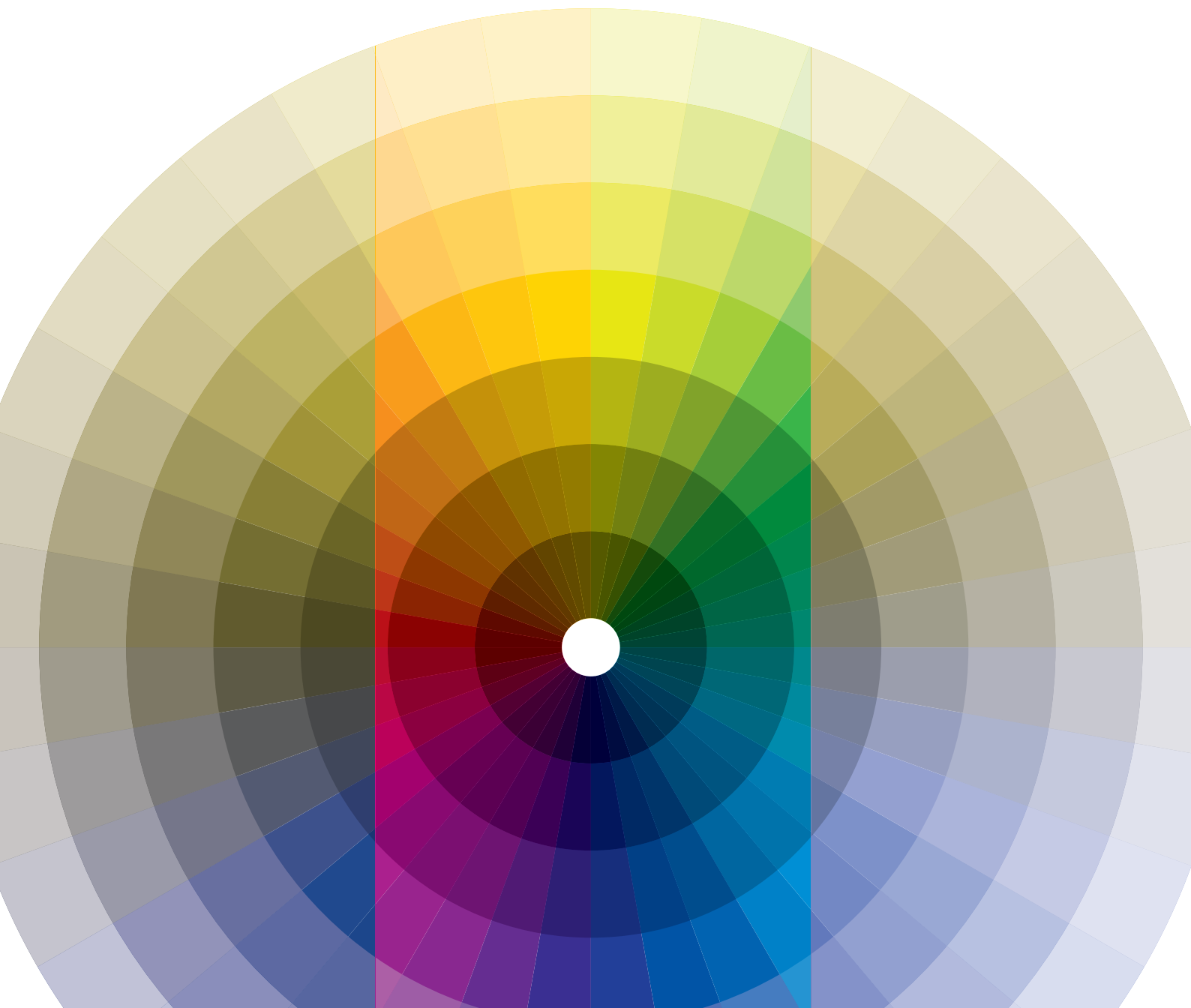# D2L
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Accessibility of Education Technology

Guiding Principles for Procurement

About D2L

D2L develops software that makes the learning experience better. Our cloud-based platform is easy to use, flexible and smart. With Brightspace, schools and companies can personalize the experience for every learner to deliver real results. We're a world leader in learning analytics: our platform predicts learner performance so that schools and companies can take action in real-time to keep students and employees on track. Brightspace is used by learners in higher education, K-12, and the enterprise sector, including the Fortune 1000.

