courses, we can follow Current Web Content Accessibility (WCAG 2.0) guidelines. These Guidelines (WCAG) are international standards of accessibility designed by the W3C.

The most common disabilities or impairments of learners are:

- Visual
- Hearing
- Motor
- Cognitive

It is also possible that learners may also have hidden disabilities that have not been recognized in the past. Thus, all learners need to be provided with accessible learning.

A. Current Web Content Accessibility Guidelines (WCAG 2.0)

WCAG 2.0 Layers of Guidance

Web designers range from developers to policymakers, purchasing agents, teachers, and students. WCAG is a concept used by a variety of people and institutions. The usage extends from academia, marketplace agents, legislators, and web operatives. The content offered is customized to meet the specific needs and goals of each learner. Concepts, user methods, testing criteria, and goals are adjusted accordingly to guide the user.

● Principles

There are four principles that provide the foundation for web accessibility.

- **Perceivable:** Information and user interface components must be presentable to users in ways they can recognize
- **Operable:** User interface components and navigation must work with input methods other than a mouse or trackpad
- **Understandable:** Information and the operation of the user interface must be clear and concise
- **Robust:** Content should be robust enough to be interpreted reliably by a wide variety of assistive technologies

● Guidelines

Under these four principles, there are twelve guidelines which provide the basic goals for authors to work towards making content more accessible. Authors can use these guidelines as a framework to understand the success criteria. The Current Web Content Accessibility Guidelines recommend that e-learning content should be:

Perceivable: information and user interface components must be presentable to users in ways they can recognize

Parameter	Description
Text Alternatives	Provide text alternatives for non-text content such as large print, braille, speech, symbols or simpler language
Time	Provide alternatives for time-based media
Adaptable	Create content to be presented in different and simpler ways without losing information or structure
Distinguishable	Make it easier to see and hear content

Operable: user interface components and navigation must work with input methods other than a mouse or trackpad

Parameter	Description
Keyboard Accessible	Make all functionality available from a keyboard.
Time	Provide enough time for users to read and use content
Seizures and Physical Reactions	Avoid designing content in a way that is known to cause seizures or physical reactions
Navigable	Provide ways to navigate, find content, and determine where they are
Input Modalities	Make it easier to operate functionality through various inputs beyond the keyboard

Understandable: information and the operation of the user interface must be clear and concise

Parameter	Description
Readable	Text content should be readable and understandable
Predictable	Webpages should appear and operate in predictable ways
Input Assistance	Assist users to avoid and correct mistakes

Robust: content should be robust enough to be interpreted reliably by a wide variety of assistive technologies

Parameter	Description
Compatible	Maximum compatibility is required with current and future learners, including assistive technologies

B. Best practices for accessible e-learning

When beginning to create e-learning content that is accessible, there are a few best practices to keep in mind. We have highlighted a few of those below:

- **Understanding 508 compliance**

E-learning not meeting the basic accessibility guide standards is discriminatory. 508 standards cover three main areas: a. technical standards, b. functional performance criteria, and c. information, documentation, and support. Course designers should familiarize themselves with these standards prior to embarking on course development.

- **Design with the product in mind**

It's important to have a clear understanding of who will be using the content. Training requirements analysis should evaluate both course objectives and who will be attending them. Further, it should consider both current and future learners.

- **Design with audio and visual in mind**

Making audio available for screen readers can be helpful for learners trying to balance life and work. Additionally, including a transcript and/or captions can go a long way in facilitating learning. By adding controls to both audio and video, the learner has the option of going back and forth, stop and listen, and rewatch areas where need be.

- **Ensure Self-Paced Navigation**

Allowing learners to set their own pace for progressing through materials will reduce unnecessary time pressure to learning activities. A clear description of the purpose of each button by adding some text will make things clearer to the learner.

- **Provide page titles**

Screen readers read page titles first, which are helpful for all learners. Thus, a designer should ensure all pages and screens have a title that is unique, concise, and with enough description for a reader to be clear about the content to follow.

- **Provide text alternatives and transcripts for audio/video**

Transcripts of audio/video and adding captions can assist learners. This can be done through closed captions and enables individuals with visual or hearing disabilities to have an equally immersive experience.

- **Provide translations, if required**

Not everyone may be proficient in the language of instruction being used. Thus, it may be necessary to allow for translations so that all learners have equal opportunity to comprehend the content.

