Reflection in Online Education

Universal Design for Learning (UDL): A beginner's guide for online higher education instructors

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Abstract: This article gives a brief overview of the CAST Universal Design for Learning (UDL) framework that is a research based means by which instructors can improve learning for their students. Each of three sections of the framework are explained, with relevance to online learning highlighted. In addition, each overview is coupled with specific implementation strategies appropriate for online higher education instructors.

Keywords: universal design for learning (UDL), online instructors, higher education, instructional strategies

Introduction

Universal Design for Learning (UDL) is a framework created by CAST (formerly the Center for Applied Special Technology) which is used to promote equity by removing learning barriers for students (CAST, 2018). The framework stems from research on cognitive processes that enable learning, which has shown that all learners have exceptionalities and should be supported in the learning process in a way that accounts for learner variability (CAST, 2018). In addition to providing excellent frameworks for designing or examining instruction, CAST has shown that the concept of "teaching to the middle" is ineffective and can be detrimental to student success (Black & Moore, 2019).

In many instances, online instructors at higher education institutions are provided with courses that are ready-made. They are often constructed to teach to the middle, and not able to be altered by the instructor of record. In these instances, it is up to the instructor to provide his or her own additional resources in order to ensure that *every* student's needs are being attended to within the learning environment.

The Universal Design for Learning Framework

The Universal Design for Learning (UDL) framework provides guidance to instructors in the way of guidelines that should be observed when constructing learning experiences (CAST, 2018). Following these guidelines creates a learning environment with reduced barriers to learning, better opportunities for students to engage with the content, and more scaffolding for students to use when they come across a stumbling block in their learning progression. The UDL framework is divided into three sections: Engagement, Multiple Means of Representation, and Action and Expression (CAST, 2018). Each of the elements of the framework work together to provide guidance for attending to learner variability in a way that improves learning outcomes for all students.

Engagement

Engagement is likely a term that is familiar to individuals who have even brief experience in education. The hallmark of this concept is a student who is connected with the content and sees the value that it brings to his or her experiences or career path. However, while this is an area that instructors are familiar with, it is often an area of instructor practice that needs attention. This is because, typically in higher education, individuals who are teaching in a particular content area are those who have achieved advanced degrees in the content. It is a

logical deduction that an individual who has been awarded an advanced degree in a particular subject area has an intense interest and passion for the content. Because of this natural affinity for the content, it can be difficult to for instructors to relate to students who do not connect with their material. Actively implementing strategies to increase student engagement is an essential component of removing student learning barriers but can easily be overlooked by instructors who are entrenched in their content.

Engaging students in content requires recruiting student interest. In order to recruit interest, it is essential to know your audience. For online instruction, this can be a challenge since there are often few opportunities for interactions with students that involve conversation beyond academics. Sending a quick survey at the outset of the course that includes one or two questions about learning preferences, intentions for the course, and feelings about the content, itself, is a quick and easy way to get a snapshot of who you are teaching. Use this information to drive how you present your material and what you will need to do in order to make it relatable for students.

While making content relatable to students will foster engagement, it also necessary to ensure that you are attending to the affective domain of your learners. Learning is heavily regulated by emotion (Tyng et al., 2017). In the absence of the physical presence of an instructor, students can feel disconnected, isolated, or frustrated when they encounter content that may be difficult to understand. In order to prevent this, instructors should take a proactive approach to building community within their learning space (Immordino-Yang & Damasio, 2007). One easy way to accomplish this is through the use of warm language in messages, announcements, and discussions. The use of warm language has been shown to have positive effects on student perceptions of coursework (Harnish et al., 2011). Characteristics of warm language include friendly language, the use of humor, compassion, and enthusiasm (Harnish et al., 2011). The use of these types of writing in both common areas of the online classroom and individual conversations with students can prove fruitful in keeping students engaged in the course content, even when the content is difficult.

Multiple Means of Representation

This concept is one that can be problematic for instructors who work within the confines of courses that are "canned" or provided directly to the instructor with no opportunity for changing the curriculum. The UDL Guidelines emphasize that providing Multiple Means of

Representation is one means by which instructors can enhance understanding of the content for students (CAST, 2018). Although instructors may not be permitted to change a course, elaboration of course materials, scaffolding materials (materials that provide foundational knowledge that supports learning objectives), or materials presented in a different manner are useful tools that attend to learner variability and increase the probability of positive outcomes for all learners. In particular, this facet of the guidelines is paramount for online instructors. As learners are not in a physical classroom with the instructor, it becomes difficult to monitor levels of understanding (until they submit an artifact that does not show proficiency).