D2L believes learning is the foundation upon which all progress and achievement rests. Working closely with clients, D2L has transformed the way millions of people learn online and in the classroom. Learn more about D2L for schools, higher education, and businesses at www.D2L.com.

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Introduction

Web-based technology has transformed classrooms around the country, offering tools for personalized learning, digital instructional materials, and adaptive course content, among others. Often however, students with disabilities are not able to fully utilize these online tools or experience the benefits afforded to their peers without disabilities. Students with disabilities are often accommodated with alternative materials that, while providing the equivalent academic content or standards, fail to offer the same user experience and other benefits.

CATEGORIES OF DISABILITIES:
Visual: Blindness, low vision, color-blindness
Hearing: Deafness and hard-of-hearing
Motor: Inability to use a mouse, slow response time, limited fine motor control
Cognitive: Learning disabilities, distractibility, inability to remember or focus on large amounts of information

School districts and institutions of higher education are required under the American's with Disabilities Act (ADA), Section 504 of the Rehabilitation Act, and general education statutes, to ensure their educational programming is accessible for students with disabilities. While the provision of alternative materials for students with disabilities is allowable under law[1] and can be appropriate in certain cases,[2] too often alternatives are provided where an equivalent, accessible technology could be provided to all students, regardless of disability, or a technology provider has not built standard accessibility features into their product. These cases tend to occur more out of a lack of familiarity of available technologies and accessibility standards rather than negligence or malice, but they have serious consequences. For school districts and institutions, this could mean the loss of federal education funding and a private right of action under the ADA. For students with disabilities, it means the loss of opportunity to learn and fully participate in the educational experience.

In the last few years, school districts and institutions of higher education have come under increasing scrutiny for the accessibility of their web-based education technology.[3] Parents and disabilities advocates have stepped up their review and reporting activities and the US Department of Education's Office of Civil Rights has conducted a steady string of investigations and enforcement actions.[4]

A resounding call from these stakeholders has been for schools and software providers to act now in providing tools for all students. Schools should not wait for a student with a disability to enroll and then identify him or herself before starting to procure accessible technology or make vendors aware of your accessibility needs. Schools should assume today that a student with a disability has already enrolled or will soon enroll. If you wait, you are already too late to rectify the situation and the student will lose.

These guiding principles are intended to help school districts and institutions of higher education make smarter technology procurement decisions regarding accessibility of web-based technologies and, in doing so, move the needle within the industry to ensure all education technology tools are "born accessible"–tools that are designed and built from conception with accessibility as a core component.

These principles are not a total and complete guide to accessibility for technology, but offer a step forward in the conversation amongst educators and between schools and their vendors.

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Guiding Principle 1:

Require Accessibility Standards in Procurement

Including accessibility technical requirements in every software procurement process is a simple way to maximize inclusion for students, parents, and faculty and reduce liability for your district or institution. To do it does not require technical expertise or additional burden.

USE THE WCAG 2.0 LEVEL AA.
Require all your web-based software to conform to the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA. This set of guidelines developed by industry and disability stakeholders is recognized as providing consistent accessibility to individuals with disabilities without undue burden for software developers.

Examples of WCAG 2.0 Level AA features include:

- adjustable text size

- meaningful alternative text for photos and embedded URLs

- full keyboard navigation

- in-page text used whenever possible, rather than image based text or PDFs

- captioning of pre-recorded and live videos

- audio descriptions of pre-recorded videos

The blog WUHCAG has a great checklist of all the WCAG 2.0 guidelines.