C. How to design an accessible e-learning course for learners with disabilities

When designing e-learning content in an authoring tool, it is important that your authoring tool supports the creation of accessible e-learning for a wide range of users. Having accessibility at the very first stage of conceptualization saves the need for multiple iterations to make content user friendly. With accessibility in mind right from the beginning, the end products evolve organically into one. Thus, we can include the needs, abilities, and goals of diverse users. Further, this includes users without disability as well. As in any creative process, some authoring tools enable accessibility better than others.

To illustrate, if every graphic content had supporting audio or alternative text that can be picked up by a screen reader, it will facilitate both visually challenged and sighted users equally. Learners who wish to follow the course while driving or exercising will find the audio support very useful and timesaving. Additionally, most users will appreciate the utility of larger fonts, striking color contrast, and more.

The question remains, how does an authoring tool enable the creation of accessible online training? The leading resources in authoring tools provide guidelines to make accessible digital learning easier and faster. Indeed, the test of any accessible e-learning tool over time is that it is user-friendly for all users, resulting in better learning and application.

In a world of remote learners, study is directed towards bridging the gap between domain knowledge and applicable skills. Naturally, the stakeholders decide which concepts can bridge this gap. Learners who face challenges, and regular learners who also profit from additional features, must be kept in mind while creating such courses.

“Accessible,” as used in the e-learning context, needs to be made credible by conforming to the strict standards of inclusion and equality mandated by Section 508 of the Rehabilitation Act of 1973.

Tips for authoring

The primary idea of creating alternatives to cater to people with disabilities is by having multiple modes of instruction. The creation of comfortable, effective, and accessible courses should be the goal of Instructional Designers. The following is essential when designing courses:

1.

Content

The combination of audio, text, video, graphics, and images enables the usage of multi-media presentations and avoids overuse of single modes of presentation

2.

Layout

It is important to build a structured course that is easy to follow and understand to assist in maintaining consistency across the whole course

3. Navigation

Try to avoid drop-down menus. With simple way to navigate the content, it will facilitate learners with disabilities. Provision of detailed and clear headings with buttons and links will also avoid confusion

4. Text Elements

Using simple sentences conveys the message clearly and crisply. Allowing for the font size and style to be changed can be very helpful to learners with dyslexia. Additionally, effective color contrasts may enhance readability.

5. Non-Text Elements

Alternative text should be provided for images and illustrations. Voiceovers should also be incorporated for all information on the page. For audio and video, closed captioning should be included to enhance presentability.

6. Interactive elements

Simple interactive elements should be included. Drag and drop or hotspot questions should be avoided as a result. Timed questions should also be avoided to aid learners with cognitive challenges.

7. Additional Resources

Ensure that any additional resources and links to third-party sites are equally accessible as the rest of the content. instructions provided complied with.

Accessible learning creates an open environment for all learners. By ensuring thorough testing before release, all learners are likely to assimilate the training offered through e-learning courses. To avoid re-working these tips, they need to be incorporated right at the design stage

How to build a strategy for accessible e-learning content

Before getting started building accessible e-learning content, it is almost important to develop a strategy that is both successful and scalable. We have outlined a few tips for designing such a strategy below:

1. Build the right team

Identify appropriate representatives from key stakeholder groups. The team needs to comprise of not just trainers, administrators, developers, and IT team members, but also learners with accessibility and disability challenges. This can provide insight into the difficulties faced by various types of learners. Additionally, a person with communicative skills who can appraise stakeholders of the accessibility initiative and progress made on that front can be extremely helpful. Thus, it may be useful to include team members who are:

- Visually impaired
- Hearing impaired
- Have learning disability
- Physically disabled

2. “Mind the Gap”

To establish web accessibility and its content, the requirements mandated by law or industry regulations need to be determined. An interface even after meeting a required set of technical standards can be very hard to use. A study of 32 blind users on the web found that only half of the problems encountered by blind users were addressed in WCAG 2.0. Another example is audio CAPTCHAs which, while being supposedly accessible to the visually impaired users, have task success rates below 50%

Theoretically speaking, developers, by following accessibility technical standards, and involving users with disabilities in the development process, should be able to create fully accessible technology. We do not, however, have accessibility standards for all technology categories. Thus, application of existing standards may not automatically ensure full accessibility. This brings about a need for using methods such as usability testing to evaluate interfaces for determining whether they are accessible and usable for people with disabilities.

