Addressing Access in Active Learning

DONNA SACCO, MOLLY REDMOND, AND CELINE LATULIPE

This chapter addresses strategies for ensuring access to instruction in the unique settings of active learning classrooms. By using a proactive, flexible approach to deliberately planning instructional goals and assessment, the needs of all learners can be met. More specifically, this chapter will examine the Universal Design for Learning (UDL) model as a means of eliminating a one-size-fits-all approach to instruction. It will also examine a framework for identifying and removing barriers by using multiple means of representation, expression, and engagement with UDL.

Figure 6.1. Clearing a path for people with special needs clears the path for everyone! From Giangreco (2002).

Vignette: It is the beginning of a new semester, and Dr. Hathaway is excited to begin using a flipped learning model for student engagement in her introductory-level education course. Leading up to the first day of classes, she watches the enrollment climb. She wonders how active learning will be manageable given the large class size. In addition, she has begun to receive documents from the Disability Services Office regarding accommodations for students in her class. As she looks back over past semesters and the students she taught, she remembers that several of her students experienced difficulty staying engaged within the large classrooms. Some fell behind. Others admitted to having learning disabilities or attention deficit hyperactivity disorder (ADHD) and not wanting to use the Disabilities Services Office. As she plans the course, she decides that she is going to utilize new methods of interaction this semester. But where does she start, and how does she ensure that she will not lose students along the way?

Each year thousands of students enter college classrooms bringing with them great diversity in cultural and linguistic backgrounds, ages, prior knowledge, prior educational experiences, and learning differences. Accommodating all students' diverse needs can be difficult. At the same time, it is incumbent upon faculty to provide access for all learners in their classrooms, and, most particularly, those students protected by Section 504 of the Rehabilitation Act, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act of 2008. Some of the categories of disabilities that may be encountered in a university classroom include a specific learning disability, traumatic brain injury, physical/mobility-related disability, blindness or vision impairment, deafness or hard of hearing disability, psychological disability, medical impairment, and attention deficit hyperactivity disorder (ADHD). How might faculty ensure that they are meeting students' needs?

Certainly, the university's Office of Disability Services (ODS) will provide documentation for students for whom they have processed the appropriate paperwork. They will also provide faculty with assistance in meeting the needs of these students. Some of the typical classroom accommodations are flexible classroom attendance, permission to record classes, alternative testing, class notes provided by a notetaker, alternative texts, access to PowerPoint presentations, breaks, preferential seating, use of a laptop, frequency modulation (FM) system, video captioning, or American Sign Language (ASL) interpreters. There may also be accommodations specific to assessments. These include extended time, a testing environment with reduced distractions, screen readers, calculators, and computers.

The Hidden Disabilities

However, some disabilities might be considered hidden disabilities, a disability not apparent to the observer that most people would be unaware of it unless the student decided to disclose the presence and/or nature of the disability. Some of these hidden disabilities are learning or attentional disabilities. There are also a number of medical disabilities that may include Crohn's disease, epilepsy, and lupus, to name a few. Students with these disabilities might receive accommodations; however, there are many students who do not seek the support.

In their most recent executive summary, the National Center for Learning Disabilities (NCLD; Horowitz, Rawe, & Whittaker, 2017) explained that many students with learning and attention issues who enroll in four-year colleges are not getting the support they need. Only 24% of college students with learning and attention issues have gone through the process of receiving services from their college ODS. Seven percent, although they identify as having a learning disability, did not inform their college. Another 69% did not register with the ODS because they decided they no longer had disabilities, or they were afraid they would be perceived as less intelligent. The fact is that a learning disability is not something a person grows out of once he or she graduates from high school. The same can be said of attention issues such as ADHD and attention deficit disorder (ADD). People learn strategies for managing the disability, and so it may appear that they have "outgrown" it. At the same time, many students who graduate from high school do not advocate for themselves and utilize the services that they are entitled to receive.

Once a student does register with the ODS, the student may not want or need to utilize all of the accommodations included in the disability services agreement. Yet, it is critical to provide the accommodations as required. Students might determine that certain accommodations, such as note takers, are not needed given the format of instruction. This may be especially true within a fully flipped active learning (FFAL) class. Faculty must understand that it is the student's prerogative to determine what is or is not necessary, but the faculty member should stay in contact with the student about the accommodations and let the student determine the degree to which they utilize the necessary accommodations. It is in the best interest of students to have the accommodations in place even if they choose not to use them in case their conditions change and they realize the accommodations are needed.

