# Designing for Equity: Enhancing Opportunities for Online English Language Instruction via Universal Design and Accessible Instruction


**Danielle Guzman-Orth**

**Abstract** Supporting English language instruction for all learners can be a complex task but is necessary to ensure that learners have equitable opportunities to learn, such as access to supports and resources so they can show what they know and can do. In this chapter, I review commonly used terminology and practices through an equity and accessibility lens, focusing on the needs of educators to support their students with specific learning difficulties. I highlight selected instances from the literature where conceptual and empirical studies have spotlighted the need for cohesive, concentrated efforts to improve access in English instruction and English educator training. I follow with key interdisciplinary frameworks and principles commonly used in education and digital information settings to introduce selected characteristics impacting equitable instructional access. I connect these interdisciplinary considerations to selected English language instruction examples, showcasing the criticality of accessibility for some learners and overall helpfulness for all learners to access online English language instruction. Finally, I conclude with areas in need of future research to further align policy, research, and practice.

**Keywords** Universal Design for Learning · Specific learning difficulties · Accessibility · Online English language instruction · Inclusion · Equity

## 1 Introduction

Advances in global awareness and attention to diverse populations have led to an increased need for educators to learn how to serve diverse students. Accelerated by the recent shift to online instruction and assessment to support students' learning during the COVID-19 pandemic; educators face an unprecedented imperative to

D. Guzman-Orth (✉)
ETS, Princeton, NJ, USA
e-mail: dguzman-orth@ets.org



M.-M. Suárez, W. M. El-Henawy (eds.), *Optimizing Online English Language Learning and Teaching*, English Language Education 31,
https://doi.org/10.1007/978-3-031-27825-9_9

move instruction online and still meet the needs of all learners. In this chapter, I discuss the need for equitable online instruction and make explicit that equitable online instruction is beneficial for all learners, including learners with specific learning difficulties.[1] The purpose of the chapter is to highlight key Universal Design for Learning (UDL) principles and technical web accessibility standards that have the potential to maximize opportunity and impact how English learners, including learners with specific learning difficulties, access and interact with digital English language instruction. These apply to all learners, regardless of age, or disability type, or international location. Most importantly, given the wide variation in English language curriculum or instructional methodologies (Richards & Rogers, 2001), these principles apply across curricular and instructional contexts as well (i.e., during all instruction and assessment, regardless of the language curriculum and target language goals, English as a second language, or English as a foreign language settings).

Establishing this principled foundation is critical, as instructors may have varying experiences with opportunities to learn a range of inclusive pedagogical practices and how to use them in the language classroom (Kormos & Nijakowska, 2017; Nijakowska, 2014). This chapter does not discuss issues of identification, assessment, or diagnosis for learners with specific learning difficulties. Nor is the purpose of the chapter to discuss or adapt English content for digital instruction, although some examples are provided for illustrational purposes only. Instead, I begin by highlighting findings from the literature and explaining two distinct, yet complementary interdisciplinary sets of principles (UDL, technical accessibility) that provide a conceptual foundation for online English language instruction to improve accessibility and equity for all language learners, including students with specific learning difficulties. Following this, I explicate specific methods unique to these perspectives to apply across a range of language methodologies and curriculums. These perspectives apply across multiple settings and contexts, including English as a Second Language and English as a Foreign Language. These perspectives even apply across multilingual environments where people use multiple languages in the community, as well as instructionally. Lastly, I highlight critical areas in need of additional research so that applications of these interdisciplinary methods can produce more accessible and equitable digitally delivered English language instruction.

[1] For an overview of the meaning behind the "specific learning difficulties" phrase, refer to Kormos (2017). Given the variability in terminology for this group of learners which also includes students with disabilities who may advocate for more authentic identity-first (e.g., blind person) rather than person-first (person who is blind) terminology, I continue to use the phrase "specific learning difficulties," in this chapter intending to represent all learners, including learners with disabilities. Where authors used different terminology, I will use their terminology for consistency.

## *1.1 Accessibility, Equality, or Equity?*

Educators may use readily available content, materials, and pedagogical practices to help their students achieve their learning goals. But regardless of how appropriate these available content, materials, and pedagogical practices may seem, if these resources are not accessible, they have the potential to introduce unintended consequences and interfere with some language learners' opportunity to learn.

Often, the terms *access, accessible,* or *accessibility* are used to mean the availability of something, to make it easier to access something. For example, in education, these terms might describe the lesson plans and curriculum being available for all learners, e.g., for teaching, "the educators have *access* to range of lesson plans…" and learning, e.g., "in their English-medium classroom, the materials are fully *accessible* online…" or "… learners have *access* to a variety of written English materials…".

However, in this chapter, I use the terms *access, accessible,* or *accessibility* to refer to content designed to meet technical web accessibility guidelines. These guidelines help ensure that the content is not only available, but also consumable for all users, including learners with specific learning difficulties who may require use of specialized equipment or software (i.e., assistive technology) to gain access (WebAIM, 2021). An example of this is with learners who are blind and use assistive technology like screen readers, specialized software that reads screen content aloud, as their main means of access. Designing digital content without certain technical accessibility specifications from the onset will impact any other strategies to minimize barriers. In this example, attempts to increase access will not have the intended positive impact if the learner cannot gain initial access using their screen reader.

*Equality* is also a phrase that can describe attention toward fairness for all. Instead of equality, however, I use the term *equity* to refer to a social justice perspective of fairness for learners. For example, instead of teaching learners the same subject the same way, educators may notice learners' individual characteristics that might influence how they interpret and interact with the target content. Instead of relying on visual explanations or graphics for all explanations, an educator attempting to promote access and equity may use graphics and other techniques, like auditory and tactile resources, to promote access. I use the specific applications of these terms in the rest of the chapter.