The federal government in 2017 updated its accessibility requirements for federal agencies procuring software to align with the WCAG 2.0 Level AA.[5] For school districts and institutions of higher education, Section 504 of the Rehabilitation Act entitles every child with a disability to a "free appropriate public education."[6] While the specific standard for enforcement under Section 504 is fairly general, requiring educational services, programs, and activities to be "readily accessible and usable," the Office for Civil Rights has cited the WCAG 2.0 Level AA as a standard to strive towards in several of its enforcement actions regarding website accessibility.[7]

THREE PRIORITIES WHEN ASSESSING ACCESSIBILITY

1. Ability to navigate by keyboard alone.

Web site navigation is one of the most common complaints received regarding web content accessibility and is a priority in the review process for the Office of Civil Rights. For students with mobility disabilities or visual impairments, the ability to effectively and efficiently navigate webpages without a traditional mouse is critical to their success.Students and other end users should be able to navigate throughout a website using only their keyboard—this includes without the use of a monitor as well.

What to look for:

- Is the website free from "keyboard traps" that allow a user to move to a part of a website but not away from it? *For example, a user can navigate to a newsletter subscribe box but not away from it.*

- Are drop down menus accessible from the keyboard?

- As a user navigates by keyboard, is there a focus highlight so users can see which element of the page they are on at any time?

- Are navigation tools and button labels consistent across the website? For example, is the search bar in the same place on every page and the "homework" buttons consistently labeled as such?

2. A logical structure and meaningful sequencing.

Webpage content should be presented to users in a meaningful order that ensures the meaning of the content is not lost on a blind or mobility-limited user. This is particularly important for users requiring a screen reader who would become lost on a page with random order navigation between elements.

What to look for:

- Are keyboard users able to navigate from one element to the next in an intentional order? *For example, a user on an English webpage should move left to right and top to bottom but not unnecessarily switch back and forth from a sidebar to the main content.*

- Does the webpage content use headings to distinguish between sections of content and between titles and body text?

3. Focus on the main features

Complaints and subsequent enforcement of accessibility requirements tend to focus on the primary functionality of an online service or website. When considering adopting a technology new to your district or institution or posting new content to your website, always require conformance to the WCAG 2.0 Level AA guidelines. For your existing web content however, focus your remediation activity on the primary features that a student, parent, or teacher would be required to interact with for a course or to participate in a school activity.

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Guiding Principle 2:
Ask for Transparency and Validation

Districts and institutions should expect all their software providers to be proactively transparent about their product's accessibility just as they are about its features. It is not realistic for districts and institutions to be able to evaluate fully and routinely the conformance of each of their vendor-provided services to the WCAG 2.0 Level AA. As part of due diligence in any procurement process for online software, districts and institutions should require some critical documentation.

VOLUNTARY PRODUCT ACCESSIBILITY TEMPLATE (VPAT™)
The VPAT is a standardized method for vendors to explain in simple and concise language where a product conforms to federal accessibility procurement requirements and where it does not. Federal requirements are closely aligned with the WCAG 2.0 Level AA guidelines which makes it a very useful proxy for accessibility requirements in the education space.

The VPAT is not a certification, however, and a vendor's completion of one does not necessarily mean their product is accessible for everyone. For example, a product could claim keyboard navigation alignment but include an exception that it is not yet keyboard navigable but is in the process. Any claimed exceptions should be read closely and include a specific and reasonable timeline for resolving.

Similarly, a vendor's product may not appear to fully conform to accessibility standards on the VPAT yet still meet the needs of students with disabilities. Often this is because certain conformance indicators may not be applicable to that product. For example, a product with no video functions does not need to include closed captioning capabilities.

Vendors should prominently post their VPATs and other accessibility documentation on their websites in a manner that is public and easy to find.

THIRD-PARTY VALIDATION AND USER TESTING

In addition to the VPAT self-assessment, schools and institutions should ask their providers of critical and necessary software for students, parents and educators to provide validation of accessibility by a third-party. By asking for attestation to the accessibility of a product, districts and institutions can be assured that accessibility needs and requirements are truthfully being met without needing to invest in their own enforcement and review mechanism. Reputable validating entities will not only test a product with automated review software but will also conduct user testing with individuals with disabilities.

