DIGITAL LEARNING

Online

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Introduction

According to studies, online learning has grown in popularity over the previous decade. Between 2000 and 2008, the proportion of undergraduate students taking at least one remote education course went from 8% to 20%, while the proportion enrolling in a distance education degree program rose from 2% to 4% (van Rooij & Zirkle, 2016). Furthermore, more than half of the universities assessed offered a sizable number of programs online, and 80% of them provided numerous courses (van Rooij & Zirkle, 2016).

With more students coming in for online classes, the challenge of catering to a wide range of needs arises. Course designers must ensure that their courses are suitable for as many students as possible. This is where the idea of having accessible courses comes in.

History of accessibility

In 1966, Ronald Mace graduated from North Carolina State University with a degree in architecture despite having difficulty navigating the campus in a wheelchair. According to the Center for Universal Design, rather than altering particular facilities to suit the demands of specific people, all facilities should be constructed to accommodate as vast a population as possible (Coombs, 2015).

These principles are then applied to different fields including education as the year goes by.

Laws supporting accessibility

The Americans with Disabilities Act (ADA) of 1990 and The U.S. Rehabilitation Act of 1973: Section 504

Referencing the Americans with Disabilities Act of 1990 and Section 508 of the Rehabilitation Act of 1973, the letter promotes the right of college students with disabilities to benefit academically from all instructional technologies included in their learning experiences. Additionally, it contends that changes and accommodations should be as efficient and integrated if the included technologies are later determined to be inaccessible. (Gronseth, 2018)

The United Nations Convention on the Rights of Person with Disabilities (2006)

At the United Nations headquarters in New York, the Convention on the Rights of Persons with Disabilities and its Optional Protocol was adopted on December 13th, 2006. It was made available for signature on March 30th, 2007. The optional protocol creates an individual complaints mechanism for people with disabilities who claim their rights under the Convention have been violated.

The Accessibility Guidelines

Thankfully, when someone is lost and has no clue what standards must be followed to make course materials accessible, guidelines have already been crafted throughout time. These guidelines have been applied in practice and are sometimes assessed for their effectiveness by numerous researchers. However, it is essential to note that these guidelines are not absolute. Modifications are allowed, primarily if they are acted upon to improve the accessibility of the course.

The Office for Civil Rights Guidelines

Investigations of complaints made against institutions are carried out by the Office for Civil Rights (OCR), as are compliance surveillance inspections. The American Disability Act's Title III outlaws discrimination against people with disabilities at private colleges and universities. Title II protects students in public institutions, including those that may or may not be eligible for federal financial aid (Baldwin & Ching, 2021).

Baldwin & Ching (2021) listed recommendations to prevent accessibility problems frequently found by the OCR and enhance convenience for all students:

- Content access for all students should be 24/7
- Learners with limited vision and color blindness should be able to see the color scheme and contrast.
- To assist learners who use screen readers to understand the course, graphics ought to have helpful alternate tags that describe crucial ideas.
- Screen readers should be able to read Portable Document Format (PDF) files.
- For learners with auditory impairments, audio content should be transcribed.
- There should be access to closed captioning for videos and audio descriptions that screen readers can read aloud.
- It should be possible to navigate the LMS and the course without a mouse.

Universal Design for Learning

The Universal Design for Learning, commonly known as UDL is a framework crafted by the Center for Applied Special Technology (CAST) to " improve and optimize teaching and learning for all people based on scientific insights into how humans learn."

Attached below is a simplified framework of the UDL.

Universal Design For Learning UDL	Multiple means of engagement	Recruiting Interest	Purposeful and motivated
		Sustaining efforts & persistence	
		Self-regulation	
	Multiple means of representation	Perception	Resourceful and knowledgeable
		Language & Symbols	
		Comprehension	
	Multiple means of action and expression	Physical action	Strategic and goal-directed
		Expression & communication	
		Executive functions	

The table above summarizes the guide found on the website of CAST. The second depicts the main principles of UDL. Meanwhile, the row to its right shows some more specific learning guidelines to achieve the goals of each principle which are written on the rightmost part of the table.

Web Content Accessibility Guidelines

Another resource for ensuring course content is accessible to all users is the Web Content Accessibility Guidelines (WCAG), which were created by the Web Accessibility Initiative of the World Wide Web Consortium (W3C) (Baldwin and Ching, 2021). According to the W3C, the WCAG documents explain how to make web content more accessible to people with disabilities.

All the guidelines in this document are based on four principles (Baldwin & Ching, 2021; Varonis, 2015).