### 1.1.1 Why Does this Matter for Online English Instruction?

Simply put, foundational efforts like UDL and technical web accessibility can minimize barriers for learners and produce accessible, equitable online English instruction. Ultimately, these targets can help guide educators' decision making by identifying opportunities in lesson goals, instructional content, and activities, and creating language learning checkpoints. With these accessibility targets influencing

some of the decision making around the lessons, instructors also retain the flexibility to further adapt their lessons for instructional or other purposes (e.g., racial equity, socio-cultural needs). Implementing technical web accessibility and UDL considerations are not intended to change or limit traditional English language instruction, but rather provide opportunities for all learners to gain access, rather than be excluded from English language instruction.

## 2 Literature on English Learners

From a more conceptual perspective, instructional and assessment opportunities should remain open to everyone. These opportunities must reach learners of all ages and abilities, including very young learners and those who have specific learning difficulties, including disabilities. Particularly for these latter groups, several factors have the potential to influence instruction. The following paragraphs highlight emerging research around these groups, illustrating the variability within the sample and underscoring the helpfulness and necessity of accessible and equitable language instruction.

Specific to young learners, it is important to ensure the instruction is fun, developmentally appropriate, and that educators are prepared to address pedagogical, behavioral, or motivational challenges that may arise (Copland et al., 2014; Garton & Copland, 2018). However, several factors, such as parental and socioeconomic factors (e.g., Butler, 2014; Huang et al., 2018), governmental or other political reforms (e.g., Butler, 2007, 2014, 2015) may even differentially impact young learners' education. Further, language instruction models may introduce differences in students' opportunities to learn and demonstrate their skills (Richards & Rogers, 2001; Echevarria et al., 2008). And in some contexts, teaching young learners English instead involves an assessment process, where a survey tool and screener are used to identify and assess students' language skills (e.g., as in the United States, Bailey & Kelly, 2013). These nuances have the potential to impact learners' educational journeys, thus requiring that instruction and assessments should be accessible, equitable, and developmentally appropriate (e.g., clear directions, age-appropriate timing, developmentally appropriate skills and feedback) so that learners have every opportunity to show what they know and can do (e.g., Garcia Bedolla & Rodriguez, 2011; Guzman-Orth et al., 2016; Wolf et al., 2020).

Similarly, research on English learners with specific learning difficulties, like the research on young learners, is still emerging. Conceptual approaches include developing a theory of action, chains of evidence-based reasoning to support English learners with the most significant cognitive disabilities in the United States with the goal of English language instruction and assessment supporting students with opportunities to learn and achieve educational and career goals commensurate with their peers (Gholson & Guzman-Orth, 2019), and interactions between the English

Language Proficiency (ELP) construct, skills, and learner needs to raise awareness of validity and fairness considerations for English learners with disabilities (Guzman-Orth et al., 2016). Challenging the application, however, is the reality that disabilities and strategies will change over time (Eikel-Pohen, 2019), requiring greater support from educators. However, English language educator training programs do not consistently include pedagogy and practices to support students with specific learning difficulties; warranting additional support for educators to address learners' cognitive and affective needs that may impact learners' instruction (Kormos, 2017; Kormos & Nijakowska, 2017; Nijakowska et al., 2018; Vogt, 2018).

### *2.1 Looking Forward*

Connecting these critical points in practice to support language learning is imperative to providing equitable access for all learners. While previous research has focused on the cognitive considerations for language learning and identified connections to high incidence disabilities, like reading disabilities (i.e., Dyslexia; Kormos, 2020), I summarize and present considerations related to providing access for all learners. These considerations are applicable regardless of disability type, age level, or instructional program/English language curriculum. Following are some examples where application of these principled design approaches and accessibility guidelines can increase access to online English instruction.

## 3 Principles of Inclusive, Accessible Design

In this section, I introduce guiding frameworks such as UDL and technical standards, such as Web Content Accessibility Guidelines (W3C, 2021c). I illustrate their utility in improving equitable instruction; however, one without the other may introduce accessibility challenges for certain learners. Even with ongoing application in the United States e.g., for young learners enrolled in pre-kindergarten through grade 12 (approximately ages 3 through 18), and adult learners (university age and beyond), the applications of these principles are still emerging in practice and application. As a result, they are a critical high priority to implement for equitable language instructional opportunities for all learners, including language learners with and without disabilities. For example, despite the benefits of UDL, there will always be a need to have specific, individualized solutions for certain learners. Accessibility guidelines and accommodations might better address specific student needs beyond UDL. I share these general frameworks to increase awareness of strategies to make instruction more accessible, but actual application of these approaches will always need to be tested and refined with educators and their students.

### *3.1 Universal Design for Learning*

UDL (CAST, 2018) is a multi-pronged framework that is designed to optimize instruction and learning opportunities. Recognized internationally (Persson et al., 2015), UDL has a place in instruction to promote learning for *all* learners. UDL is for everyone; it is not simply a special approach to apply to learners with specific learning difficulties, disabilities, or other individualized needs. Educators who incorporate UDL principles in their instruction have the potential to make their content and instructional practices more relevant and consumable to a variety of learners (Rao, 2021). UDL principles are not prescriptive, and instructors may already use one or more principles naturally, to a certain extent, in their instructional design. Importantly however, UDL is not the same as learning styles, which have no scientific basis (Pashler et al., 2008; Willingham et al., 2015). Specifically, UDL has most often emphasized the need for multiple priorities in instruction, such as providing multiple means for:

- Engagement – Opportunities for students to connect to instruction with their personal interests (i.e., topical relevance, choice),
- Representation – Presenting information to students in multiple ways to provide opportunities for understanding the learning targets and what to do, and
- Action & Expression – Allowing students multiple opportunities to demonstrate their learning.