Often, students are missing framework to fully understand concepts presented in the course. In the absence of scaffolding, students may not be able to fully understand the content at the appropriate level of depth. Presenting the content in different ways (use of analogies, mnemonics, prerequisite knowledge review, visual or pictorial representations, etc.) can help students to make sense of the content and seamlessly move them toward proficiency (Pollock et al., 2002). In addition to providing different perspectives on content, students can also benefit from learning guides to help them make sense of dense reading content or copies of slides used for presentation of the content. Even these small gestures can make the difference for a student who is struggling to make meaning of the information. When implemented with fidelity, providing multiple means of representation is an ideal way to attend to learner variability before there are signs of student struggle.

Action and Expression

The action and expression portion of the guidelines underscores the importance of keeping students focused on the metacognitive process of personalizing their learning experience to meet their own learning needs, thereby becoming what (CAST, 2018) calls "expert learners." This portion of the framework is particularly important for students who learn in online spaces, as the onus of comprehending information and seeking tools to facilitate content understanding is on the learner. While higher education learners have at least twelve years of experiences in education, many have not formally monitored or cultivated skills to monitor their learning to a point where they can easily identify learning strategies that yield positive results (Meltzer, 2007). Learning to make these selections and develop executive functions including organization, task prioritization, and monitoring progress toward goals have been shown to have positive outcomes for diverse populations of students (de Bruin et al., 2007).

One promising way to foster executive function for students is to show them the pathway to mastery as a means of allowing them to track their progress (Marzano, 2007). This can be done by using learning scales as a means of breaking down learning objectives provided in the course. The objective itself should be set at the target, or level 3, with prerequisite knowledge set at level 2, and the most basic form of the content listed at level 1. Level 4 is often listed as the ability to teach the target to someone else. Table 1 (below) shows the gradual progression of thinking displayed in a scale format for the learning objective, "I can create learning scales for my course objectives." Note the progression of the thinking levels from lower levels of Bloom's Taxonomy to the target level of thinking (designated with an asterisk) and beyond.

Table 1

Learning Scale

Level of Thinking	Description of Competency
4	I can create learning scales for my learning objectives and teach others this skill, too.
3*	I can create learning scales for my learning objectives.
2	I can implement learning scales for my learning objectives.
1	I can recognize learning scales for my learning objectives.

Another powerful tool in helping students organize their thinking and learning process is helping students to identify and track their goals (Meltzer, 2007). This can be done in conjunction with the use of learning scales or as a stand-alone process. Providing students with a goal setting form or working with them one-on-one to establish goals for your class is an ideal way to build understanding of not only the executive function of goal setting and tracking, but the growth mindset that connects how the application of effort to a project will eventually create ability (Dweck, 2008).

Conclusion

Online instruction, while offering flexible means of degree acquisition, can be a difficult learning space for many students. The UDL framework offers valuable insight into how learner variability can be accounted for when planning for instruction. For online instructors, these

guidelines can provide a vital lifeline for students, especially students who struggle. Implementing these small changes in your instruction can reduce barriers to learning by providing clarity and comfort to students, which will ultimately improve student outcomes and satisfaction.

References

Black, J., & Moore, E. J. (2019). *UDL navigators in higher education: A field guide.* CAST
    Professional Publishing.

CAST. (2018). *UDL and the learning brain.* Retrieved from http://www.cast.org/our-
    work/publications/2018/udl-learning-brain-neuroscience.html

de Bruin, A. B., Rikers, R. M., & Schmidt, H. G. (2007). Improving metacomprehension
    accuracy and self-regulation in cognitive skill acquisition: The effect of learner expertise.
    European Journal of Cognitive Psychology, 19(4–5), 671–688.
    https://doi.org/10.1080/09541440701326204

Dweck, C. S. (2008). *Mindset: The new psychology of success.* Random House Digital.

Harnish, R. J., McElwee, R. O., Slattery, J. M., Frantz, S., Haney, M. R., Shore, C. M., & Penley,
    J. (2011, January 11). Creating the foundation for a warm classroom climate. *Observer.*
    Retrieved from https://www.psychologicalscience.org/observer/creating-the-foundation-
    for-a-warm-classroom-climate

Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of
    affective and social neuroscience to education. *Mind, Brain, and Education, 1*(1), 3–10.
    https://doi.org/10.1111/j.1751-228X.2007.00004.x

Marzano, R. J. (2007). *The art and science of teaching: A comprehensive framework for effective
    instruction.* ASCD.

Meltzer, L. (2007). *Executive function in education: From theory to practice.* Guilford Press.

Pollock, E., Chandler, P. A., & Sweller, J. (2002). Assimilating complex information. *Learning
    and Instruction, 12*(1), 61–86. https://psycnet.apa.org/doi/10.1016/S0959-
    4752(01)00016-0

Tyng, C. M., Amin, H. U., Saad, M. N., & Malik, A. S. (2017). The influences of emotion on
    learning and memory. *Frontiers in Psychology, 8*, Article 1454.
    https://doi.org/10.3389/fpsyg.2017.01454