1. Perceivable: Users must be able to perceive information presentation and user interface elements. To ensure that all viewers have access to the same information, certain items in this category require that text equivalents be offered for non-text content. This includes offering audio or video content with closed captions or audio descriptions (Varonis, 2015).
2. Operable: All users must be able to engage with the page's elements. For instance, courses must be accessible using a mouse, keyboard, voice command, or another interface (Baldwin & Ching, 2021).
3. Understandable: The material on the page and the instructions for using its components must be understandable to users (Baldwin & Ching, 2021). For example, the contrast of letters with the background must be considered. The texts shall be readable for everyone.
4. Robust: The course material must operate and be accessible on various devices and assistive technologies (Baldwin & Ching, 2021).

Key Features from the Three Overlapping Orientations of Accessibility (Rice, 2018)

According to Rice (2018), online course designers use three overlapping approaches to accessibility: incorporating individualized learning components, using Universal Design for Learning principles, and complying with Section 508 of the Rehabilitation Act of 1973 revisions. Enumerated below are some of what Rice (2018) thought to be the critical features of accessibility across three orientations.

- Content is arranged according to objectives, goals, aims, and/or topics.
- Content is presented in a variety of formats.
- Content presentations are incremental and strategic.
- Options for users regarding when and how to interact with content.
- Upcoming content and points of difficulty are communicated with the users.
- Use of assistive technologies.
- Possibilities for cooperation with mentors and peers

Importance of Having Accessible Course Design

Accessible course design is for everyone

Creating educational resources and activities that can be utilized and understood by various learners, including those with impairments, is known as accessibility in course design. Making sure the course is accessible to persons with visual, auditory, motor, and cognitive disabilities, as well as those with little bandwidth or using small-screen devices, is part of this. Doing this makes the learning experience more comforting and welcoming to a broader range of learners.

Instructors may guarantee that all students have equal access to the knowledge and tools they need to succeed in the course by developing accessible course materials. Having accessible course materials also means designing the material to be easy to learn, browse and interact with. For all learners, this can increase the course's effectiveness and engagement.

Hence, by employing accessible course design, it is not just for people with disabilities but for every single person who will access that course. Accessible course design is for everyone.

Avoid legal conflicts

As observed from the previous sections, numerous laws mandate the need to make courses accessible even if they are online. In many countries, organizations are required by law and regulation to make their learning materials and programs accessible to people with disabilities. Electronic and information technology (EIT) must be accessible to people with disabilities following the Americans with Disabilities Act (ADA) and Section 508 of the Rehabilitation Act in the United States. Organizations can ensure they comply with these laws and lower their risk of facing legal action by designing for accessibility.

Furthermore, organizations may be considered to be discriminating against people with disabilities if they don't offer accessible instructional resources and activities. Legal action and financial penalties may result from this. Organizations can lower the likelihood of discrimination claims by proactively designing for accessibility.

Having an accessible course design could also assist in lowering the possibility of legal action due to poor user experience and low retention rates, as the design is inclusive and meant to improve the user experience for everyone.

Forwarding a culture of inclusivity

The culture of yesterday is different from the culture of today. It can be observed that accessibility is becoming a priority consideration for everything, which is a good thing! Choosing to design courses to be accessible is a contribution to this movement.

Organizations support inclusion when they guarantee that their learning resources are available to every learner regardless of their ability. By doing so, everyone has equal access to the knowledge and tools required to succeed in the course.

Furthermore, by having inclusivity and accessibility at the forefront of your organization, the possibility of drawing in and keeping a more diverse student body is higher.

If done consistently and correctly, a culture of inclusivity is fostered, which is good for the organization and society in the long run.

Accessibility is good for the business

There are a lot of benefits in business if you choose to have your courses designed with accessibility in mind. Here are some of them.

First off, it can aid in expanding the business's educational programs' scope and accessibility, enabling a larger pool of learners to access and take advantage of the training that your firm provides. Basically, by doing this, the company may be able to reach a wider audience and expand its market. It means more revenue-generating opportunities for the firm.

Secondly, it can help learners have a better user experience by making the instructional materials easier to use and understand. This could increase student engagement and satisfaction, increasing retention and completion rates. These two statistics—retention and completion—are exceptional proof that there is a good return on investment for the business and that the programs are effective. Good outcomes generate good feedback, and good feedback generates more potential clients.