GUIDANCE FOR USING ACCESSIBILITY FEATURES

Outside of documentation of the product's accessibility, vendors should also be able to provide guidance and best practices for teachers and students on how to most effectively use the accessibility features. Many times, this guidance is in the form of traditional step-by-step guides but can also include a moderated, online community of practice for educators to share practices amongst each other. In addition, districts and institutions should ask their vendors for a point of contact for accessibility questions that may not be covered in the guidance or to alert if an accessibility issue arises.

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Guiding Principle 3:

Reserve Alternatives for Last Resorts

The intent of the WCAG 2.0 Level AA guidelines is to provide a level of accessibility suitable for most individuals. In the education setting, adoption of these guidelines in the procurement process can help to minimize the need to provide alternative materials. Decreasing the variance in materials can increase equity in the education experience for students with disabilities and brings it much closer to the experience of students without disabilities.

In some cases, however, even after procuring or developing software with accessibility standards, it may still be necessary and allowable to provide alternatives to individual students based on their needs. For the most part, these instances will fit into one of the following two cases.

1. WHEN A STUDENT'S DISABILITY REQUIRES IT.
Enforcement actions by the Office of Civil Rights have shown a preference for schools to provide all students with the same material or software whenever technically possible. For instance, a school procuring a new digital science textbook cannot adopt a text that is not fully keyboard navigable for one set of students while providing a different, keyboard accessible text to those with disabilities.

A student having an Individualized Education Plan (IEP) is not in itself an indication that alternative materials or software are necessary or appropriate. Alternatives provided in the case of a student's disabilities should be reserved for instances in which a product that meets an accessibility standard equivalent to the WCAG 2.0 Level AA is still not sufficient to meet the needs of a particular student or where that student's disability requires an alternative. Such a necessity should then be designated in the student's IEP.

2. WHEN IT WOULD FUNDAMENTALLY ALTER THE TECH OR INSTRUCTION.

Technology continues to evolve more rapidly than accessibility standards and assistive technologies can keep up. More classrooms are incorporating tools like 3-D math modeling and virtual reality that can take students on field trips to distant places and even back in time. These innovative tools are providing new opportunities for students but often are not yet at a place where they can be completely accessible for all students.

In many of these cases, requiring strict conformance to accessibility standards would limit the development and use of new tools for students by requiring fundamental alterations to the technology itself and prohibiting teachers from using it in the classroom altogether. The former stunts the development of the technology and the latter prohibits it from ever becoming accessible.

A fundamental change is the key term for this exception; an inconvenience to a provider to include adjustable contrast ratios or eliminate keyboard traps would not qualify nor would a change to instruction that simply requires exchanging one digital textbook for a similar digital text. Fundamental changes might include dialing a virtual reality tool, which includes 360 degree, constantly changing and interactive images, back to interactive still images, or, on the instruction side, having digital textbooks and a digital instruction plan or not.

Vendors should still be incorporating those individual accessibility standards into technologies whenever possible and work to improve those standards which may not yet be conducive to new technology.

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Guiding Principle 4:
Have Policies for User-Generated Content

After procurement of accessible technology, school districts and institutions of higher education are responsible for ensuring any digital content provided to students or content posted to websites are fully accessible. The same principles applied to web-based software under principles 1, 2, and 3 should be applied to purchased content from publishers. For content posted to websites by users—i.e. staff, faculty, and educators of a district or institution—having a policy for posting content can help to avoid common mistakes, such as pictures without alternative text descriptions, mislabeled files, inaccessible PDFs, or improperly cited URLs.

USE ACCESSIBILITY VERIFICATION TOOLS WHENEVER AVAILABLE.
Some vendors whose tools allow for content creation, such as learning management systems and web site development tools, include an accessibility "checker" in their platform. Much like a spell checker, these tools can scan through content and images prior to publishing to help identify where accessibility problems exist and suggest how they could be resolved. For those times when a built-in tool is unavailable, there are many free websites available that can scan a webpage for likely errors. A list of web accessibility checkers can be found on the W3C Web Accessibility Initiative website.

Of course, machine testing cannot be relied on for 100 percent accuracy. Human judgement is essential at some levels. Just as incorrect words might escape

spell check, inaccessible content may escape an accessibility checker. For example, an image with an alternative description of "picture" will be able to pass a checker tool despite not having a meaningful description for a user with visual impairments.

