2024

An Overview of UDL Theory and Scholarship in Higher Education

Rachel McMullin

Danielle Skaggs

CHAPTER 1

An Overview of UDL Theory and Scholarship in Higher Education

Rachel M. McMullin and Danielle Skaggs

This short chapter is intended for those newer to Universal Design for Learning (UDL) or those who wish to dig deeper into existing UDL scholarship. In it, we provide a brief introduction to Universal Design (UD) and other models based on UD for anyone unfamiliar with them, followed by a broad overview of the state of scholarship based on UDL and focused on its application to higher education.

Universal Design

UD started as a design concept, with the aim of creating buildings and products that were designed to be usable by all. The heart of UD is to consider the needs of all users, including those with disabilities in the initial design process instead of creating after-the-fact accommodations for individual users. Developed by Ron Mace and the Center for Universal Design at North Carolina State University, UD relies on seven main principles that each have four to five guidelines to help designers and architects in implementation.*

The seven principles of Universal Design are:

1. Equitable use
2. Flexibility in use

* https://design.ncsu.edu/research/center-for-universal-design/

3. Simple and intuitive use
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size and space for approach and use

Universal Design and Higher Education

Those applying UD most often consider physical disabilities—designing for wheelchair access or making a building or website navigable for the blind, for example. As educators began to apply UD to their field, however, the importance of designing for learning disabilities and other "invisible" disabilities led to the creation of education-specific UD models. One model, Universal Design for Instruction (UDI), incorporates UD's original seven principles (with definitions in the educational context) and adds two more: a community of learners and instructional climate.[1] The UDI model has undergone study through three rounds of grant funding and has been adapted for use with foreign language instruction.[2]

Two other models followed the spirit of UD but did not directly incorporate its seven principles. Universal Instructional Design (UID) was designed for higher education and provides eight concrete guiding principles for designing instruction.[3] This model is perhaps the least popular in the literature. Confusingly, authors also sometimes use UID as a general term to mean designing instruction with universal design principles in mind, without referring to UID's specific guiding principles.

The eight guiding principles of Universal Instructional Design:

1. Create a respectful and welcoming climate for learning.
2. Determine essential course components.
3. Communicate clear expectations.
4. Use diverse teaching methods.
5. Provide natural supports.
6. Create multiple means for demonstrating knowledge.
7. Provide constructive feedback.
8. Promote interaction.

The second model, UDL,* involves three main principles (provide multiple means of engagement, representation, and action and expression) further divided into nine guidelines. While this model was initially developed for K-12 education and widely used in that context, it has also been adopted in higher education and can be considered the dominant model there. The overview of scholarship below includes work that applies all three models, but UDL is the framework of choice in a majority of recent work.

* https://udlguidelines.cast.org/

UDL and Accessibility

UD and UDL both incorporate guidelines to make their outputs (buildings, products, and instruction) accessible and are defined by a focus on designing for users with varying abilities. While UDL focuses on how designing for a variety of users benefits all users, the legal mandate to accommodate users with disabilities comes from the Americans with Disabilities Act and the Rehabilitation Act.† There are also technical specifications for accessibility, such as the Web Content Accessibility Guidelines (WCAG).‡ UDL's accessibility guidelines work with these specifications and present them in a user-friendly way for instructors and librarians. However, if you want or need to delve more deeply into online accessibility, you can use WCAG for further guidance.

Overview of Scholarship on UDL and Higher Education

The scholarship on UDL and academia has grown to the point where an exhaustive review is no longer possible. This section will instead attempt to provide a brief overview of major trends in the scholarship from the emergence of UDL and other models for applying UD to education until present day. Those seeking additional bibliography on the topic would do well to check out the one provided by The Center for Universal Design in Higher Education (University of Washington).§

Calls to apply UD to higher education begin to appear around the same time as the development of the various frameworks. Much of the earliest work (early 2000s) specifically focused on how UDL (or one of the other frameworks) could benefit students with disabilities and/or was published in journals or collections with a disability studies scope. These articles tended to be broad calls to incorporate UDL at the postsecondary level. For instance, as early as 1999, Price-Ellingstad argued the need for universal design to be applied across higher education to allow more access and improve outcomes for individuals with disabilities.[4] Another article highlighted UD and UDL as a means for improving retention of college students with disabilities.[5] Early on, there was also scholarship that specifically tied UDL to the use of assistive technology or educational technology more broadly. One example is an article by Sheryl Burgstahler, who is now one of the most prominent advocates of and scholar on the use of UD and UDL in higher education.[6] To an extent, this connection between UDL and disability studies remains. If you conduct a search in a discovery tool or multi-disciplinary database for scholarship on UDL and higher education from the last five years, you will find many results specific to supporting students with disabilities.

One prominent exception to the early scholarly focus on UDL and disabilities was an entire issue of *Equity & Excellence in Education* (37.2, 2004) dedicated to applying what it called Universal Instructional Design to academia. Several of the articles in the issue

† https://webaim.org/articles/laws/usa/

‡ https://www.w3.org/WAI/standards-guidelines/wcag/

§ https://www.washington.edu/doit/programs/center-universal-design-education/resources/published-books-and-articles-about-universal

focused on how universal design can support diversity more broadly, including two articles that focus on social justice implications. While this special issue came out in 2004, there was then a bit of a gap before we see the true shift from a focus on disability to one on diversity, but by the later aughts we start to see more scholarship that highlights UDL's ability to support a wide variety of students.[7] This time period also brought the first book on UDL in the postsecondary environment, the first edition of Burgstahler's *Universal Design in Higher Education: From Principles to Practice*.[8]

As we move from the late 2000s into the 2010s, we see an increase in the amount of scholarship being produced as well as more diversity in the types of work that appear. Early adopters of UDL in higher education seemed eager to publish what they had done and learned. But even as the amount of scholarship has expanded, a majority of it falls into a relatively small number of categories. The most common types of articles are those that are meant to educate college faculty about UDL and encourage its adoption, articles offering general strategies for implementing UDL into courses, and case studies describing implementation of UDL into a particular course. Many articles combine two or more of these aspects, advocating for UDL adoption in higher education while also offering a case study or list of UDL strategies to help faculty get started.

Some of these articles are broad calls to action[9] or encourage adoption in certain types of classes, like online classes or large lecture courses.[10] But a large amount of disciplinary-specific scholarship also began to appear, with faculty arguing that UDL can be used as a way to support students in specific programs. While the majority of the early scholarship had appeared in either disability-focused or general higher education journals, this second wave of scholarship shifted to more frequent publication in journals with a disciplinary focus.

A review of the literature reveals that UDL as a theory has seen more uptake in some disciplines than others. For instance, there is a substantial body of articles centered around using UDL in teacher education—unsurprising since students in these programs will be expected to implement UDL themselves as future teachers.[11] Another pocket of research appears in the health sciences and medicine,[12] with multiple articles specifically dedicated to UDL in nursing education.[13] A third area with multiple publications is the STEM disciplines, including both articles addressing STEM fields as a whole[14] and articles focused on applying UDL to classes in physics,[15] ecology,[16] and chemistry.[17] There are fewer articles from social sciences disciplines, but there are examples from social work,[18] rehabilitation counseling,[19] and occupational therapy.[20] To date, the arts, humanities, and business are poorly represented in the literature, though there are a handful of offerings.[21]

Another segment of the UDL scholarship since 2010 focuses on supporting the implementation of UDL in higher education. Many articles have focused on faculty familiarity with or perceptions of UDL, often discussing the barriers/factors that might make faculty more or less inclined to adopt UDL strategies.[22] There is also a body of work on providing training for faculty in how to implement UDL, some of which include studies of whether or not the training actually led to an increase in faculty adopting UDL strategies in their classes.[23] The general consensus of these studies has been that even a relatively small amount of training is effective in helping faculty begin to incorporate UDL into their own teaching.