Thirdly, as discussed earlier, the law mandates company to employ accessibility aspects and features in their materials, and failing to do so may subject the business to expensive legal repercussions. Companies can avoid such dangers and save themselves from lawsuits by designing for accessibility.

Lastly, being known as a company that promotes inclusivity builds is good for the company's image. It signifies that the company values inclusivity and respects all of its clients. This kind of reputation not only attracts potential customers but also potential investors.

Challenges to Accessible Course Design

Resource limitations

When talking about resources, numerous things come to mind. In making courses pass accessibility standards, the organization's resources are spent. Furthermore, to ensure that it is being done, the organization must not be stingy in providing resources to accomplish its courses. This section will discuss different types of resources and what their constraints can imply to implementing accessible practices.

Time and budget constraints. It may take a lot of time for other organizations to plan and create accessible instructional materials, making it challenging to add accessibility features to the course. This may cause hasty decisions and have an adverse effect on the course's quality. Moreover, suppose an organization is in a tight budget. In that case, they may find it challenging to buy the equipment, software, and other materials required to make the course accessible. This can also render it difficult to commit resources to test and evaluate the accessibility of the course and to make any improvements or modifications.

Other resources that may be limited that can affect the creation of accessible courses are staff resources and technology and infrastructure resource. The number of employees in an organization—especially those just starting or small—who have the knowledge and abilities to create and develop accessible courses may be restricted. Implementing accessibility features and testing and evaluating the course's accessibility may be difficult. In terms of the latter resource, organizations may lack the infrastructure or technology required to make their courses accessible. For instance, they might lack the tools or software to provide accessible content or evaluate the course's accessibility.

All these resources are essential to the success of the creation of an accessible course.

Resistance to change

Times are changing, and the adaptability of organizations is being tested. Despite the need to follow the changes that modern times demand, some organizations are still firm in upholding their old standards. Hence, it is sometimes challenging to promote inclusivity in course creation.

Understanding that accessibility is imperative in courses is crucial in its implementation. If stakeholders and colossal business owners do not believe in this, there would be futile backing. Suppose they are opposed to the idea of making courses accessible. In that case, they may be unaware of the importance of accessibility and the advantages it offers both the organization and learners. This might make it challenging to get the necessary support and resources and convey the significance of accessibility.

Another factor that can derail the process of implementing accessibility to courses is the lack of training and support for staff. They are the ones who will be in charge of executing these courses. The team may find it challenging to acquire the essential abilities and knowledge to create accessible educational materials if there is less investment in accessibility training and support. This is like a chain because the lack of training affects their confidence in taking on tasks related to accessibility. After all, they are not equipped with the right tools and skills.

Another one could be the inflexibility of the staff and decision-makers. Suppose staff members or decision-makers are less receptive to innovative approaches and methods of course design and development. In that case, they will most likely oppose the idea of making courses accessible. Hence, relentlessly raising awareness about the importance of accessibility and the benefit that it can give to the organization is essential in breaking through this barrier.

The complex nature of accessibility

Accessibility is a complicated topic that may encompass numerous platforms, technologies, and regulations. This can make it challenging for firms to stay current with changes and guarantee that their courses are accessible.

The first thing that makes it complicated is that multiple disabilities must be considered. With that said, all of them have unique accessibility needs. Organizations must consider the needs of those with visual, aural, motor, and cognitive disabilities. Because of this, developing educational resources that are accessible and suit the requirements of all students can be difficult.

Another consideration that makes it so complex is that many guidelines are present. It can be challenging to comprehend and put the requirements into practice for organizations when they must adhere to several accessibility standards and guidelines, including Section 508, WCAG, and ADA. They may need to comprehend and apply various principles and standards, which can overwhelm enterprises.

Subpar execution

As discussed above, accessibility is complex. A massive amount of resources, preparation, and commitment is needed to implement it successfully. Although challenging, the standard should always be excellent to perfect. There is no room for poor execution as it may cause detriment to learners rather than help them.

It is important to note that aside from everything mentioned above, the maintenance and updates necessary for these courses are crucial for their development and continuation. As technologies, standards, and learner demands evolve, it might be challenging to guarantee that the course will remain available and adapt over time. This could necessitate ongoing course testing, upgrading, and maintenance, which could be time-consuming and expensive.

Speaking of testing, this is another measure that is required to ensure the quality of the courses. The ability or resources for organizations to test and assess the accessibility of their courses may be lacking. Because of this, it could be challenging to find accessibility problems, fix them, and ensure that all the features and aspects of accessibility that are supposed to be applied in the courses are executed flawlessly.

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