

**Section II**  
**Determining**  
**Content Accessibility**



**The VPAT helps determine if learners have access to information rather than if they can understand and can apply information. The VPAT seeks to determine, as the standards require, that all digital content be designed to be available for those with sight and hearing restrictions, and physical challenges.**

While these are critical needs, what the current accessibility standards often fail to include are the learning or cognitive demands of the digital or information resource. When fully implemented, the websites designed to current accessibility specifications will not necessarily be accessible to all learners.

If the WCAG, Section 508, and EPUB accessibility guidelines limit accessibility determination, the proper tool must be used to evaluate materials for accessibility to all learners. While the VPAT can help successfully measure accessibility to the materials, its inherent design does not address issues with curriculum accessibility. Curriculum accessibility targets the learning of

the blended and fully online instructional experience. Accessible text will have a text-to-speech option but will continue to require a level of understanding and the ability, on the part of the reader, to determine what is important and what aligns with the instructional objective, as well the ability to organize this knowledge in preparation to demonstrate an understanding and application of the content. Additionally, students with learning challenges often struggle to convey what they know. These students may require additional options to help express what they have learned.

Determining the learning accessibility of content includes examining cognitive accessibility. To evaluate

# UDL Guidelines and Principles

## Principle 1: Provide Multiple Means of Representation

**Guideline 1:** Provide options for perception

**Guideline 2:** Provide options for language, mathematical expressions, and symbols

**Guideline 3:** Provide options for comprehension

## Principle 2: Provide Multiple Means of Means of Action and Expression

**Guideline 4:** Provide options for physical action

**Guideline 5:** Provide options for expression and communication

**Guideline 6:** Provide options for executive functions

## Principle 3: Provide Multiple Means of Engagement

**Guideline 7:** Provide options for recruiting interest

**Guideline 8:** Provide options for sustaining effort and persistence

**Guideline 9:** Provide options for self-regulation

cognitive Web accessibility, tools such as WAVE (<http://wave.webaim.org/cognitive>) can be used to generate a technical report. Employing a checklist, the WAVE Web accessibility tool examines the consistency of a given site, the ability to change an image to text as well as alter text font size, how a site enhances focus and structure, and the readability of a site based on the language used. While the WAVE and similar cognitive accessibility elements offer an alternative to the VPAT, the focus remains on access to the content through the various senses as well as modification to alter how one perceives the information.

The learning demands of Web-based lessons require a framework or series of recommendations that address the essential barriers to learning. The Universal Design for Learning (UDL) framework is such a system; its primary principles and guidelines seek to assist instructional designers and content developers with building curricula that is accessible to all learners. UDL serves as a general blueprint for assessing how instructional goals, methods, materials (including technology), and assessments provide—within the learning environment—learning options for all students.

From an instructional perspective, UDL is focused on supporting learner needs through a 5-step instructional planning and design process. UDL also provides a basic framework for assessing curriculum and products such as online tools or content.

UDL helps to expand educational accessibility for all learners by using flexible curricular, instructional, and evaluative means. Originated by the Center for Applied Special Technology (CAST) in the early 1990s, UDL is included in the Higher Education Opportunities Act (Public Law 110-315) and in the National Educational Technology Plan (Duncan, 2010). While accessibility is an essential prerequisite of UDL-oriented curriculum materials, it is important to distinguish between access to information and access to learning. Online learning resources must facilitate access to information, and UDL ensures that these resources will also facilitate access to learning. Together, online learning resources and UDL provide accessibility and options while maintaining high standards for all students by allowing educators to address both disability and learner variability.

The UDL framework is based on three principles, nine guidelines, and a variety of checkpoints. The four essential components of UDL comprise a curriculum: goals, methods, materials, and assessments. For example, in the UDL framework the goals themselves recognize learner variability and thus allow the teacher to offer a variety of options and alternatives in reaching mastery. Methods are adjusted based on continually monitoring a student's progress, and embedding materials that offer tools and supports to sustain interest and reach the desired outcomes. The UDL framework looks to improve the accuracy and timeliness of the assessments while reducing or removing any barriers to ensure what is measured is

accurate and representative of student's knowledge and their ability to attain the specific instructional goal.

Because the UDL focuses on learning as well as the limitations inherent in VPAT analysis, Center researchers determined that an accessibility analysis of K-12 blended and fully online learning experiences must be based on the UDL framework and that such an examination would then extend beyond the sensory and physical confines of the VPAT and the traditional accessibility of cognitive measures. To measure based on the UDL framework, Center researchers developed a UDL measurement tool (the UDL Scan Tool) that measured the principles, guidelines, and checkpoints.

### **UDL Scan Tool**

The UDL Scan Tool was designed to provide researchers and educators with a means to critically review online content systems for their potential to support learner accessibility and variability. Each of the UDL guidelines and checkpoints (<http://www.udlcenter.org/aboutudl/>

udlguidelines/) was mapped to specific and observable features within a content system.

The Scan Tool contains 37 initial questions with a total of 46 unique response items, including a general tool for measuring the usability of a product. The tool intuitively branches users to the specific questions they need for a complete understanding of what they are evaluating. The tool has been validated and widely tested on more than 1,000 individual pieces of product content.

Each item on the UDL Scan Tool aligns with one of UDL's three principles, one of the nine guidelines, and at least one checkpoint. The thoroughness of the tool ensures that each of the principles, guidelines, and checkpoints are measured for each lesson evaluated. Using the UDL Scan Tool, Center researchers sought to determine the content alignment of selected, widely used, blended and fully online lessons to the UDL framework. The study sought to better understand whether pre-packaged, vendor-created K-12 online lessons were appropriate to the learning needs of all students, especially those with disabilities.