One criticism of UDL is that adoption has moved forward without much assessment of whether it works. In a 2013 chapter titled *Critical Silences Surrounding Universal Design*, Jane K. Seale concludes that "there is little or no evidence for the effectiveness of universal design in higher education and e-learning."[24] Some progress has been made since then; however, the most common type of study to date has been on student perceptions of UDL in the classroom. These include studies both on whether students perceived the UDL strategies employed as helpful and/or engaging and whether students made use of the UDL-inspired materials.[25] However, even as recently as 2020, there was still a dearth of empirical studies that analyze whether incorporating UDL into postsecondary courses leads to improved student learning outcomes.[26] The few studies that have been conducted have shown mixed results.[27]

As scholarly attention to UDL in higher education increased in the late 2010s, the publication of books on the topic also accelerated. In 2015, Burgstahler published the second edition of *Universal Design in Higher Education: From Principles to Practice*.[28] It was joined in the next few years by several others: Tobin and Behling's *Reach Everyone, Teach Everyone: Universal Design for Learning in Higher Education*, Bracken and Novak's *Transforming Higher Education Through Universal Design for Learning: An International Perspective,* Black and Moore's *UDL Navigators in Higher Education: A Field Guide*, and *Universal Design for Learning: Teaching to All College Students* by Zaloudek, Chandler, Carlson, and Howarton.[29] Burgstahler then followed with another volume in 2020, *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit*.[30]

As of the early 2020s, one notable aspect of the scholarship on UDL in higher education is that it continues to retain a relatively narrow focus on applying the framework to the classroom environment (including training faculty to use it in that environment). This makes sense to an extent, as that is the environment that the creators had in mind. However, it seems time to move beyond that limit. In the introduction to *Reach Everyone, Teach Everyone*, Tobin and Behling make a call to expand knowledge of UDL beyond teaching faculty, writing that "Next, we should move the focus away from training only faculty members about UDL. Let's train the people who support them: information technology (IT) departments, teaching-and-learning centers, media services areas, academic department staff, and the help desk (p.6)."[31] Academic libraries are a key area for expanding on this work, as they straddle the divide between academic affairs and student affairs, offering instruction programs, but also a wide array of services, service points, resources, and spaces that are used by the entire campus community.

Overview of Scholarship on UDL and Academic Libraries

The first scholarship on UDL and academic libraries began appearing in the late 2000s, the same time as UDL scholarship began to appear across a variety of disciplines. In a short 2007 article, Creamer presented a call to action for all types of libraries to incorporate ideas of Universal Design into library spaces, resources, and instruction.[32] Similar broad calls for academic librarians to adopt UDL have continued to be published in a variety of

library scholarly and professional journals over the years.[33] In 2008, Chodock and Dolinger provided a first indication of what applying UD to academic library instruction might look like.[34] Since the larger body of scholarship at the time had not yet coalesced around UDL, they based their work on the UDI model.

The early 2010s brought a slight increase in the scholarship. Two articles followed Chodock and Dolinger's lead and discussed applying UDL principles to in-person instruction. Zhong illustrated incorporating UDL strategies via a lesson on developing search strategies using Boolean logic.[35] Hoover et al. provided a short case study describing how they developed UDL-infused library components for a larger campus support program for students with disabilities. Their study showed that participants gained confidence in conducting library research.[36] Several other articles from this period focused on online learning. In 2014, Catalano applied UDL to a one-credit online research course, ensuring that all course materials were accessible and providing background information on how to use required technology.[37] In the same year, Clossen published an article on applying both Universal Design and Human-Centered Design to video tutorials.[38] Finally, Kavanaugh, Webb, and Hoover (2015) outlined how they used the ADDIE instructional design process and UDL elements to supplement an existing LibGuide with images, audio, and interactive components, transforming it into an online tutorial.[39]

The output of scholarship then began to accelerate dramatically in the late 2010s, with a total of twenty-one articles and a book published since 2017. Fourteen of those twenty-one articles were published from 2020 through 2022. Instruction, either online or in-person, continued to be a major focus, with numerous articles addressing these contexts as well as Lund's 2020 book, *Creating Accessible Online Learning Instruction Using Universal Design Principles*.[40] The scholarship also showed how librarians were applying UDL more broadly to their work, including articles about incorporating UDL principles to a webpage that houses a library tutorial collection, creating an online training tool to teach other librarians how to apply UDL and accessibility into their digital objects, and teaming up with teaching faculty to use UDL principles to support student reading.[41] Baldwin published a short article with suggestions of UDL-related books, journals, and websites that can be used to support librarian professional development.[42] Finally, we are also starting to see some critique of UDL in the library literature. In a 2021 article, Roth, Singh, and Turnbow argue that inclusivity and diversity are elements missing from the UDL framework and offer their own guidelines for incorporating these aspects into instruction.[43]

The scholarship on UDL and academic libraries may have grown; however, the focus has continued to remain on applying UDL to in-person or online instruction. While some articles urge libraries to apply UDL to other aspects of academic library work such as services, programming, or technical services, only a few articles to date have tackled this, and some of those articles have used the UD framework rather than UDL. These include articles on universal access and metadata, UD applied to library websites, UDL as a strategy for making reference services a "nexus for campus collaborations," and how accessibility and UDL can inform acquisition policies.[44] There is unquestionably quite a bit of room for additional research in these areas. Also, as with the larger body of work

on UDL in higher education, more studies are needed that track the impact of including UDL strategies on student learning outcomes.

Notes

1. Joan M. McGuire, Sally S. Scott, and Stan F. Shaw, "Universal Design for Instruction: The Paradigm, Its Principles, and Products for Enhancing Instructional Access," *Journal of Postsecondary Education and Disability* 17, no. 1 (2003): 11–21, https://doi.org/10.1177/07419325030240060801; Sally S. Scott, Joan M. McGuire, and Teresa E. Foley, "Universal Design for Instruction: A Framework for Anticipating and Responding to Disability and Other Diverse Learning Needs in the College Classroom," *Equity & Excellence in Education* 36, no. 1 (2003): 40–49, https://doi.org/10.1080/10665680303502.
2. Joan M. McGuire, "Inclusive college teaching: universal design for instruction and diverse learners," *Journal of Accessibility and Design for All* 1, no. 1 (2011): 38–54, https://doi.org/10.17411/jacces.v1i1.80.
3. Jeanne L. Higbee, "Implementing Universal Instructional Design in Postsecondary Courses and Curricula," *Journal of College Teaching and Learning* 6, no. 8 (2009): 65–77, https://doi.org/10.19030/tlc.v6i8.1116.
4. Debra Price-Ellingstad and Hugh G Berry, "Postsecondary Education, Vocational Rehabilitation and Students with Disabilities: Gaining Access to Promising Futures," *American Rehabilitation* 25, no. 3 (1999): 2–10.
5. Holley A. Belch, "Retention and Students with Disabilities," *Journal of College Student Retention: Research, Theory & Practice* 6, no. 1 (2004): 3–22, https://doi.org/10.2190/MC5A-DHRV-1GHM-N0CD.
6. Sheryl Burgstahler, "The Role of Technology in Preparing Youth with Disabilities for Postsecondary Education and Employment," *Journal of Special Education Technology* 18, no. 4 (2003): 7–19, https://doi.org/10.1177/016264340301800401.
7. Kathleen Gradel and Alden J. Edson, "Putting Universal Design for Learning on the Higher Ed Agenda," *Journal of Educational Technology Systems* 38, no. 2 (2009): 111–21, https://doi.org/10.2190/ET.38.2.d; Robbin Zeff, "Universal Design Across the Curriculum," *New Directions for Higher Education* 2007, no. 137 (2007): 27–44, https://doi.org/10.1002/he.244.
8. Sheryl E. Burgstahler and Rebecca Cory, eds., *Universal Design in Higher Education: From Principles to Practice* (Cambridge: Harvard Education Press, 2008).
9. Kimberly Coy, "Postsecondary Educators Can Increase Educational Reach with Universal Design for Learning," *Educational Renaissance* 5, no. 1 (2016): 27–36, https://journals.calstate.edu/er/article/view/2792; Higbee, "Implementing Universal Instructional Design"; Lynne N. Kennette and Nathan Andrew Wilson, "Universal Design for Learning (UDL): What Is It and How do I Implement It?," *Transformative Dialogues: Teaching & Learning Journal* 12, no. 1 (2019): 1–6.
10. Thomas J. Tobin, "Increase Online Student Retention with Universal Design for Learning," *Quarterly Review of Distance Education* 15, no. 3 (2014): 13–24, https://eric.ed.gov/?id=EJ1144189; Tereza Dean, Anita Lee-Post, and Holly Hapke, "Universal Design for Learning in Teaching Large Lecture Classes," *Journal of Marketing Education* 39, no. 1 (2017): 5–16, https://doi.org/10.1177/0273475316662104.
11. Beth S. Fornauf, Thomas Higginbotham, Bryan Mascio, Kathryn McCurdy, and Emilie M. Reagan, "Analyzing Barriers, Innovating Pedagogy: Applying Universal Design for Learning in a Teacher Residency," *The Teacher Educator* 56, no. 2 (2020): 153–70, https://doi.org/10.1080/08878730.2020.1828520; Ruby L. Owiny, Aleksandra Hollingshead, Brenda Barrio, and Katlyn Stoneman, "Engaging Preservice Teachers in Universal Design for Learning Lesson Planning," *Inclusion (Washington, D.C.)* 7, no. 1 (2019): 12–23, https://doi.org/10.1352/2326-6988-7.1.12; Kimberly S. Reinhardt, Phyllis M. Robertson, and Robin D. Johnson, "Connecting Inquiry and Universal Design for Learning (UDL) to Teacher Candidates' Emerging Practice: Development of a Signature Pedagogy," *Educational Action Research* (2021): 1–18, https://doi.org/10.1080/09650792.2021.1978303; LaRon Scott, Peter Temple, and David Marshall, "UDL in Online College Coursework: Insights of Infusion and Educator Preparedness," *Journal of Asynchronous Learning Networks* 19, no. 5 (2015), https://eric.ed.gov/?id=EJ1085764; Amy Turpin, Marla J. Lohmann, Andrea R. Hathcote, and Kathleen A. Boothe, "Engaging Graduate Students in the Online Learning Environment: A Universal Design for Learning (UDL) Approach to Teacher Preparation," *Networks* 20, no. 2 (2018): 2–21, https://doi.org/10.4148/2470-6353.1264.
12. Joy Y. Balta, Briony Supple, and Gerard W. O'Keeffe, "The Universal Design for Learning Framework in Anatomical Sciences Education," *Anatomical Sciences Education* 14, no. 1 (2021): 71–78, https://doi.org/10.1002/ase.1992; Karen J. Dickinson and Susie L. Gronseth, "Application of Universal Design for Learning (UDL) Principles to Surgical Education During the COVID-19 Pandemic," *Journal of Surgical Education* 77, no. 5 (2020): 1008–12, https://doi.org/10.1016/j.jsurg.2020.06.005; Kari L. Kumar and Maureen Wideman, "Accessible by Design: Applying UDL Principles in a First Year Undergraduate Course," *Canadian Journal of Higher Education* 44, no. 1 (2014): 125–47, https://doi.org/10.47678/cjhe.v44i1.183704.
13. Kelley M. Anderson, Diane Davis, and Maureen Kirkpatrick McLaughlin, "Implementing Universal Design Instruction in Doctor of Nursing Practice Education," *Nurse Educator* 44, no. 5 (2019): 245–49, https://doi.