The UDL framework promotes these needs to reinforce learners who are purposeful and motivated, resourceful and knowledgeable, and strategic and goal oriented (CAST, 2018). At the time of this writing, newer iterations of UDL considerations inclusive of equity components are in development (e.g., Chardin & Novak, 2020). The field is revising the UDL framework, inclusive of the principles (engagement, representation, action & expression), guidelines (guidelines articulated across categories to provide guidance build into the principles so that users can differentiate between providing access, building supports, and providing mechanisms to help learners meaningfully internalize content), and checkpoints (which provide more detailed suggestions) so the framework incorporates considerations for equity (UDL Rising to Equity Initiative, CAST, 2020).

The following subsections will elaborate on the UDL framework to further consider when teaching, creating instructional materials, or selecting instructional or assessment practices to use in the classroom (CAST, 2018). For this chapter, I apply the principles to an example classroom lesson. The example will focus on building opportunity to develop learners' general academic language and discipline-specific academic language skills. Specifically, learners are required to collect data, and then create a graph using their data and explain their results to the class. With this general activity to build language skills, the following sections detailing the UDL principles showcase how educators can reflect on the UDL framework to purposefully enhance the general lesson goals for their learners.

### 3.1.1 UDL Principle: Provide Multiple Means of Engagement

Engagement refers to the act of motivating students to participate in the instruction and learning process. This means that the more students are interested or motivated in the instruction, they might be more likely to pay attention, participate, and retain information. Engaging students in learning and motivating them to actively participate in lessons is not always an easy task when there are multiple students with different preferences. However, the point is made that if learners are focusing on the material, they have the opportunity to actively retain and use the information in the future (refer to Guideline 7: Provide Options for Recruiting Interest, CAST, 2018).

Referring to the hypothetical class activity and academic language goals, educators should incorporate multiple strategies such as increasing students' time on task (i.e., how much time the learners actively spend on the activity compared to inattentive behaviors like discussing other topics) and building in opportunities for student choice to increase attention and engagement in the lesson. For example, if the language target is to use academic language around data presentation and visualization (e.g., graphs), perhaps students can select their topic of interest. Building in a chance for students to survey their preferred audience (e.g., their whole class) on their topic of interest can introduce opportunities to build and use social language. To address the variation in online instruction, students can conduct surveys with a variety of digital tools (e.g., email, social media, survey platforms). Further, reinforcing active learning is more than a single interaction in the online classroom. Sustained active learning and recall requires ongoing effort from learners, and some learners may require additional supports to do these tasks in a manner equitable to their peers (refer to Guideline 8: Provide Options for Sustaining Effort and Persistence, CAST, 2018).

Some of these supports might require that learners have choices at each stage of the activity to reflect learners' individual preferences. For example, some learners may know exactly what they like and how to apply it to the task. Other learners may need some scaffolding to help identify their preferences (e.g., asking children about their ideas on a topic and helping them to select one), along with an educator-supplied topic and audience in case learners cannot or do not feel comfortable selecting their own survey topic or audience. Lastly, self-regulation opportunities are an important part of the engagement principle so that learners take ownership at reflecting on and regulating their own internal and external reactions to the learning that is occurring (refer to Guideline 9: Provide Options for Self-Regulation, CAST, 2018). An example of a self-regulation checkpoint could include a checklist for specific language supports and reflection questions to gauge how the learners feel about the language use activity prior to starting, and again at the end of the activity, so learners can review any changes in their awareness and skill about using general and academic language (and even social language) through the learning activity.

### 3.1.2 UDL Principle: Provide Multiple Means of Representation

Three main guidelines also support the representation principle. This refers to building in multiple representations to present information in a variety of ways (i.e., multimodal) and building in options for individualized interaction with the content (refer to Guideline 1: Provide Options for Perception, CAST, 2018). For example, when learning how to build and describe their graphs, the educator may demonstrate using a variety of graphs including 2-dimensional graph drawings, 3-D representations, a graph of physical manipulatives (e.g., plastic cubes or other counters) or graphs made of realia (e.g., pieces of fruit, candy, stickers). Language and symbols are two components that need additional means of representation to support all learners. Remember, learners may have different proficiency levels in both English and their home language, and they may have different levels of familiarity with symbols or other semiotic referents, such as a division sign for learners from different countries of origin (Lopez et al., 2015; refer to Guideline 2: Provide Options for Language and Symbols, CAST, 2018). Educators can treat this variability as an opportunity to pre-teach, or to provide background knowledge before the main lesson. Rather than asking if students are familiar with the word or symbol (which may make some students feel uncomfortable in front of their peers), educators can include this information as a step in the lesson so that all learners have the information.

Lastly, instruction should be accessible to all learners. Since characteristics like mode, language, and symbols have the potential to impact learning, there is further opportunity to promote access for all learners, and that is by ensuring students have opportunities to access content regardless of their background knowledge and skill mastery. Educators should scaffold content to support all learners (refer to Guideline 3: Provide Options for Comprehension, CAST, 2018). One example of scaffolding the content could be a video or a worksheet that shows the options for graph creation, along with an option for a representation of the students' own choosing if it contains set parameters (e.g., X and Y axis, frequency counts), so that students do not have to rely on working memory or note-taking skills. Another form of scaffolding could be providing, or creating with students, a word wall with the social and academic language (words, phrases, sentence starters) that students will use to survey their classmates and describe their results.

