Universal Design for Learning

If an environment is accessible, usable, convenient and a pleasure to use, everyone benefits.

Disability Act, 2005

Welcome to the Teach to All Learners/UDL page. Let's kick things off with a look at the origins of this initiative: a concept called Universal Design.

Universal Design combines form and function to improve the experience for all users. Take this outdoor space as an example: People can use the gradual incline of the ramps, or they can use the stairs with or without railings. This space is accessible to a wide range of users – people who walk, use bicycles, strollers, or wheelchairs; people who prefer to hold a railing or people who would like to walk in a few different directions on their way up to the top. This outdoor space is a great example of how good design benefits everyone.

Beginning in the mid-20th century, as veterans returned from WWII, designers began to consider ways to adapt their designs and accommodate people with physical disabilities – an approach we now call Universal Design. This hands-free faucet is a perfect example: the design accommodates people with physical limitations but any person who is not able to turn on the faucet with their hands will benefit from this design.

Closed captioning was created to accommodate people with hearing impairments, but many of us find these captions helpful when we’re watching a video in a public space or want to pay close attention to the words chosen by the speaker. In fact, many students find that their comprehension increases when they are able to read along with audio and video clips. What began as an accommodation became an asset for all users – and this is the basic tenet of Universal Design. Good design benefits everyone.

The Teach to All Learners initiative will help you incorporate Universal Design approaches into your online and on-campus courses. Click through the links listed on the menu to the left to explore ways you can design your content, assessments, and communication to be accessible and applicable to all learners.
The Principles of Universal Design for Learning

Starting in the 1990s, educators at CAST began developing guidelines for instructors to use when designing technology-infused courses. These guidelines have evolved into the framework we call Universal Design for Learning. The pages in this section explore ways your online and on-campus courses can integrate the three basic principles of UDL:

Representation: Present what you want students to learn in a variety of ways.

- Offer information in a variety of formats, using short videos, infographics, and interactive websites alongside journal articles and slideshows.
- Make sure all students can access the course content. Ensure text can be scanned by screen reading software. Provide transcripts for audio clips and closed captions for videos. Clarify terminology, acronyms, and symbols.
- Help students connect their prior knowledge to the new information they will learn in your course. Develop their ability to recognize patterns and sort information into categories.

Action and Expression: Offer options for how students can express what they know.

- Encourage students to submit assignments in a variety of formats, including videos, images, and performance pieces alongside the typical exams, papers, and presentations.
- Create assignment rubrics that focus on concepts and analysis rather than recall and formatting.
- Allow students to monitor and reflect on their own progress.

Engagement: Help students think about why they want to learn.

- Tap into students’ intrinsic desire to learn. Build time into your lessons for curiosity and wonder.
- Allow students to have some autonomy in their topic of study. Encourage them to explore project-based and service-learning opportunities.
- Consider varying assignment requirements to optimize the challenge for each student. Provide feedback that focuses on individual progress rather than comparing students to one another.
- Encourage students to assess their own progress and reflect on the ways that their coursework has resulted in growth.

Research that demonstrates how UDL promotes expert learning

Bullets below each item are quoted from https://files.eric.ed.gov/fulltext/EJ1104867.pdf 3/12/19

UDL provides students with choices in terms of how they learn and how they demonstrate what they’ve learned. The students feel “seen” for their individual needs and preferences, which increases their satisfaction with the course and with the instructor and improves their chances of completing the course successfully.

- A curriculum-based UDL integration was shown to promote learner engagement, satisfaction, and self-efficacy (Davies et al., 2012; King-Sears et al., 2015; Smith, 2012). Hall et al. (2015) noted that disabled learners highly enjoyed using a UDL-based online learning tool to improve reading comprehension. Additionally, He (2014) revealed that fostering UDL through online courses can decrease learner concerns and anxiety, and promote perceived satisfaction. Finally, it was also established that designing a course according to UDL principles can positively affect learning flexibility and success, reduce learning stress, and enhance the social presence of learners (Kumar & Wideman, 2014).

UDL increases overall student performance and reduces the achievement gap between students with and without disabilities.