Some students, whose disabilities are medical in nature, may experience unexpected exacerbations related to the condition. The accommodation letter may ask the professor to provide flexibility with the attendance policy while signaling to the student that it is their responsibility to make up the missed work. In an FFAL class, this could be difficult. Much of the learning is experiential and relies on collaboration during the class period. Some possible solutions for university professors could be found in the paradigm shift that many businesses have made with workers telecommuting from home or holding business meetings via such services as Skype, Zoom, GoToMeeting, and WebEx. Mobile robotic telepresence solutions have begun to provide connections from hospital rooms to classrooms. Perhaps university professors could allow a student with a medical diagnosis, who is occasionally unable to attend class, to attend class remotely thereby allowing the student to participate and learn from interactions with peers. In those cases, students can still work together on a document simultaneously by using Google Docs. Students can even present as part of a group by using a platform such as WebEx and having the presentation projected on a classroom screen.

Another disability that is not always evident is when a student is hard of hearing or deaf. The student may be able to hear with hearing aids that are not noticeable; however, this does not mean that the student can hear everything even with hearing aids. For a professor to say "I will use my teacher voice" and put aside the microphone is not acceptable. This is true for

students within the class as well. Each student would need to use a microphone so that the person with the hearing impairment receives the accommodation. If the student's paperwork requires a microphone or FM system, it must be used for all oral communication. It also helps to have the student seated close to the professor to be able to see facial expressions and read lips if possible. Also, subtitles are still required for any classroom videos. The very end of class might be particularly difficult for students with hearing disabilities. As a professor is making announcements and students begin to pack up, the background noise could make it impossible for a student with a hearing loss to differentiate the sounds and hear the professor. A professor can ask students to wait to pack up so that all can hear important announcements, announcements can be made at the beginning of class, and/or announcements can be made online.

Something to keep in mind is that students do not have to disclose their disability to their professors. The paperwork from ODS describes the accommodations in place but not the particular disability. The best way to begin working with a student who has paperwork from ODS is to arrange to meet. Open communication with the student is critical. The student can usually describe what they need in order to access the course fully. They will often have suggestions. By initiating open conversations with students early in the semester, professors can develop a plan for moving forward and a system for checking in when there are concerns by either party about course instruction, work, or assessments. It is also helpful to meet with a counselor from the ODS to seek assistance. The population of students who register with the ODS in any university is ever changing. Currently, the UNC Charlotte ODS reports that there has been a recent increase in the number of students with autism spectrum disorder (ASD) and other disabilities with associated behavioral challenges. Determining the best course of action to address the students' needs can sometimes be difficult, and ODS counselors may have helpful suggestions based on the specifics that they know about the case.

Proactive from the Start

One of the ways to be proactive is to begin problem-solving before the semester starts. Take some time to investigate the classroom itself. What are the strengths and weaknesses of the setting? How might you utilize what is there and provide enhancements to enrich learning experiences? What barriers might be integral to the setting, and how might you address these barriers before classes begin? It is sometimes a couple of weeks into the semester before faculty receive accommodation letters from the ODS, but surveying the room in advance may help mitigate any possible access issues.

The next step is to learn more about your students. "Getting to Know You" student surveys are a useful tool. An online survey provides a safe format for students to share important information about themselves as learners. By asking, "What would you like me to know about you?" students are able to share their learning difficulties and fears. These surveys can also help faculty discover which students speak other languages and those for whom English is not their first language. Faculty can use what they learn in these surveys about students' strengths and

interests to help promote engagement. This type of survey could also be useful in arranging working groups. If the classroom is designed in such a manner as to have flexible seating, the professor can be very intentional about who is in each group, even if those groups change over the course of the semester.

Paying close attention to the classroom setting, the students, and their unique needs are important factors in determining instruction. The course design, goals, assignments, and assessments may all be in place, but looking back to Dr. Hathaway, how might she approach the active learning classroom in a manner that removes barriers for all students?