### 3.1.3 UDL Principle: Provide Multiple Means of Action and Expression

Finally, providing multiple means of action and expression so learners can demonstrate their knowledge and mastery in a variety of ways is critical. This opportunity for individualization is necessary because of the range of learners and variety of skills and capabilities they possess. These skills could impact how they not only perceive the content but how they can respond to and use the content. Learners do not physically interact with print or digital materials in the same way due to motor, sensory, or cognitive characteristics, and options are necessary to promote access (Guideline 4: Provide Options for Physical Action, CAST, 2018).

For example, if learners need to create a graph and describe it, perhaps learners could create one using physical objects, draw one, or create one digitally. Instruction should be amenable to multiple types of demonstrations of student skills. Learners need a range of options to show what they know and can do (refer to Guideline 5: Provide Options for Expression and Communication, CAST, 2018). Following the same example of creating and describing a graph, students' options to describe their graph in English could include verbal, written, or typed descriptions. Depending on the instructional model, the home language might scaffold, or provide, targeted support. Lastly, considering executive functioning and working memory capabilities (e.g., cognitive load, Sweller, 1994) for instructional design is another way to optimize learning for diverse learners (refer to Guideline 6: Provide Options for Executive Functions, CAST, 2018). With our graph example, executive functioning supports could include a step-by-step checklist (i.e., task analysis, chunking) so that students can follow the steps to create their graphs. Alternatively, students can use this checklist at the end of the assignment, so that they can check their own work. Physical examples can support students create their graph, while other supports like sentence starters or sentence strips could function as another executive function support to help students with their descriptions or hold discussions with their peers (e.g., asking or responding to questions).

## *3.2 Technical Web Accessibility*

Technical web accessibility, adherence to technical standards and guidance to make content accessible for learners with a variety of needs, can help optimize online English instruction. At the time of this writing, several countries have established specific policies, laws, and other guidance around access needs for persons with disabilities (W3C, 2021b). The World Wide Web Consortium (W3C) created an international working group to develop a set of technology standards, Web Content Accessibility Guidelines (WCAG; W3C, 2021c). WCAG guidance is temporal and successive. As innovations in technology and accessible digital solutions continue, WCAG guidelines continue to update. The guidelines are also organized into levels of conformance designed to build on one another (e.g., A [minimal], AA, AAA [maximal]). The guidelines are also intended to apply to all users, including those without disabilities. Rather than recommend that English language educators learn each of the WCAG success criterion, it may be more beneficial to think of accessibility through the POUR principles (W3C, 2021a). POUR refers to Perceivable, Operable, Understandable, and Robust. That is:

- Perceivable – Learners must be able to perceive all information on the interface in a manner that is accessible to them
- Operable – Learners must be able to interact with the information in a manner that is accessible to them

- Understandable – Learners must be able to understand the intended layout, content, and interactions present on the computer interface
- Robust – Learners must be able to interact with the digital content regardless of what type of access methodologies or assistive technologies are used.

In summary, these POUR principles work together to ensure that all learners have access to digital content using their preferred access methodologies. For example, learners without sensory, motor, or cognitive disabilities may prefer to use keyboard navigation at certain times as they interact with digital content. These keyboard interactions (e.g., control + C to copy and control + V to paste on a PC computer using a QWERTY keyboard) are an example of how WCAG guidance can benefit learners without the learners knowing they are benefitting from WCAG implementation.

Assuredly, technical implementation is a helpful skill but does not require that all English instructors become overnight experts, just knowledgeable users. Although it may be tempting to dismiss the relevance of technical accessibility requirements or to revert to status quo, it is important to note that doing so can introduce barriers for learners who solely rely on assistive technologies for access (not to mention the emerging global importance of web accessibility laws and policies, W3C, 2021b). The concentrated, ongoing international shift to intentionally remove barriers is necessary to be inclusive of persons with disabilities, promoting "equality of opportunities in education" and beyond, and establishing connection and relevance to the Sustainable Development Goals (SDGs 4, 8, 10, 11, and 16) (United Nations, 2021). For transparency, there is much more to the technological standards and implementation that is beyond this chapter. But by attending to these technical requirements when designing instruction or selecting online platforms, the instruction will be that much more usable by a wider audience, including learners with and without specific learning difficulties.

## *3.3 Meeting Learners' Needs*

Learners, with or without specific learning difficulties, represent a complex and diverse group of needs and preferences. Often, these needs and preferences have the potential to impact learners' opportunity to learn, or opportunity *to have* learned. That is, *if* content was taught, whether the learner had the opportunity to have learn, master, and retain the content. In this sense, *barriers* may be a term used to describe elements that impact learners' opportunity to learn. Identifying sources of potential barriers in instructional design is a critical step in optimizing language learning for learners.

There are multiple approaches to consider optimizing instructional design to meet learners' needs. For example, although UDL has international recognition and is the lens I use to write this chapter, there are additional design frameworks used internationally that have similarities to UDL (Persson et al., 2015). While there are

distinctions in the descriptions of these frameworks, and differences in the applications (e.g., product design, architecture, etc.) ultimately the frameworks are all intended to promote greater access and equity. Similarly, experts in user experience and design thinking have also explored relationships between needs, products, and preferences that can help arrive at elegant designs to meet the needs of most users and are amenable to further adaptation (Holmes, 2020).

In the following section, I build on UDL and the WCAG POUR principles and introduce two commonly used schemas to characterize the range of learner needs. These characterizations, while not representative of all combinations, can elicit awareness of learners' needs, which may enhance English language instructional design.