org/10.1097/NNE.0000000000000642; Sherrilyn Coffman and Christine Draper, "Universal Design for Learning in Higher Education: A Concept Analysis," *Teaching and Learning in Nursing* 17, no. 1 (2022): 36–41, https://doi.org/10.1016/j.teln.2021.07.009; Diane Davis, Maureen Kirkpatrick McLaughlin, and Kelley M. Anderson, "Universal Design for Learning: A Framework for Blended Learning in Nursing Education," *Nurse Educator* 47, no. 3 (2022): 133–38, https://doi.org/10.1097/NNE.0000000000001116.

14. Margaretha Vreeburg Izzo and William M. Bauer, "Universal Design for Learning: Enhancing Achievement and Employment of STEM Students with Disabilities," *Universal Access in the Information Society* 14, no. 1 (2013): 17–27, https://doi.org/10.1007/s10209-013-0332-1; Jilian Schreffler, Eleazar Vasquez III, Jacquelyn Chini, and Westley James, "Universal Design for Learning in Postsecondary STEM Education for Students with Disabilities: A Systematic Literature Review," *International Journal of STEM Education* 6, no. 1 (2019): 1–10, https://doi.org/10.1186/s40594-019-0161-8.
15. Westley James, James H. Cooney, Jacquelyn J. Chini, Eleazar Vasquez, and Jillian Schreffler, "Using Universal Design for Learning to Support Students with Disabilities in a SCALE-UP Physics Course," *The Physics Teacher* 59, no. 5 (2021): 320–24, https://doi.org/10.1119/10.0004878.
16. Laura Super, Analise Hofmann, Connie Leung, Mabel Ho, Emma Harrower, Najah Adreak, and Zohreh Rezaie Manesh, "Fostering Equity, Diversity, and Inclusion in Large, First-year Classes: Using Reflective Practice Questions to Promote Universal Design for Learning in Ecology and Evolution Lessons," *Ecology and Evolution* 11, no. 8 (2021): 3464–4372, https://doi.org/10.1002/ece3.6960.
17. Charisse T. Reyes, Gwendolyn A. Lawrie, Christopher D. Thompson, and Sara H. Kyne, "'Every Little Thing That Could Possibly Be Provided Helps': Analysis of Online First-year Chemistry Resources Using the Universal Design for Learning Framework," *Chemistry Education Research and Practice* 23, no. 2 (2022): 385–47, https://doi.org/10.1039/d1rp00171j; Erin Scanlon, Tamra Legron-Rodriguez, Jillian Schreffler, Elijah Ibadlit, Eleazar Vasquez, and Jacquelyn J. Chini, "Postsecondary Chemistry Curricula and Universal Design for Learning: Planning for Variations in Learners' Abilities, Needs, and Interests," *Chemistry Education Research and Practice* 19, no. 4 (2018): 1216–39, https://doi.org/10.1039/c8rp00095f; Erin Scanlon, Jillian Schreffler, Westley James, Eleazar Vasquez, and Jacquelyn J. Chini, "Postsecondary Physics Curricula and Universal Design for Learning: Planning for Diverse Learners," *Physical Review Physics Education Research* 14, no. 2 (2018), https://doi.org/10.1103/PhysRevPhysEducRes.14.020101.
18. Elizabeth Lightfoot and Priscilla Gibson, "Universal Instructional Design: A New Framework for Accommodating Students in Social Work Courses," *Journal of Social Work Education* 41, no. 2 (2005): 269–77, https://doi.org/10.5175/JSWE.2005.200303129; Kari L. Sherwood and Shanna K. Kattari, "Reducing Ableism in Social Work Education Through Universal Design for Learning and Policy," *Journal of Social Work Education* (2021), https://doi.org/10.1080/10437797.2021.1997686.
19. Mary L. Hennessey and Lynn Koch, "Universal Design for Instruction in Rehabilitation Counselor Education," *Rehabilitation Education* 21, no. 3 (2007): 187–94, https://doi.org/10.1891/088970107805059689; Gina R. Oswald, Robert David Nathan Adams, and Jeffrey A. Hiles, "Universal Design for Learning in Rehabilitation Education: Meeting the Needs for Equal Access to Electronic Course Resources and Online Learning," *Journal of Applied Rehabilitation Counseling* 49, no. 1 (2018): 19–22, https://doi.org/10.1891/0047-2220.49.1.19.
20. Lynne Murphy, Heather Panczykowski, Lindsey Fleury, and Brooke Sudano, "Implementation of Universal Design for Learning in Occupational Therapy Education," *Occupational Therapy in Health Care* 34, no. 4 (2020): 291–306, https://doi.org/10.1080/07380577.2020.1780663.
21. Dean, Lee-Post, and Hapke, *Large Lecture Classes*; Elizabeth Kleinfeld, "Reimagining Multimodality Through UDL: Inclusivity and Accessibility," in *Bridging the Multimodal Gap: From Theory to Practice*, eds. Santosh Khadka and J. C. Lee (Louisville: Utah State University Press, 2019), 30–42; Bruce W. Quaglia, "Planning for Student Variability: Universal Design for Learning in the Music Theory Classroom and Curriculum," *Music Theory Online* 21, no. 1 (2015): 1–21, https://doi.org/10.30535/mto.21.1.6; Stephanie Vie, "Effective Social Media Use in Online Writing Classes through Universal Design for Learning (UDL) Principles," *Computers and Composition* 49 (2018): 61–70, https://doi.org/10.1016/j.compcom.2018.05.005.
22. Bryan K. Dallas and Matthew E. Sprong, "Assessing Faculty Attitudes toward Universal Design Instructional Techniques," *Journal of Applied Rehabilitation Counselin*g 46, no. 4 (2015): 18–28, https://doi.org/10.1891/0047-2220.46.4.18; Bryan K. Dallas, Matthew E. Sprong, and Bryon K. Kluesner, "Multiuniversity Comparison of Faculty Attitudes and Use of Universal Design Instructional Techniques," *Rehabilitation Research, Policy, and Education* 30, no. 2 (2016): 148–60, https://eric.ed.gov/?id=EJ1105245; Bryan K. Dallas, Matthew E. Sprong, and Thomas D. Upton, "Post-Secondary Faculty Attitudes Toward Inclusive Teaching Strategies," *The Journal of Rehabilitation* 80, no. 2 (2014): 12–20; Patricia L. Davies, Catherine L. Schelly, and Craig L. Spooner, "Measuring the Effectiveness of Universal Design for Learning Intervention in Postsecondary Education," *Journal of Postsecondary Education and Disability* 26, no. 3 (2013): 195–220, https://eric.ed.gov/?id=EJ1026883; Frederic Fovet, Heather Mole, Tynan Jarrett, and David Syncox, "Like Fire to Water: Building Bridging Collaborations between Disability Service Providers and Course Instructors to Create User Friendly and Resource Efficient UDL Implementation Material," *Collected Essays on Learning and Teaching* 7, no. 1 (2014): 68–75, https://doi.org/10.22329/celt.v7i1.3999; Melissa Hills, Alissa Overend, and Shawn Hildebrandt, "Faculty Perspectives on UDL: Exploring Bridges and Barriers for