Sampling the content can assist in identifying accessibility limitations and restrictions and

identify areas for improvement. More importantly, learners with different disabilities can identify whether the material meets different regulatory requirements and is accessible to all. This can be a litmus test on whether the present Learning Management System meets the requirements or not.

3. Develop an action plan and standards for creation

A new e-learning tool should, at the minimum, intend to adhere to the government or industry mandated regulations and requirements. Moreover, it should follow WCAG of W3C. This may require addressing the gulf between accessibility of the current e-learning platform and the intended policy measures and goals. ‘Minding the Gap’ entails preparation of an action plan comprising milestones, tasks, and target dates.

4. Provide the training

Newly accessible e-learning content should be accepted into an organization by developing new training methodologies. These may be delivered through a manual, workshop, or an e-learning course. Stakeholders to be trained may include web developers, trainers, course administrators, and educators who play an active role in building, maintaining, and improving an accessible e-learning platform.

5. Promote awareness in the organization

Awareness can be enhanced through an announcement followed by regular updates to the stakeholders on the progress of accessible e-learning content. Announcements should be followed by seeking regular feedback and making continuous improvements based on user input.

Chapter 5

Creating accessible learning content is easy with Easygenerator

Easygenerator is an e-learning authoring solution that has been working hard to make creating, sharing, and taking accessible learning content as easy as possible. With a goal in mind to allow all learners to fully interact with courses built in Easygenerator, accessibility is of utmost importance. Below, we have outlined the ways in which Easygenerator has incorporated elements into the authoring tool to make it simple to create accessible learning content:



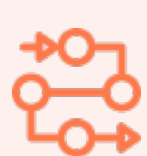
Contrast improvements

Color contrast between text and background is important. We have ensured sufficient contrast between text color and its background in all 12 design themes in the All-in-One template. These contrast improvements make content easier to read by everyone, including those who do not have specific visual conditions.



Keyboard Navigation

In the All-in-One template, learners can access and navigate a course (including the table of contents) with the Tab key on the keyboard, without using a mouse.



Meaningful sequence

The tabbing order is crucial for proper navigation through a keyboard interface. We've ensured that the tab index has a meaningful sequence and follows the flow of the page, allowing learners to tab through the interactive items on a page in a logical order.



Focus order

Speaking of keyboard navigation, focusable components receive focus in an order that preserves meaning and operability.



Visible focus

For the keyboard navigation, it is important that the focused component can be visually identified. In Easygenerator, all keyboard operable elements are highlighted on focus.



ARIA improvements

ARIA is a W3C specification that stands for “Accessible Rich Internet Applications”. It consists of markup added to HTML to clearly communicate the roles, states, and properties of user interface elements. This information helps screen readers and other assistive technologies to better understand the elements on a page and enables learners to effectively interact with those elements.



Alternative text

Alternative text (alt text) is a key element of accessibility. Easygenerator enables you to add alt text to your images so that screen readers can read it aloud for your learners. Read more about adding alternative image text for screen readers [here](#).

Time to get started! With the above-mentioned features built into the authoring tool, it is easier than ever to get started on your accessible e-learning journey. Combining the tool with the other tips and best practices from this Ebook, you will be set up for success.

Conclusion

Accessible learning creates an open environment for all learners. Creating comfortable, effective, and accessible courses should be one of the primary goals of Instructional Designers. It is imperative to ensure that all employees can comprehend and utilize the information they learn or receive from the e-learning courses. Assistive learning technologies, when embedded in a course, enable interactive learning. Thus, accessibility is paramount, as it will impact the way the employees learn, act, and execute their work. Furthermore, in some countries such as the UK and the US, this facilitation is also mandated by law through Accessible Learning Content Standards. Incorporating accessibility at the very first stage of conceptualization can save time down the road.

Modern society, be it the social or the workspace, thrives on inclusion. Inclusion is possible only when people with different attributes are facilitated to learn and apply what they learn. Accessibility is best embedded in a course, when the authoring tools used are robust and conform to the specific need of the design. These tools foresee diverse needs of learners, offer authoring support, and guide in areas of probable error. Using such pre-set tools goes a long way in creating a wider scope for learning, execution, and progress.