### 3.3.1 Learner Needs Schematics

As mentioned earlier in the chapter, equal instruction is the act of providing all learners with the same instruction, using the same pedagogical methods. However, learners are different, and they represent a unique set of characteristics that may impact how they interact with the content (Ketterlin-Geller, 2008). In this section, I introduce two schemas to frame thinking around this complex topic. Some schemas represent learner needs. Examples of these include WebAIM characteristics, or Inclusive Design Toolkits (Microsoft, 2016; University of Cambridge, 2017). Other schemas represent the whole student, for example, intersectionality (Bešić, 2020). Intersectionality, originating with Crenshaw (1989) is a framework that addresses how power dynamics are magnified when multiple personal characteristics are considered, like the combined effect of language learning and disability, rather than language learning or disability only. In education, intersectionality is a framework to recognize the whole learner and the need for instructional design, interventions, and assessment to be responsive to intersectional learners rather than discrete characteristics.

### 3.3.2 Learner Needs

Understanding learners' needs beyond what they need to know from an English language instructional standpoint can be a complex endeavor. Some helpful examples of these approaches in the literature and practice are represented in the Microsoft Inclusive Design Toolkit. The Microsoft Inclusive Design Toolkit is a free resource (at the time of writing this) that introduces three key concepts. First, that needs emerge across all learners, not just those with disabilities. Secondly, needs have the potential to change. Lastly, when designed intentionally, elegant solutions can address a wide range of learner needs. For example, besides the range of learner needs for content instruction, learners also have personal needs that can be situational, temporary, or permanent (e.g., see the Microsoft Design Toolkit for an example of their approach to the User Needs Spectrum).

A situational condition is temporary and fleeting. A removal from the environment or stimulus can remove the constraints introduced by the situational condition. Examples of this can be a noisy room, direct sunlight shining on a computer screen, or inconsistent Wi-Fi because of the timing of the day and bandwidth issues.

A temporary condition is one that may not be as easy to remedy as a situational condition but is still time-bound. For example, temporary conditions may be something like a learner experiencing a sore wrist due to increased mousing needs associated with virtual learning, or a headache because of eyestrain on the computer.

Permanent conditions are those that cannot be remedied by removal of, or addition of something, like an accommodation or other assistive technology. Instead, permanent conditions are those characteristics, such as specific disabilities or health issues that are managed or accommodated and monitored by the learner. Examples of permanent conditions may be learners with sensory disabilities like blindness, low vision, deafness, or learners with health conditions like diabetes, that require constant monitoring of insulin levels.

Each of these time-bound conditions can introduce challenges for learners and how they experience English language instruction. Ranging from some minor inconveniences to more prevalent and profound impact, each can impact opportunity to learn. As a result, it is critical to intentionally design instruction to be as accessible to the widest range of learners as possible and ensure that it is also amenable to further accommodations to support learners. For examples of these situations and their potential impact on instruction, refer to Table 1.

## 4 Opportunities for Implementing Equitable and Accessible Instructional Design for Online English Instruction

In recognition of these complexities briefly introduced in Table 1, learning how to incorporate accessible and equitable practices when teaching English is an ongoing process. The field is still emerging in its understanding of how to balance the complex needs of students with specific learning difficulties with language instruction and assessment. Further, the technological advances needed to implement accessible solutions are still evolving with technical web accessibility standards. As technological advances are made, the best practices or accessible solutions must be continually and carefully evaluated and updated to reflect changes in digital accessibility. The expected result should be iterative improvements to instructional practices as technology changes and more learners can gain access.

Furthermore, despite the advances in digital language learning opportunities and accessibility practices, there is a dearth of research focused on the interdisciplinary integration of the two respective fields, reflective of practice. Specifically, although international policies or guidance documents mention UDL and accessibility, the research on UDL and accessibility in language learning, teaching, and assessment is still an emerging field. Although this chapter aims to bridge these

**Table 1** Examples of learners' needs during instruction

| Time-bound | Selected sensory experiences | Selected challenges for teaching and learning | Potential mitigations for teaching and learning |
|---|---|---|---|
| Situational | Poor lighting<br>Glare on the computer screen | Limited visibility<br>Limited reading of text or graphics on screen<br>Distraction<br>Lack of engagement | Check in with the learners e.g., "Let's make sure you can see your screen, let's try to problem solve"<br>Help or allow time for the learner to move locations, adjust the computer, turn on a light, or close the blinds<br>Allow time for individual or directive refocus (e.g., taking a break or refocus with a meditation or classroom mantra)<br>Verbally describe everything on the screen |
| Temporary | Eye strain | Physical discomfort<br>Distraction<br>Lack of engagement<br>Possible limit of visual access and demonstration of certain skills, e.g.,<br>Viewing text (e.g., reading) or graphics (decorative or construct relevant) in any domain | Provide frequent breaks<br>Increase zoom on the computer screen or increase font size<br>Check in with the learners e.g., "Let's make sure you can see your screen, lets problem solve"<br>Help or allow time for the learner to look away and refocus, adjust lighting, change mode on the computer (e.g., high contrast dark mode)<br>Verbally describe information<br>Provide directions to use built-in read aloud devices (e.g., Microsoft Narrator) (note: built-in read aloud devices or text to speech will be dependent on the instruction being delivered and the device the learner is using) |
| Permanent | Blindness or other visual impairment | Construct definition and selected representation and action & expression challenges across language skills, e.g.,<br>Learning to read (read aloud, decoding) v. reading to learn (comprehension) and accommodations (e.g., braille or assistive technology) | Work with the learner (and the broader blind community) to provide preferred access strategies, and adapt specific language skill lessons<br>Work with the learner (and the broader blind community) to ensure that learners are held to similar high expectations as their peers, and *if* lessons are adapted, unintended consequences (e.g., grading policies) are mitigated so that learners are not penalized |

interdisciplinary practices to support the language learning needs for a range of learners, including those with specific learning difficulties, there remain several imperative topical areas for future research. These areas include: (1) educator preparation in areas of educational technology and English learners with specific learning difficulties; (2) English language instruction and accessibility for all learners; and (3) accessibility and accommodations for language teaching, learning, and assessment for learning.