Broader Adoption in Higher Education," *The Canadian Journal for the Scholarship of Teaching and Learning* 13, no. 1 (2022): 1–18, https://doi.org/10.5206/cjsotlrcacea.2022.1.13588; Catherine L. Schelly, Patricia L. Davies, and Craig L. Spooner, "Student Perceptions of Faculty Implementation of Universal Design for Learning," *Journal of Postsecondary Education and Disability* 24, no. 1 (2011): 17–30, https://eric.ed.gov/?id=EJ941729; Carl D. Westine, Beth Oyarzun, Lynn Ahlgrim-Delzell, Amanda Casto, Cornelia Okraski, Gwitaek Park, Julie Person, and Lucy Steele, "Familiarity, Current Use, and Interest in Universal Design for Learning Among Online University Instructors," *International Review of Research in Open and Distance Learning* 20, no. 5 (2019): 20–41, https://doi.org/10.19173/irrodl.v20i5.4258.

23. Holly Buckland Parker, "Learning Starts with Design: Using Universal Design for Learning (UDL) in Higher Education Course Redesign," in *Transforming Learning Environments: Strategies to Shape the Next Generation*, ed. Fayneese S. Miller (Bingley: Emerald Group Publishing Limited, 2012), 109–36; Stephanie L. Craig, Sean J. Smith, and Bruce B. Frey, "Professional Development with Universal Design for Learning: Supporting Teachers as Learners to Increase the Implementation of UD," *Professional Development in Education* 48, no. 1 (2022): 22–37, https://doi.org/10.1080/19415257.2019.1685563; Christopher D. Hromalik, William N. Myhill, and Nancy R. Carr, "'ALL Faculty Should Take This': A Universal Design for Learning Training for Community College Faculty," *TechTrends* 64, no. 1 (2019): 91–104, https://doi.org/10.1007/s11528-019-00439-6; Christopher D. Hromalik, William N. Myhill, Celestia A. Ohrazda, Nancy R. Carr, and Stephanie A. Zumbuhl, "Increasing Universal Design for Learning Knowledge and Application at a Community College: The Universal Design for Learning Academy," *International Journal of Inclusive Education* (2021): 1–16, https://doi.org/10.1080/13603116.2021.1931719; Bryant Hutson and Holly Downs, "The College STAR Faculty Learning Community: Promoting Learning for All Students through Faculty Collaboration," *The Journal of Faculty Development* 29, no. 1 (2015): 25–32, https://eric.ed.gov-/?id=EJ1134352; Elizabeth Olivier and Marie-Christine Potvin, "Faculty Development: Reaching Every College Student with Universal Design for Learning," *Journal of Formative Design in Learning* 5, no. 2 (2021): 106–15, https://doi.org/10.1007/s41686-021-00061-x; Jingrong Xie and Mary F. Rice, "Professional and Social Investment in Universal Design for Learning in Higher Education: Insights from a Faculty Development Programme," *Journal of Further and Higher Education* 45, no. 7 (2021): 886–900, https://doi.org/10.1080/0309877X.2020.1827372.
24. Jane K. Seale, *E-learning and Disability in Higher Education* (London: Routledge, 2013), 185.
25. Murod Ismailov and Thomas K. F. Chiu, "Catering to Inclusion and Diversity With Universal Design for Learning in Asynchronous Online Education: A Self-Determination Theory Perspective," *Frontiers in Psychology* 13 (2022), https://doi.org/10.3389/fpsyg.2022.819884; Lynne N. Kennette and Nathan Andrew Wilson, "Universal Design for Learning (UDL): Student and Faculty Perceptions," *Journal of Effective Teaching in Higher Education* 2, no. 1 (2019): 1–26, https://doi.org/10.36021/jethe.v2i1.17; Kumar and Wideman, *Accessible by Design*; Kavita Rao, Patricia Edelen-Smith, and Cat-Uyen Wailehua, "Universal Design for Online Courses: Applying Principles to Pedagogy," *Open Learning* 30, no. 1 (2015): 35–52, https://doi.org/10.1080/02680513.2014.991300; LaRon Scott, Peter Temple, and David Marshall, "UDL in Online College Coursework: Insights of Infusion and Educator Preparedness," *Journal of Asynchronous Learning Networks* 19, no. 5 (2015), https://eric.ed.gov/?id=EJ1085764; Frances G. Smith, "Analyzing a College Course That Adheres to the Universal Design for Learning (UDL) Framework," *The Journal of Scholarship of Teaching and Learning* 12, no. 3 (2012): 31–61, https://eric.ed.gov/?id=EJ992116.
26. Michael P. A. Murphy, "Belief without Evidence? A Policy Research Note on Universal Design for Learning," *Policy Futures in Education* 19, no. 1 (2021): 7–12, https://doi.org/10.1177/1478210320940206.
27. Denyse V. Hayward, Amin Mousavi, Michael Carbonaro, Amanda P. Montgomery, and William Dunn, "Exploring Preservice Teachers Engagement with Live Models of Universal Design for Learning and Blended Learning Course Delivery," *Journal of Special Education Technology* 37, no. 1 (2022): 112–23, https://doi.org/10.1177/0162643420973216; Shobana Musti-Rao, Stephen D. Kroeger, and Karin Schumacher-Dyke, "Using Guided Notes and Response Cards at the Postsecondary Level," *Teacher Education and Special Education* 31, no. 3 (2008): 149–63, https://doi.org/10.1177/0888406408330630; Marvin Roski, Malte Walkowiak, and Andreas Nehring, "Universal Design for Learning: The More, the Better?," *Education Sciences* 11, no 4. (2021): 164, https://doi.org/10.3390/educsci11040164.
28. Sheryl E. Burgstahler, ed., *Universal Design in Higher Education: From Principles to Practice*, 2nd ed. (Cambridge: Harvard Education Press, 2015).
29. Thomas J. Tobin and Kirsten T. Behling, *Reach Everyone, Teach Everyone. Teaching and Learning in Higher Education* (Nashville: West Virginia University Press, 2018); Seán Bracken and Katie Novak, *Transforming Higher Education Through Universal Design for Learning: An International Perspective* (London: Routledge, 2019); Jodie Black and Eric J. Moore, *UDL Navigators in Higher Education: A Field Guide* (Wakefield: CAST Professional Publishing, 2019); Julie A. Zaloudek, Renee Chandler, Katrina Carlson, and Rennee Howarton, *Universal Design for Learning: Teaching All College Students* (Menomonie: Nakatani Teaching and Learning Center, 2018).
30. Sheryl E. Burgstahler, *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit* (Cambridge: Harvard Education Press, 2020).
31. Tobin and Behling, *Reach Everyone*, 6.
32. Debbie Creamer, "Universal Instructional Design for Libraries," *Colorado Libraries* 33, no. 4 (October 2007): 12–15.