- In the study conducted by Hall et al. (2015), the improvement of learner performance was attributed to UDL application.
- Coyne et al. (2012) illustrated that the successful implementation of UDL can promote the reading comprehension of learners with significant intellectual disabilities.
- Hall et al. (2015) noted that disabled learners highly enjoyed using a UDL-based online learning tool to improve reading comprehension.
- He (2014) revealed that fostering UDL through online courses can decrease learner concerns and anxiety, and promote perceived satisfaction.
- Designing a course according to UDL principles can positively affect learning flexibility and success, reduce learning stress, and enhance the social presence of learners (Kumar & Wideman, 2014).

UDL makes instruction easier and improves the quality of courses.

- Two studies depicted that teachers highly benefited from UDL-based training programs in order to design and improve curricula accessibility (Courey et al., 2012; McGhie-Richmond & Sung, 2012).
- Other studies supported the positive effect of UDL implementation on both teachers and students (Davies et al., 2012; Hall et al., 2015; Kumar & Wideman, 2014).
- Kumar & Wideman (2014) pointed out that a UDL-based course design can promote teacher engagement and reduce their workload because the implementation of UDL can lead students to practice a ‘learner-centred’ approach rather than relying solely on the traditional ‘teacher-centered’ method.
- Two papers revealed how educational institutions can benefit from UDL principles in designing flexible and accessible curricula (Mavrou & Symeonidou, 2014; Smith & Harvey, 2014). Moreover, Kumar & Wideman (2014) established that the required intervention by a disability services department of an educational institution can also be reduced when UDL is applied.
- A UDL-based training program was shown to improve awareness of candidate teachers in developing novel teaching approaches in terms of representing the learning content, engaging students, and assessing their understanding (Courey et al., 2012).

UDL works for all disciplines.

- It is worth mentioning that the implications of UDL are not limited to a particular discipline. Positive impacts were observed in different disciplines such as psychology (Davies et al., 2012), language learning (Coyne et al., 2012; Hall et al., 2015; Kennedy et al., 2014), and chemistry (King-Sears et al., 2015; Kumar & Wideman, 2014).

Click the items below to see a tabular representation of this research.
### UDL is different from Differentiated Instruction and WCAG compliance

**Differentiated instruction** is an instructional approach that varies the types of media and teaching approaches used in classroom instruction. Differentiated instruction is reactive. When instructors find that some course materials are inaccessible or ineffective for the learners in the course, they adapt or replace the content. In contrast, UDL is proactive. Instructors provide a range of multimedia options for learners to choose from based on their needs and preferences.

**WCAG compliance** is an international set of standards used to ensure web accessibility for all users. Developers are responsible for making sure the layout and functionality of their websites are perceivable, operable, understandable, and robust. In contrast, UDL focuses on the role of the instructor in providing materials that all students can access. When instructors provide a variety of content and assessment options, students can choose the format that works best for their learning preferences and needs.

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<table>
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<tr>
<th>Source</th>
<th>Method</th>
<th>Outcomes</th>
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<tr>
<td>Smith et al. (2012)</td>
<td>Descriptive case study</td>
<td>The study described the implementation of UDL in a blended learning setting.</td>
<td>Various materials, including videos, audio recordings, and written text.</td>
<td>Pre-test/post-test design</td>
<td>Students showed significant improvement in understanding the course content.</td>
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<tr>
<td>Brown et al. (2011)</td>
<td>Quasi-experimental design</td>
<td>The study evaluated the effectiveness of UDL in improving student engagement.</td>
<td>A range of multimedia resources, including interactive simulations and multimedia presentations.</td>
<td>Randomized control groups</td>
<td>Students in the UDL group showed higher levels of engagement and improved learning outcomes.</td>
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**UDL** is an acronym for Universal Design for Learning. It is a framework that supports and enhances the accessibility of all learning environments. UDL is different from Differentiated Instruction and WCAG compliance in that it offers a proactive approach to instructional design. UDL focuses on providing materials and activities that are adaptable to the needs and preferences of each student, whereas Differentiated Instruction is more reactive, adapting instruction based on what is needed at the moment.

**Compliance with WCAG** means that developers are adhering to a set of guidelines to ensure accessibility for all users. UDL focuses on the role of the instructor in providing materials that students can access. When instructors provide a variety of content and assessment options, students can choose the format that works best for their learning preferences and needs.

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**Adapted from** [https://www.w3.org/WAI/standards-guidelines/wcag/#intro](https://www.w3.org/WAI/standards-guidelines/wcag/#intro) and [https://www.edutopia.org/topic/differentiated-instruction](https://www.edutopia.org/topic/differentiated-instruction) 3/12/19