## *4.1 Educator Preparation*

Following the discipline-specific academic language example raised earlier in the chapter, educator preparation is one key consideration that will impact when and how educators will implement UDL and accessibility guidelines in the classroom. UDL and accessibility are more than a checklist, a professional development workshop, or an educator preparation course. It reflects a fundamental shift in mindset to organically weave these principles through instruction and pedagogy. This, however, is facilitated by educators' opportunity to learn and use these strategies but is further complicated by changing modes of delivery (physical classroom, hybrid, or online). Ultimately, providing support for educator preparation and practice is critical to build on educator strengths in delivering accessible language instruction.

For example, there are variations in the rate of inclusion (i.e., the extent to which learners with disabilities are included in general education classrooms and school activities with supports rather than a separate setting for students with disabilities) and how it is implemented internationally, will impact educators' opportunity to learn and apply accessible instructional design strategies unless there is structured and systematic support. For example, inclusive classrooms (and thus expectations for inclusive educational and assessment experiences) may be more common across most school settings in the United States (Gholson & Guzman-Orth, 2019; Guzman-Orth et al., 2020), in other instances, inclusive language programs may be growing or associated with specific learners (Kormos, 2017). Recent efforts focused on delineating issues related to educator preparation in foreign language learning have been emerging (Nijakowska, 2019), but ongoing efforts to extend the work are still necessary.

Related to preparing educators to work with students with diverse needs, educators should also be skilled in ways to adapt or support content learning so that learners have access. For example, some educators have recommended focusing on oral communication or authentic language tasks (Kormos & Kontra, 2008; Kormos, 2017). Interestingly, these skills are often referred to as functional curriculum, and previous systematic review research has questionable evidence to support the use of functional curriculum (Bouck & Flanagan, 2010; Bouck & Satsangi, 2014). Alternatively, current recommendations are to promote high expectations and rigorous language curriculum based on evidence-based practices to support students reaching desired outcomes (Gholson & Guzman-Orth, 2019). More research is

needed to prioritize evidence-based pedagogical practices for educators to support students' skill acquisition across a range of interlocutors, settings, and for various purposes.

## *4.2 Accessible English Language Instruction and Assessment for Learning*

Another challenge implied in the earlier discipline-specific academic language example is the lack of an existing off-the-shelf curriculum that is accessible for the full range of learners. Although in our earlier example, building a graph and using academic language to describe the graph was the learning target, building in opportunities for engagement and supports through the UDL principles were a natural extension that could support a wider range of learners. Through the application of the UDL principles, educators are encouraged to think through their students: who are these learners, what assets and resources do the learners bring with them into the classroom, and what are their interests? Through this exploratory preparation, it is possible that educators will discover common themes and interests, and areas of divergence. These similarities and differences can strategically help integrate UDL and accessibility through language instruction.

While previous research has explored the connections between language learning and cognitive disabilities (i.e., reading disability; dyslexia), there are other disabilities and learner needs that impact learners' opportunities to access English language instruction and assessment (Guzman-Orth et al., 2016). Assessment for learning is part of the learning experience (e.g., Bailey & Heritage, 2014; Lantolf, 2009). Providing learners with specific learning difficulties a consistent accessibility experience across their instructional and assessment experiences is important, and additional research is needed to identify evidence-based language teaching and assessment practices for learners with specific learning difficulties, particularly a range of sensory, motor, and cognitive difficulties. Considerations for the intersectionality across learners is important to include in these investigations as well (Bešić, 2020).

As the population characteristics diversify to include more learners, we must also reexamine traditional construct and task definitions. If the construct is defined, taught, and acquisition is measured thorough the traditional four skills of listening, speaking, reading, and writing, educators must also be prepared to include students in a range of interactions and opportunities for response. For example, if writing is taught in the classroom as forming words by hand before learners can type, learners who are blind and use other methods, like slate and stylus, brailler, typing, or dictation, to name a few, will not be able to fairly demonstrate traditional handwriting as a precursor skill. In these instances, applying UDL and the POUR principles could help educators identify these problematic areas earlier in the instructional design to better include learners during the lesson delivery. Consequently, these conversations

and others are a critical necessity to ensure that all learners can access accessible English language instruction and show what they know and can do.

## *4.3 Accessibility, Accommodations, and Assistive Technology for Online English Instruction*

With the previous two examples of educator preparation and thinking of the range of learners, acknowledging the accommodations some learners will need is equally important. Using our discipline-specific academic language example, understanding the range of learners is critical to ensuring the appropriate directions are in place for students so that their surveys, graph, and descriptions are accessible to their classmates. For example, if students wanted to use survey software or create a social media poll to survey their class, educators should provide their students with directions on how to create a text description of any images so that classmates with visual impairments can gain access.

Along with the shifting landscape for enhanced educator preparation and the need to discuss interactions between disability, accommodations, and traditional construct and tasks in English language instruction, is the need to conduct more research on the online interactions between instruction, delivery, and accessibility (e.g., accommodations, assistive technology). Accessibility considerations are beneficial for all learners, not only learners with learning difficulties. Educators can support these considerations through more traditional elements, such as creating clear and concise instructions in English (or even the home language, if used as part of the instructional program), and intuitive and consistent layouts so learners do not always have to search for directions, content, responses, or the navigation icons (e.g., "next" or "go back"). Again, these elements that are still emerging in digital design apply to all learners, all age levels, not only learners with learning difficulties.