33. Steve Black, Debbie Krahmer, and James D. Allen, "Part 6: Diversity and Inclusion," *Reference Librarian* 59, no. 2 (April 2018): 92–106, https://doi.org/10.1080/02763877.2018.1451425; Clark Nall, "Academic Libraries and the Principles of Universal Design for Learning," *College & Research Libraries News* 76, no. 7 (July 2015): 374–75, https://doi.org/10.5860/crln.76.7.9345; J. J. Pionke, "Accessible Instruction," *Public Services Quarterly* 14, no. 1 (January 2018): 92–97, https://doi.org/10.1080/15228959.2017.1404547; J. J. Pionke and Lorelei Rutledge, "Using Universal Design for Instruction to Make Library Instruction Accessible," *Reference & User Services Quarterly* 59, no. 3/4 (2021): 161–64, https://doi.org/10.5860/rusq.59.3/4.7713; Carli Spina, "Libraries and Universal Design," *Theological Librarianship* 10, no. 1 (October 2017): 5–7, https://dx.doi.org/10.31046/tl.v10i1.464.
34. Ted Chodock and Elizabeth Dolinger, "Applying Universal Design to Information Literacy: Teaching Students Who Learn Differently at Landmark College," *Reference & User Services Quarterly* 49, no. 1 (2009): 24–32, https://doi.org/10.5860/rusq.49n1.24.
35. Ying Zhong, "Universal Design for Learning (UDL) in Library Instruction," *College & Undergraduate Libraries* 19, no. 1 (January 2012): 33–45, https://doi.org/10.1080/10691316.2012.652549.
36. Jeanne Hoover, Clark Nall, and Carolyn Willis, "Designing Library Instruction for Students with Learning Disabilities," *North Carolina Libraries* 71, no. 2 (2013): 27–31, http://hdl.handle.net/10342/4358.
37. Amy Catalano, "Improving Distance Education for Students with Special Needs: A Qualitative Study of Students' Experiences with an Online Library Research Course," *Journal of Library & Information Services in Distance Learning* 8, no. 1/2 (2014): 17–31. https://doi.org/10.1080/1533290X.2014.902416.
38. Amanda S. Clossen, "Beyond the Letter of the Law Accessibility, Universal Design, and Human-Centered Design in Video Tutorials," *Pennsylvania Libraries: Research and Practice* 2, no. 1 (2014): 27, 37, https://doi.org/10.5195/palrap.2014.43.
39. Katy Kavanagh Webb and Jeanne Hoover, "Universal Design for Learning (UDL) in the Academic Library: A Methodology for Mapping Multiple Means of Representation in Library Tutorials," *College & Research Libraries* 76, no. 4 (May 2015): 537–53, https://doi.org/10.5860/crl.76.4.537.
40. Annie Dempsey and Catherine Heil, "Agile Library Instruction: Piloting Collaboratively-Created Information Literacy Modules," *Journal of Library & Information Services in Distance Learning* 15, no. 3 (July 2021): 187–203, https://doi.org/10.1080/1533290X.2021.1961967; Lauren Hays and Katelyn Handler, "Good Design Is Universal: Using Universal Design Principles to Promote Self-Regulated Learning in Learning Management Systems When Teaching Information Literacy," *Journal of Library & Information Services in Distance Learning* 14, no. 2 (2020): 127–40, https://doi.org/10.1080/1533290X.2020.1828219; Catherine Lantz, Glenda M. Insua, Annie Armstrong, David Dror, and Tara Wood, "'I'm a Visual Learner So I Like This': Investigating Student and Faculty Tutorial Preferences," *Internet Reference Services Quarterly* 22, no. 4 (October 2017): 181–92, https://doi.org/10.1080/10875301.2018.1427171; Rachel M. McMullin, "Universal Design and Library One-Shot Instruction," *Public Services Quarterly* 18, no. 3 (July 2022): 177–89, https://doi.org/10.1080/15228959.2021.2009406; Mollie Peuler and Mark Coltrain, "Flip This House!: Updating and Designing an Online First Year Seminar Module Series," *Journal of Library & Information Services in Distance Learning* 14, no. ¾ (2020): 253–65, https://doi.org/10.1080/1533290X.2021.1880527; Ben Rearick, Erica England, Jennifer Saulnier Lange, and Corey Johnson, "Implementing Universal Design for Learning Elements in the Online Learning Materials of a First-Year Required Course," *Weave (Ann Arbor, Mich.)* 4, no. 1 (2021), https://doi.org/10.3998/weaveux.217; Sarah Maurice Whitver, "Accessible Library Instruction in Practice," *portal: Libraries & the Academy* 20, no. 2 (April 2020): 381–98, https://muse.jhu.edu/article/753303.
41. Valerie Linsinbigler, Christopher Lowder, Janna Mattson, Anna Murphy-Lang, and Samuel LoPresto, "User-Centered Design of a Library Tutorials Page: A Solution to Digital Hoarding," *Journal of Library & Information Services in Distance Learning* 15, no. 2 (2021): 142–56, https://doi.org/10.1080/1533290X.2021.1938787; Rachael A. Lewitzky and Kari D. Weaver, "Developing Universal Design for Learning Asynchronous Training in an Academic Library," *Partnership: The Canadian Journal of Library & Information Practice & Research* 16, no. 2 (2021): 1–18, https://doi.org/10.21083/partnership.v16i2.6635; Sarah Pittaway and Michelle Malomo, "'So, You Want Me to Read for My Degree?': A Universal Design for Learning Approach to Reading," *Insights: The UKSG Journal* 34, no. 1 (2021), https://doi.org/10.1629/uksg.549.
42. Catherine A. Baldwin, "The Alert Collector: Universal Design for Learning," *Reference & User Services Quarterly* 59, no. 3/4 (2021): 173–76, https://doi.org/10.5860/rusq.59.3/4.7716.
43. Amanda Roth, Gayatri Singh, and Dominique Turnbow, "Equitable But Not Diverse: Universal Design for Learning Is Not Enough," *In the Library with the Lead Pipe* (May 26, 2021), https://www.inthelibrarywiththeleadpipe.org/2021/equitable-but-not-diverse/.
44. Wondwossen Mulualem Beyene, "Metadata and Universal Access in Digital Library Environments," *Library Hi Tech* 35, no. 2 (2017): 210–21, https://www.emerald.com/insight/content/doi/10.1108/LHT-06-2016-0074/full/html; Michael Flierl, Stephanie D. Founds, and Jennifer Nyiri, "How Reference Can Seize the Strategic Initiative for More Impactful, Relevant Services," *Internet Reference Services Quarterly* 27, no. 1 (2023): 49–54, https://doi.org/10.1080/10875301.2022.2142721; Christopher Guder, "Universal Design and the Library Website," *Public Services Quarterly* 10, no. 3 (July 2014): 229–37, https://doi.org/10.1080/15228959.2014.931784; Rebeca Peacock and Amy Vecchione, "Accessibility Best Practices, Procedures, and Policies in Northwest United States Academic Libraries," *Journal of Academic Librarianship* 46, no. 1 (2020), https://doi.org/10.1016/j.acalib.2019.102095.

Bibliography

Anderson, Kelley M., Diane Davis, and Maureen Kirkpatrick McLaughlin. "Implementing Universal Design Instruction in Doctor of Nursing Practice Education." *Nurse Educator* 44, no. 5 (2019): 245–49. https://doi.org/10.1097/NNE.0000000000000642.

Baldwin, Catherine A. "Universal Design for Learning." *Reference & User Services Quarterly* 59, no. 3/4 (2021): 173–76. https://doi.org/10.5860/rusq.59.3/4.7716.

Balta, Joy Y., Briony Supple, and Gerard W. O'Keeffe. "The Universal Design for Learning Framework in Anatomical Sciences Education." *Anatomical Sciences Education* 14, no. 1 (2021): 71–78. https://doi.org/10.1002/ase.1992.

Belch, Holley A. "Retention and Students with Disabilities." *Journal of College Student Retention: Research, Theory & Practice* 6, no. 1 (2004): 3–22. https://doi.org/10.2190/MC5A-DHRV-1GHM-N0CD.

Beyene, Wondwossen Mulualem. "Metadata and Universal Access in Digital Library Environments." *Library Hi Tech* 35, no. 2 (2017): 210–21. https://www.emerald.com/insight/content/doi/10.1108/LHT-06-2016-0074/full/html.

Black, Jodie, and Eric J. Moore. *UDL Navigators in Higher Education: A Field Guide*. Wakefield: CAST Professional Publishing, 2019.

Black, Steve, Debbie Krahmer, and James D. Allen. "Part 6: Diversity and Inclusion." *Reference Librarian* 59, no. 2 (April 2018): 92–106. https://doi.org/10.1080/02763877.2018.1451425.

Bracken, Seán, and Katie Novak. *Transforming Higher Education Through Universal Design for Learning: An International Perspective*. London: Routledge, 2019.