REQUIRE MEANINGFUL DESCRIPTIONS FOR PICTURES, BUTTONS, AND URLS.
Alt tags, or alternative descriptions, are a frequently missed item in user generated content. For users with visual impairments, this can make following content, completing assignments, or just understanding what their sighted peers are experiencing impossible. Alt tags and descriptions must be meaningful as well. Labeling an image as "picture" does not provide a student with an equivalent experience if a sighted student is looking at an image of a snowy field at dusk with a barn in the distance.

An image's alternative text must convey not only a description of the image but the meaning of the image within the context of its surroundings. The same image may require different alternative text depending on when and where it appears in content. WebAim.org has a helpful guide to image alternative text and examples.

Buttons, including images acting as buttons or links, should be individually labeled to give context to where it will lead users. URLs should describe where a user will go rather than simply "click here for more."

AVOID PDFS AND IMAGES OF TEXT WHENEVER POSSIBLE.

Whenever possible, text content provided to students online should be embedded in the body of a webpage as HTML or otherwise provided in a format that is easily rendered by assistive technologies, such as screen readers. Downloadable file formats, such as PDFs, too often are inaccessible for many individuals using assistive technology or who require search capabilities to locate content.

Often the default file format for open education resources and readily available on the internet, PDF content is one of the most inaccessible forms of content distribution. Due to the various ways in which content is converted into and stored in the PDF format, the original content flow and hierarchies often become out of sync for assistive technologies or do not even make it into the PDF.

Images containing text are a close second behind PDFs as an inaccessible form of content distribution. Even with a meaningful description of the image and the text, the content can be out of sync with the remainder of the page and leave an individual with a disability without the surrounding context and/or lost on the web page. All text, especially text conveying meaning or instruction, should be included in the body of a webpage as HTML. Charts and graphs in STEM disciplines can be special exceptions to this "text in an image" rule. For guidelines on describing STEM images, visit the National Center for Accessible Media's "Guidelines for Describing STEM Images".

If posting content in a separate file (i.e. not in the body of the page as HTML) is necessary, content developers should consider file formats that are conducive to assistive technologies and re-editing, such as Microsoft Word documents.

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Conclusion

REACH EVERY LEARNER

One of the great promises of education technology is to reduce inequities in educational opportunity with innovative tools providing anytime, anywhere access to learning. When technology is not accessible however, we are not making good on that promise and even exacerbate the opportunity gap for students with disabilities.

The benefits are not limited to just those students with disabilities. Just as delivery people with carts and parents with strollers benefit from sidewalk curb cuts designed for wheelchair users to navigate cities independently, students without disabilities can benefit in their learning from accessibility features such as closed captioning, text to speech, and adjustable color contrasts.

Elevating accessibility to the front of each procurement and technology decision can take us from serving many to serving all.

D2L AND ACCESSIBILITY

D2L believes that technology should never limit learning opportunities which is why our Brightspace learning management system is born accessible. Basic features, such as built in content templates and an accessibility checker with automatic prompts for things like alternative text for images and color contrast warnings, help to ensure full access to content by every learner.

Conforming to the WCAG 2.0 Level AA guidelines, accessibility features within Brightspace have been reviewed by third-party organizations for verification, including Knowbility and the National Federation for the Blind (NFB). In 2016, Brightspace was selected as the first LMS and second overall partner by the NFB's Strategic Nonvisual Access Partnership program.

Accessibility is at the heart of D2L as a company. Our online accessibility center is a central repository for all our accessibility documentation, including an extended VPAT and a WCAG 2.0 checklist.

Endnotes

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3   Francovich, E. (2017, August 9). Spokane schools swept up in nationwide barrage of ADA website accessibility complaints http://www.spokesman.com/stories/2017/aug/09/spokane-schools-swept-up-in-nationwide-barrage-of-/

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7   U.S. Department of Education, Office for Civil Rights. Resolution Agreement Virginia Beach City Public Schools. https://www2.ed.gov/about/offices/list/ocr/docs/investigations/more/11151344-b.pdf