However, despite the affordances offered by applying UDL to instructional design, it is imperative to ensure the resulting lessons are amenable to individualized accommodations for learners with specific difficulties, including disabilities. Accommodations are individualized supports that change how learners will interact with content or demonstrate their knowledge. Accommodations may vary across students or settings for various reasons (for an overview of recent shifts in accommodations for learners with specific learning difficulties taking ELP assessments, refer to Guzman-Orth et al., 2020). Nevertheless, understanding how accommodations can support online English language instruction is imperative and these are still areas where evidence is just emerging. The interaction between online English instruction and accommodations is critical to investigate and identify best practices for educators, so their teaching does not fall subject to the nuances of assistive technology. For example, options in assistive technologies, such as screen reader software, vary widely in use and preferences (WebAIM, 2021). These assistive technologies may have unintended consequences on the impact of the instructional

delivery, such as the variation in how screen readers announce and pronounce characters (Bowman, 2014; WebAIM, 2017) and whether the variation in pronunciation may impact how learners are learning English. Although this is just one example, more investigation is needed to determine when and where assistive technologies may introduce unforeseen complications in English instructional delivery. In these instances, the goal would be to determine how to adapt the language instruction while still maintaining high expectations, rather than change the task difficulty to make the instruction easier or limit learners' access to their preferred assistive technology.

## 5 Conclusion and Implications

Serving learners in online English language instruction has accelerated because of the global response to the pandemic, yet, guidance on how to produce equitable and accessible online English instruction for all language learners is only emerging. The perspectives and focus on UDL and technical web accessibility considerations in this chapter are intended to serve as a critical foundation to help educators support all learners. Irrespective of the learner, or if the learner has a disability, or instructional setting or language curriculum, English language instruction may benefit from concentrated attention to the affordances of UDL and accessibility POUR principles to address the needs of their learners in online environments and support learning and assessment. Including these practices and principles in instructional design may support educators by bridging international accessibility guidelines with online English language instructional practices to improve instructional design and increase access for all learners.

## References

Bailey, A. L., & Heritage, M. (2014). The role of language learning progressions in improved instruction and assessment of English language learners. *TESOL Quarterly, 48*(3), 480–506.

Bailey, A. L., & Kelly, K. R. (2013). Home language survey practices in the initial identification of English learners in the United States. *Educational Policy, 27*(5), 770–804.

Bešić, E. (2020). Intersectionality: A pathway towards inclusive education? *Prospects, 49*, 111–122. https://doi.org/10.1007/s11125-020-09461-6

Bouck, E. C., & Flanagan, S. M. (2010). Functional curriculum = evidence-based education?: Considering secondary students with mild intellectual disabilities. *Education and Training in Autism and Developmental Disabilities, 45*(4), 487–499.

Bouck, E. C., & Satsangi, R. (2014). Evidence-base of a functional curriculum for secondary students with mild intellectual disability: A historical perspective. *Education and Training in Autism and Developmental Disabilities, 49*(3), 478–486.

Bowman, P. (2014, January 1). *Why don't screen readers always read what's on the screen? Part 1: Punctuation and typographic symbols*. Retrieved from: https://www.deque.com/blog/dont-screen-readers-read-whats-screen-part-1-punctuation-typographic-symbols/

Butler, Y. G. (2007). Foreign language education at elementary schools in Japan: Searching for solutions amidst growing diversification. *Current Issues in Language Planning, 8*(2), 129–147. https://doi.org/10.2167/cilp115.0

Butler, Y. G. (2014). Parental factors and early English education as a foreign language: A case study in Mainland China. *Research Papers in Education, 29*(4), 410–437. https://doi.org/10.1080/02671522.2013.776625

Butler, Y. G. (2015). English language education among young learners in East Asia: A review of current research (2004–2014). *Language Teaching, 48*(3), 303–342. https://doi.org/10.1017/S0261444815000105

CAST. (2018). *Universal design for learning guidelines version 2.2*. Retrieved from http://udlguidelines.cast.org

CAST. (2020, October 6). *CAST announces a community-driven process to update UDL guidelines*. CAST. https://www.cast.org/news/2020/community-driven-process-update-udl-guidelines

Chardin, M., & Novak, K. (2020). *Equity by design: Delivering on the power and promise of UDL*. Corwin Press.

Copland, F., Garton, S., & Burns, A. (2014). Challenges in teaching English to young learners: Global perspectives and local realities. *TESOL Quarterly, 48*(4), 738–762.

Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum, 1*(8). Retrieved from http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8

Echevarria, J., Short, D., & Powers, K. (2008). Making content comprehensible for non-native speakers of English: The SIOP model. *International Journal of Learning, 14*(11), 41–50.

Eikel-Pohen, M. (2019). Assessing disability-inclusive language teaching methods with multimodality and universal design principles. *Die Unterrichtspraxis/Teaching German, 52*(1), 1–13.

García Bedolla, L., & Rodriguez, R. (2011). Classifying California's English learners: Is the CELDT too blunt an instrument? In *UC Berkeley: Center for Latino Policy Research*. Retrieved from https://escholarship.org/uc/item/2m74v93d

Garton, S., & Copland, F. (Eds.). (2018). *The Routledge handbook of teaching English to young learners*. Routledge.