Buckland Parker, Holly. "Learning Starts with Design: Using Universal Design for Learning (UDL) in Higher Education Course Redesign." In *Transforming Learning Environments: Strategies to Shape the Next Generation*, edited by Fayneese S. Miller, 109–36. Bingley: Emerald Group Publishing Limited, 2012.

Burgstahler, Sheryl. "The Role of Technology in Preparing Youth with Disabilities for Postsecondary Education and Employment." *Journal of Special Education Technology* 18, no. 4 (2003): 7–19. https://doi.org/10.1177/016264340301800401.

Burgstahler, Sheryl E., and Rebecca Cory, eds. *Universal Design in Higher Education: From Principles to Practice*. Cambridge: Harvard Education Press, 2008.

Burgstahler, Sheryl E., ed. *Universal Design in Higher Education: From Principles to Practic*e. 2nd ed. Cambridge: Harvard Education Press, 2015.

Burgstahler, Sheryl E. *Creating Inclusive Learning Opportunities in Higher Education: A Universal Design Toolkit*. Cambridge: Harvard Education Press, 2020.

Catalano, Amy. "Improving Distance Education for Students with Special Needs: A Qualitative Study of Students' Experiences with an Online Library Research Course." *Journal of Library & Information Services in Distance Learning* 8, no. 1/2 (2014): 17–31. https://doi.org/10.1080/1533290X.2014.902416.

Chodock, Ted, and Elizabeth Dolinger. "Applying Universal Design to Information Literacy: Teaching Students Who Learn Differently at Landmark College." *Reference & User Services Quarterly* 49, no. 1 (2009): 24–32. https://doi.org/10.5860/rusq.49n1.24.

Clossen, Amanda S. "Beyond the Letter of the Law Accessibility, Universal Design, and Human-Centered Design in Video Tutorials." *Pennsylvania Libraries: Research and Practice* 2, no. 1 (2014): 27, 37. https://doi.org/10.5195/palrap.2014.43.

Coffman, Sherrilyn, and Christine Draper. "Universal Design for Learning in Higher Education: A Concept Analysis." *Teaching and Learning in Nursing* 17, no. 1 (2022): 36–41. https://doi.org/10.1016/j.teln.2021.07.009.

Coy, Kimberly. "Postsecondary Educators Can Increase Educational Reach with Universal Design for Learning." *Educational Renaissance* 5, no. 1 (2016): 27–36. https://journals.calstate.edu/er/article/view/2792.

Craig, Stephanie L., Sean J. Smith, and Bruce B. Frey. "Professional Development with Universal Design for Learning: Supporting Teachers as Learners to Increase the Implementation of UDL." *Professional Development in Education* 48, no. 1 (2022): 22–37. https://doi.org/10.1080/19415257.2019.1685563.

Creamer, Debbie. "Universal Instructional Design for Libraries." *Colorado Libraries* 33, no. 4 (October 2007): 12–15.

Dallas, Bryan K., and Matthew E. Sprong. "Assessing Faculty Attitudes Toward Universal Design Instructional Techniques." *Journal of Applied Rehabilitation Counselin*g 46, no. 4 (2015): 18–28. https://doi.org/10.1891/0047-2220.46.4.18.

Dallas, Bryan K., Matthew E. Sprong, and Bryon K. Kluesner. "Multiuniversity Comparison of Faculty Attitudes and Use of Universal Design Instructional Techniques." *Rehabilitation Research, Policy, and Education* 30, no. 2 (2016): 148–60. https://eric.ed.gov/?id=EJ1105245.

Dallas, Bryan K., Matthew E. Sprong, and Thomas D. Upton. "Post-Secondary Faculty Attitudes Toward Inclusive Teaching Strategies." *The Journal of Rehabilitation* 80, no. 2 (2014): 12–20.

Davies, Patricia L., Catherine L. Schelly, and Craig L. Spooner. "Measuring the Effectiveness of Universal Design for Learning Intervention in Postsecondary Education." *Journal of Postsecondary Education and Disability* 26, no. 3 (2013): 195–220. https://eric.ed.gov/?id=EJ1026883.

Davis, Diane, Maureen Kirkpatrick McLaughlin, and Kelley M. Anderson. "Universal Design for Learning: A Framework for Blended Learning in Nursing Education." *Nurse Educator* 47, no. 3 (2022): 133–38. https://doi.org/10.1097/NNE.0000000000001116.

Dean, Tereza, Anita Lee-Post, and Holly Hapke. "Universal Design for Learning in Teaching Large Lecture Classes." *Journal of Marketing Education* 39, no. 1 (2017): 5–16. https://doi.org/10.1177/0273475316662104.

Dempsey, Annie, and Catherine Heil. "Agile Library Instruction: Piloting Collaboratively Created Information Literacy Modules." *Journal of Library & Information Services in Distance Learning* 15, no. 3 (July 2021): 187–203. https://doi.org/10.1080/1533290X.2021.1961967.

Dickinson, Karen J., and Susie L. Gronseth. "Application of Universal Design for Learning (UDL) Principles to Surgical Education During the COVID-19 Pandemic." *Journal of Surgical Education* 77, no. 5 (2020): 1008–12. https://doi.org/10.1016/j.jsurg.2020.06.005.

Flierl, Michael, Stephanie D. Founds, and Jennifer Nyiri. "How Reference Can Seize the Strategic Initiative for More Impactful, Relevant Services." *Internet Reference Services Quarterly* 27, no. 1 (2023): 49–54. https://doi.org/10.1080/10875301.2022.2142721.

Fornauf, Beth S., Thomas Higginbotham, Bryan Mascio, Kathryn McCurdy, and Emilie M. Reagan. "Analyzing Barriers, Innovating Pedagogy: Applying Universal Design for Learning in a Teacher Residency." *The Teacher Educator* 56, no. 2 (2020): 153–70. http://dx.doi.org/10.1080/08878730.2020.1828520.

Fovet, Frederic, Heather Mole, Tynan Jarrett, and David Syncox. "Like Fire to Water: Building Bridging Collaborations between Disability Service Providers and Course Instructors to Create User Friendly and Resource Efficient UDL Implementation Material." *Collected Essays on Learning and Teaching* 7, no. 1 (2014): 68–75. https://doi.org/10.22329/celt.v7i1.3999.

Gradel, Kathleen, and Alden J. Edson. "Putting Universal Design for Learning on the Higher Ed Agenda." *Journal of Educational Technology Systems* 38, no. 2 (2009): 111–21. https://doi.org/10.2190/ET.38.2.d.

Guder, Christopher. "Universal Design and the Library Website." *Public Services Quarterly* 10, no. 3 (July 2014): 229–37. https://doi.org/10.1080/15228959.2014.931784.

Hays, Lauren, and Katelyn Handler. "Good Design Is Universal: Using Universal Design Principles to Promote Self-Regulated Learning in Learning Management Systems When Teaching Information Literacy." *Journal of Library & Information Services in Distance Learning* 14, no. 2 (2020): 127–40. https://doi.org/10.1080/1533290X.2020.1828219.

Hayward, Denyse V., Amin Mousavi, Michael Carbonaro, Amanda P. Montgomery, and William Dunn. "Exploring Preservice Teachers Engagement With Live Models of Universal Design for Learning and Blended Learning Course Delivery." *Journal of Special Education Technology* 37, no. 1 (2022): 112–23. https://doi.org/10.1177/0162643420973216.

Hennessey, Mary L., and Lynn Koch. "Universal Design for Instruction in Rehabilitation Counselor Education." *Rehabilitation Education* 21, no. 3 (2007): 187–94. https://doi.org/10.1891/088970107805059689.

Higbee, Jeanne L. "Implementing Universal Instructional Design in Postsecondary Courses and Curricula." *Journal of College Teaching and Learning* 6, no. 8 (2009): 65–77. https://doi.org/10.19030/tlc.v6i8.1116.

Hills, Melissa, Alissa Overend, and Shawn Hildebrandt. "Faculty Perspectives on UDL: Exploring Bridges and Barriers for Broader Adoption in Higher Education." *The Canadian Journal for the Scholarship of Teaching and Learning* 13, no. 1 (2022): 1–18. https://doi.org/10.5206/cjsotlrcacea.2022.1.13588.

Hoover, Jeanne, Clark Nall, and Carolyn Willis. "Designing Library Instruction for Students with Learning Disabilities." *North Carolina Libraries* 71, no. 2 (2013): 27–31. http://hdl.handle.net/10342/4358.

Hromalik, Christopher D., William N. Myhill, and Nancy R. Carr. "'ALL Faculty Should Take This": A Universal Design for Learning Training for Community College Faculty." *TechTrends* 64, no. 1 (2019): 91–104. https://doi.org/10.1007/s11528-019-00439-6.

Hromalik, Christopher D., William N. Myhill, Celestia A. Ohrazda, Nancy R. Carr, and Stephanie A. Zumbuhl. "Increasing Universal Design for Learning Knowledge and Application at a Community College: The Universal Design for Learning Academy." *International Journal of Inclusive Education* (2021): 1–16. https://doi.org/10.1080/13603116.2021.1931719.

Hutson, Bryant, and Holly Downs. "The College STAR Faculty Learning Community: Promoting Learning for All Students through Faculty Collaboration." *The Journal of Faculty Development* 29, no. 1 (2015): 25–32. https://eric.ed.gov/?id=EJ1134352.

Ismailov, Murod, and Thomas K. F. Chiu. "Catering to Inclusion and Diversity With Universal Design for Learning in Asynchronous Online Education: A Self-Determination Theory Perspective." *Frontiers in Psychology* 13 (2022). https://doi.org/10.3389/fpsyg.2022.819884.

Izzo, Margaretha Vreeburg, and William M. Bauer. "Universal Design for Learning: Enhancing Achievement and Employment of STEM Students with Disabilities." *Universal Access in the Information Society* 14, no. 1 (2013): 17–27. https://doi.org/10.1007/s10209-013-0332-1.

James, Westley, James H. Cooney, Jacquelyn J. Chini, Eleazar Vasquez, and Jillian Schreffler. "Using Universal Design for Learning to Support Students with Disabilities in a SCALE-UP Physics Course." *The Physics Teacher* 59, no. 5 (2021): 320–24. https://doi.org/10.1119/10.0004878.

Kavanagh Webb, Katy, and Jeanne Hoover. "Universal Design for Learning (UDL) in the Academic Library: A Methodology for Mapping Multiple Means of Representation in Library Tutorials." *College & Research Libraries* 76, no. 4 (May 2015): 537–53. https://doi.org/10.5860/crl.76.4.537.

Kennette, Lynne N., and Nathan Andrew Wilson. "Universal Design for Learning (UDL): Student and Faculty Perceptions." *Journal of Effective Teaching in Higher Education* 2, no. 1 (2019): 1–26. https://doi.org/10.36021/jethe.v2i1.17.

———. "Universal Design for Learning (UDL): What Is It and How do I Implement It?" *Transformative Dialogues: Teaching & Learning Journal* 12, no. 1 (2019): 1–6.

Kleinfeld, Elizabeth, Santosh Khadka, and J. C. Lee. "Reimagining Multimodality Through UDL: Inclusivity and Accessibility." In *Bridging the Multimodal Gap: From Theory to Practice*, edited by Santosh Khadka and J. C. Lee, 30–42. Louisville: Utah State University Press, 2019.

Kumar, Kari Lynne, and Maureen Wideman. "Accessible by Design: Applying UDL Principles in a First Year Undergraduate Course." *Canadian Journal of Higher Education* 44, no. 1 (2014): 125–47. https://doi.org/10.47678/cjhe.v44i1.183704.

Lantz, Catherine, Glenda M. Insua, Annie Armstrong, David Dror, and Tara Wood. "'I'm a Visual Learner So I Like This': Investigating Student and Faculty Tutorial Preferences." *Internet Reference Services Quarterly* 22, no. 4 (October 2017): 181–92. https://doi.org/10.1080/10875301.2018.1427171.

Lewitzky, Rachael A., and Kari D. Weaver. "Developing Universal Design for Learning Asynchronous Training in an Academic Library." *Partnership: The Canadian Journal of Library & Information Practice & Research* 16, no. 2 (2021): 1–18. https://doi.org/10.21083/partnership.v16i2.6635.

Lightfoot, Elizabeth, and Priscilla Gibson. "Universal Instructional Design: A New Framework for Accommodating Students in Social Work Courses." *Journal of Social Work Education* 41, no. 2 (2005): 269–77. https://doi.org/10.5175/JSWE.2005.200303129.

Linsinbigler, Valerie, Christopher Lowder, Janna Mattson, Anna Murphy-Lang, and Samuel LoPresto. "User-Centered Design of a Library Tutorials Page: A Solution to Digital Hoarding." *Journal of Library & Information Services in Distance Learning* 15, no. 2 (2021): 142–56. https://doi.org/10.1080/1533290X.2021.1938787.

Lund, Brady. *Creating Accessible Online Learning Instruction Using Universal Design Principles*. Lanham, MD: Rowman & Littlefield, 2020.

McGuire, Joan M. "Inclusive college teaching: universal design for instruction and diverse learners." *Journal of Accessibility and Design for All* 1, no. 1 (2011): 38–54. https://doi.org/10.17411/jacces.v1i1.80.

McGuire, Joan M., Sally S. Scott, and Stan F. Shaw. "Universal Design for Instruction: The Paradigm, Its Principles, and Products for Enhancing Instructional Access." *Journal of Postsecondary Education and Disability* 17, no. 1 (2003): 11–21. https://doi.org/10.1177/074193250302400608 01.

McMullin, Rachel M. "Universal Design and Library One-Shot Instruction." *Public Services Quarterly* 18, no. 3 (July 2022): 177–89. https://doi.org/10.1080/15228959.2021.2009406.

Murphy, Lynne, Heather Panczykowski, Lindsey Fleury, and Brooke Sudano. "Implementation of Universal Design for Learning in Occupational Therapy Education." *Occupational Therapy in Health Care* 34, no. 4 (2020): 291–306. https://doi.org/10.1080/07380577.2020.1780663.

Murphy, Michael P. A. "Belief without Evidence? A Policy Research Note on Universal Design for Learning." *Policy Futures in Education* 19, no. 1 (2021): 7–12. https://doi.org/10.1177/1478210320940206.

Musti-Rao, Shobana, Stephen D. Kroeger, and Karin Schumacher-Dyke. "Using Guided Notes and Response Cards at the Postsecondary Level." *Teacher Education and Special Education* 31, no. 3 (2008): 149–63. https://doi.org/10.1177/0888406408330630.

Nall, Clark. "Academic Libraries and the Principles of Universal Design for Learning." *College & Research Libraries News* 76, no. 7 (July 2015): 374–75. https://doi.org/10.5860/crln.76.7.9345.

Olivier, Elizabeth, and Marie-Christine Potvin. "Faculty Development: Reaching Every College Student with Universal Design for Learning." *Journal of Formative Design in Learning* 5, no. 2 (2021): 106–15. https://doi.org/10.1007/s41686-021-00061-x.

Oswald, Gina R., Robert David Nathan Adams, and Jeffrey A. Hiles. "Universal Design for Learning in Rehabilitation Education: Meeting the Needs for Equal Access to Electronic Course Resources and Online Learning." *Journal of Applied Rehabilitation Counseling* 49, no. 1 (2018): 19–22. https://doi.org/10.1891/0047-2220.49.1.19.

Owiny, Ruby L., Aleksandra Hollingshead, Brenda Barrio, and Katlyn Stoneman. "Engaging Preservice Teachers in Universal Design for Learning Lesson Planning." *Inclusion (Washington, D.C.)* 7, no. 1 (2019): 12–23. https://doi.org/10.1352/2326-6988-7.1.12.

Peacock, Rebeca, and Amy Vecchione. "Accessibility Best Practices, Procedures, and Policies in Northwest United States Academic Libraries." *Journal of Academic Librarianship* 46, no. 1 (2020): N.PAG. https://doi.org/10.1016/j.acalib.2019.102095.

Peuler, Mollie, and Mark Coltrain. "Flip This House!: Updating and Designing an Online First Year Seminar Module Series." *Journal of Library & Information Services in Distance Learning* 14, no. 3/4 (2020): 253–65. https://doi.org/10.1080/1533290X.2021.1880527.

Pionke, J. J. "Accessible Instruction." *Public Services Quarterly* 14, no. 1 (January 2018): 92–97. https://doi.org/10.1080/15228959.2017.1404547.

Pionke, J. J., and Lorelei Rutledge. "Using Universal Design for Instruction to Make Library Instruction Accessible." *Reference & User Services Quarterly* 59, no. 3/4 (2021): 161–64. https://doi.org/10.5860/rusq.59.3/4.7713.