Gholson, M. L., & Guzman-Orth, D. (2019). *Developing an alternate English language proficiency assessment system: A theory of action* (Research Report No. RR-19-25). Educational Testing Service. https://doi.org/10.1002/ets2.12262

Guzman-Orth, D., Laitusis, C., Thurlow, M., & Christensen, L. (2016). *Conceptualizing accessibility for English language proficiency assessments* (Research Report No. RR-16-07). Educational Testing Service. https://doi.org/10.1002/ets2.12093

Guzman-Orth, D., Sova, L., & Albee, T. (2020). Accessibility considerations for English learners with disabilities in English language proficiency assessments. In M. K. Wolf (Ed.), *Assessing English language proficiency in U.S. K–12 schools* (pp. 185–204). Routledge.

Holmes, K. (2020). *Mismatch: How inclusion shapes design*. MIT Press.

Huang, B., Chang, Y. H. S., Niu, L., & Zhi, M. (2018). Examining the effects of socio-economic status and language input on adolescent English learners' speech production outcomes. *System, 73*, 27–36.

Ketterlin-Geller, L. R. (2008). Testing students with special needs: A model for understanding the interaction between assessment and student characteristics in a universally designed environment. *Educational Measurement: Issues and Practice, 27*(3), 3–16.

Kormos, J. (2017). *The second language learning processes of students with specific learning difficulties*. Routledge.

Kormos, J. (2020). Specific learning difficulties in second language learning and teaching. *Language Teaching, 53*(2), 129–143.

Kormos, J., & Kontra, E. (2008). *Language learners with special needs: An international perspective*. Multilingual Matters. https://doi.org/10.21832/9781847690913

Kormos, J., & Nijakowska, J. (2017). Inclusive practices in teaching students with dyslexia: Second language teachers' concerns, attitudes and self-efficacy beliefs on a massive open online learning course. *Teaching and Teacher Education, 68*, 30–41.

Lantolf, J. P. (2009). Dynamic assessment: The dialectic integration of instruction and assessment. *Language Teaching, 42*(3), 355–368.

Lopez, A. A., Guzman-Orth, D., & Turkan, S. (2015). How might a translanguaging approach in assessment make tests more valid and fair for emergent bilinguals? In G. Valdés, K. Menken, & M. Castro (Eds.), *Common core and English language learners/emergent bilinguals: A guide for all educators* (pp. 266–267). Caslon.

Microsoft. (2016). *Inclusive design toolkit*. Retrieved from https://download.microsoft.com/download/b/0/d/b0d4bf87-09ce-4417-8f28-d60703d672ed/inclusive_toolkit_manual_final.pdf

Nijakowska, J. (2014). Dyslexia in the European EFL teacher training context. In M. Pawlak & L. Aronin (Eds.), *Essential topics in applied linguistics and multilingualism. Second language learning and teaching*. Springer. https://doi.org/10.1007/978-3-319-01414-2_8

Nijakowska, J. (2019). Foreign language teachers' preparedness to cater for special educational needs of learners with dyslexia: A conceptual framework. *European Journal of Special Needs Education, 34*(2), 189–203.

Nijakowska, J., Tsagari, D., & Spanoudis, G. (2018). English as a foreign language teacher training needs and perceived preparedness to include dyslexic learners: The case of Greece, Cyprus, and Poland. *Dyslexia, 24*(4), 357–379.

Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2008). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105–119.

Persson, H., Ahman, H., Yngling, A. A., & Gulliksen, J. (2015). Universal design, inclusive design, accessible design, design for all: Different concepts—One goal? On the concept of accessibility—Historical, methodological and philosophical aspects. *Universal Access in the Information Society, 14*(4), 505–526.

Rao, K. (2021). Inclusive instructional design: Applying UDL to online learning. *The Journal of Applied Instructional Design, 10*(1). https://doi.org/10.51869/101/kr

Richards, J. C., & Rogers, T. S. (2001). *Approaches and methods in language teaching* (2nd ed.). Cambridge University Press.

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(4), 295–312.

United Nations. (2021). *Sustainable development goals (SDGs) and disability*. Retrieved from https://www.un.org/development/desa/disabilities/about-us/sustainable-development-goals-sdgs-and-disability.html

University of Cambridge. (2017). *Inclusive design toolkit*. Retrieved from http://www.inclusivedesigntoolkit.com/whatis/whatis.html

Vogt, K. (2018). *Teachers assessment literacy enhancement (TALE): Needs analysis report*. Retrieved from https://taleproject.eu/pluginfile.php/2127/mod_page/content/2/TALE%20Needs%20analysis%20report.pdf

WebAIM. (2017, April 21). *Designing for screen reader compatibility*. Retrieved from: https://webaim.org/techniques/screenreader/

WebAIM. (2021, June 30). *Screen reader user survey #9 results*. Retrieved from https://webaim.org/projects/screenreadersurvey9/

Willingham, D. T., Hughes, E. M., & Dobolyi, D. G. (2015). The scientific status of learning styles theories. *Teaching of Psychology, 42*(3), 266–271.

Wolf, M. K., Guzman-Orth, D., Still, C., & Winter, P. (2020). Examining students' response processes in a computer–based English language proficiency assessment. In M. K. Wolf (Ed.), *Assessing English language proficiency in U.S. K–12 schools* (pp. 111–133). Routledge.

World Wide Web Consortium (W3C). (2021a). *Accessibility principles*. Retrieved from https://www.w3.org/WAI/fundamentals/accessibility-principles/

World Wide Web Consortium (W3C). (2021b). *Web accessibility laws and policies*. Retrieved from https://www.w3.org/WAI/policies/

World Wide Web Consortium (W3C). (2021c). *Web content accessibility guidelines (WCAG) overview*. Retrieved from https://www.w3.org/WAI/standards-guidelines/wcag/