Pittaway, Sarah, and Michelle Malomo. "'So, You Want Me to Read for My Degree?': A Universal Design for Learning Approach to Reading." *Insights: The UKSG Journal* 34, no. 1 (2021). https://doi.org/10.1629/uksg.549.

Price-Ellingstad, Debra, and Hugh G. Berry. "Postsecondary Education, Vocational Rehabilitation and Students with Disabilities: Gaining Access to Promising Futures." *American Rehabilitation* 25, no. 3 (1999): 2–10.

Quaglia, Bruce W. "Planning for Student Variability: Universal Design for Learning in the Music Theory Classroom and Curriculum." *Music Theory Online* 21, no. 1 (2015):1–21. https://doi.org/10.30535/mto.21.1.6.

Rao, Kavita, Patricia Edelen-Smith, and Cat-Uyen Wailehua. "Universal Design for Online Courses: Applying Principles to Pedagogy." *Open Learning* 30, no. 1 (2015): 35–52. https://doi.org/10.1080/02680513.2014.991300.

Rearick, Ben, Erica England, Jennifer Saulnier Lange, and Corey Johnson. "Implementing Universal Design for Learning Elements in the Online Learning Materials of a First-Year Required Course." *Weave (Ann Arbor, Mich.)* 4, no. 1 (2021). https://doi.org/10.3998/weaveux.217.

Reinhardt, Kimberly S., Phyllis M. Robertson, and Robin D. Johnson. "Connecting Inquiry and Universal Design for Learning (UDL) to Teacher Candidates' Emerging Practice: Development of a Signature Pedagogy." *Educational Action Research* (2021): 1–18. https://doi.org/10.1080/09650792.2021.1978303.

Reyes, Charisse T., Gwendolyn A. Lawrie, Christopher D. Thompson, and Sara H. Kyne. "'Every Little Thing That Could Possibly Be Provided Helps': Analysis of Online First-year Chemistry Resources Using the Universal Design for Learning Framework." *Chemistry Education Research and Practice* 23, no. 2 (2022): 385–47. https://doi.org/10.1039/d1rp00171j.

Roski, Marvin, Malte Walkowiak, and Andreas Nehring. "Universal Design for Learning: The More, the Better?" *Education Sciences* 11, no 4. (2021): 164. https://doi.org/10.3390/educsci11040164.

Roth, Amanda, Gayatri Singh, and Dominique Turnbow. "Equitable but Not Diverse: Universal Design for Learning Is Not Enough." *In the Library with the Lead Pipe* (May 26, 2021). https://www.inthelibrarywiththeleadpipe.org/2021/equitable-but-not-diverse/.

Scanlon, Erin, Tamra Legron-Rodriguez, Jillian Schreffler, Elijah Ibadlit, Eleazar Vasquez, and Jacquelyn J. Chini. "Postsecondary Chemistry Curricula and Universal Design for Learning: Planning for Variations in Learners' Abilities, Needs, and Interests." *Chemistry Education Research and Practice* 19, no. 4 (2018): 1216–39. https://doi.org/10.1039/c8rp00095f.

Scanlon, Erin, Jillian Schreffler, Westley James, Eleazar Vasquez, and Jacquelyn J. Chini. "Postsecondary Physics Curricula and Universal Design for Learning: Planning for Diverse Learners." *Physical Review Physics Education Research* 14, no. 2 (2018). https://doi.org/10.1103/PhysRevPhysEducRes.14.020101.

Schelly, Catherine L., Patricia L. Davies, and Craig L. Spooner. "Student Perceptions of Faculty Implementation of Universal Design for Learning." *Journal of Postsecondary Education and Disability* 24, no. 1 (2011): 17–30. https://eric.ed.gov/?id=EJ941729.

Schreffler, Jillian, Eleazar Vasquez III, Jacquelyn Chini, and Westley James. "Universal Design for Learning in Postsecondary STEM Education for Students with Disabilities: A Systematic Literature Review." *International Journal of STEM Education* 6, no. 1 (2019): 1–10. https://doi.org/10.1186/s40594-019-0161-8.

Scott, LaRon, Peter Temple, and David Marshall. "UDL in Online College Coursework: Insights of Infusion and Educator Preparedness." *Journal of Asynchronous Learning Networks* 19, no. 5 (2015). https://eric.ed.gov/?id=EJ1085764.

Scott, Sally S., Joan M. McGuire, and Teresa E. Foley. "Universal Design for Instruction: A Framework for Anticipating and Responding to Disability and Other Diverse Learning Needs in the College Classroom." *Equity & Excellence in Education* 36, no. 1 (2003): 40–49. https://doi.org/10.1080/10665680303502.

Seale, Jane K. *E-learning and Disability in Higher Education*. London: Routledge, 2013.

Sherwood, Kari L., and Shanna K. Kattari. "Reducing Ableism in Social Work Education Through Universal Design for Learning and Policy." *Journal of Social Work Education* (2021). https://doi.org/10.1080/10437797.2021.1997686.

Smith, Frances G. "Analyzing a College Course That Adheres to the Universal Design for Learning (UDL) Framework." *The Journal of Scholarship of Teaching and Learning* 12, no. 3 (2012): 31–61. https://eric.ed.gov/?id=EJ992116.

Spina, Carli. "Libraries and Universal Design." *Theological Librarianship* 10, no. 1 (October 2017): 5–7. https://dx.doi.org/10.31046/tl.v10i1.464.

Super, Laura, Analise Hofmann, Connie Leung, Mabel Ho, Emma Harrower, Najah Adreak, and Zohreh Rezaie Manesh. "Fostering Equity, Diversity, and Inclusion in Large, First-year Classes: Using Reflective Practice Questions to Promote Universal Design for Learning in Ecology and Evolution Lessons." *Ecology and Evolution* 11, no. 8 (2021): 3464–4372. https://doi.org/10.1002/ece3.6960.

Tobin, Thomas J. "Increase Online Student Retention with Universal Design for Learning." *Quarterly Review of Distance Education* 15, no. 3 (2014): 13–24. https://eric.ed.gov/?id=EJ1144189.

Tobin, Thomas J., and Kirsten T Behling. *Reach Everyone, Teach Everyone. Teaching and Learning in Higher Education.* Nashville: West Virginia University Press, 2018.

Turpin, Amy, Marla J. Lohmann, Andrea R. Hathcote, and Kathleen A. Boothe. "Engaging Graduate Students in the Online Learning Environment: A Universal Design for Learning (UDL) Approach to Teacher Preparation." *Networks* 20, no. 2 (2018): 2–21. https://doi.org/10.4148/2470-6353.1264.

Vie, Stephanie. "Effective Social Media Use in Online Writing Classes through Universal Design for Learning (UDL) Principles." *Computers and Composition* 49 (2018): 61–70. https://doi.org/10.1016/j.compcom.2018.05.005.

Westine, Carl D., Beth Oyarzun, Lynn Ahlgrim-Delzell, Amanda Casto, Cornelia Okraski, Gwitaek Park, Julie Person, and Lucy Steele. "Familiarity, Current Use, and Interest in Universal Design for Learning Among Online University Instructors." *International Review of Research in Open and Distance Learning* 20, no. 5 (2019): 20–41. https://doi.org/10.19173/irrodl.v20i5.4258.

Whitver, Sara Maurice. "Accessible Library Instruction in Practice." *portal: Libraries & the Academy* 20, no. 2 (April 2020): 381–98. https://muse.jhu.edu/article/753303.

Xie, Jingrong, and Mary F. Rice. "Professional and Social Investment in Universal Design for Learning in Higher Education: Insights from a Faculty Development Programme." *Journal of Further and Higher Education* 45, no. 7 (2021): 886–900. https://doi.org/10.1080/0309877X.2020.1827372.

Zaloudek, Julie A., Renee Chandler, Katrina Carlson, and Rennee Howarton. *Universal Design for Learning: Teaching All College Students.* Menomonie: Nakatani Teaching and Learning Center, 2018.

Zeff, Robbin. "Universal Design across the Curriculum." *New Directions for Higher Education* 2007, no. 137 (2007): 27–44. https://doi.org/10.1002/he.244.

Zhong, Ying. "Universal Design for Learning (UDL) in Library Instruction." *College & Undergraduate Libraries* 19, no. 1 (January 2012): 33–45. https://doi.org/10.1080/10691316.2012.652549.