Active Learning with Universal Design for Learning

Universal Design for Learning (UDL) was born out of the concepts from universal design in architecture. When the ADA was passed in 1990, it delivered the guarantee of greater accessibility for all people with disabilities. This required some strategic planning and new architectural design ideas. Many of the changes made to everyday living are common now. Cuts in curbs to allow for access, ramps, universal symbols, crosswalks with auditory indicators, wide doorways with low thresholds, and automated doors are a few new design features that address access issues. These architectural designs not only provide access to people with disabilities, but they also make tasks easier for us all.

In keeping with the architectural design features, there are many adaptations to instructional materials that remove barriers and provide access for all learners. By designing instruction that considers and addresses possible barriers, even students without disabilities benefit. For instance, to be in compliance with the ADA, all videos used at the university setting require closed-captioning for the hearing impaired. Most universities are able to provide resources that will provide captioning for all videos. At the same time, a transcript for any audio should be supplied. These features are useful and benefit many students, even those without disabilities.

There is assistive technology software and hardware available at universities to assist faculty in working with the technology required for students with disabilities. Most universities and their students have access to the JAWS screen reader for students with visual impairments or reading disabilities, screen magnifiers for students with visual impairments, and Read&Write Gold for students with reading and writing disabilities. These are just a few of the resources available to students and faculty.

In addition, faculty can make simple adjustments to create text that is easier to read. By using a font such as Verdana or Arial, a size that is appropriate for the medium, and text colors that are most easily read, all students benefit. With the click of a button, a PDF can be converted to an accessible tagged structure that will allow access to a screen reader on an electronic device. These adjustments can help many students. However, UDL applies to an even broader context for teaching and learning that aligns nicely with active learning and/or FFAL classrooms.

Just as the cut in a sidewalk provides a manageable path for a person in a wheelchair, it also eases the effort for someone wheeling a suitcase, backpack, or stroller. Likewise, UDL in the classroom removes barriers to curriculum access for all students and focuses on student learn-

ing in a proactive manner. The teacher is responsible for removing the possible barriers that could prevent all students from learning the material.

Although the accessible design features for instruction are important, the teaching and learning practices of UDL are most beneficial to practitioners in active learning and/or FFAL classrooms. Researchers at the Center for Applied Special Technology (CAST) developed the UDL research-based framework to meet the diverse needs of students in today's K–12 classrooms, and postsecondary education is no exception to having a diverse student body. See Figure 6.2 for the UDL guidelines.

> UDL is a framework for teaching and learning. It assumes from the beginning that learners are very different. The design part of universal design is designing a learning environment that is as diverse as the students are. There are many options for how to learn within it. So the idea of Universal Design for Learning is to create good learning environments that work across a wide spectrum of students.
>
> David Rose, The IRIS Center, (2009)

CAST has developed three guiding principles for teachers as they plan instruction with UDL: (a) to provide multiple means of engagement, (b) to provide multiple means of representation, and (c) to provide multiple means of action and expression (CAST, 2018). UDL emphasizes new technologies to provide more access, such as alternatives to textbooks that introduce barriers to students. But this is not only a framework about technology; it is a framework about teaching and learning and is based on the neuroscience of learning (Hall, Meyer, & Rose, 2012).

Figure 6.2 provides the UDL guidelines with principles explained. It is possible that each lesson developed does not include all three guiding principles; however, the overall intentional instructional design should include learning goals, instructional materials, instructional methods, and the assessment. These four elements are interconnected. The learning goal should always be kept in mind, and each of the elements that lead to the learning outcome should be examined for access for all. Table 6.1 demonstrates the traditional instructional model, the active learning classroom, possible barriers, and a UDL option.

Once students become accustomed to UDL and the multiple modes of representation, expression, and engagement, barriers are minimized or eliminated for all students. The course structure using UDL helps to eliminate any violations of student privacy with regard to a disability area. All students receive the choices, and many without disabilities find that they are better able to engage with the content in a meaningful way. Remember, if the goal is to remove possible barriers to student learning, the multiple modes will benefit students who have decided not to take advantage of disability services, students who are English learners, and students who have not been identified with a disability but may have one. Perhaps there are students in the class who struggle for any number of reasons. They may be first generation college students. They may be gifted and would prefer to add some extensions to the learning. Utilizing UDL principles allows the professor to meet a variety of student needs.

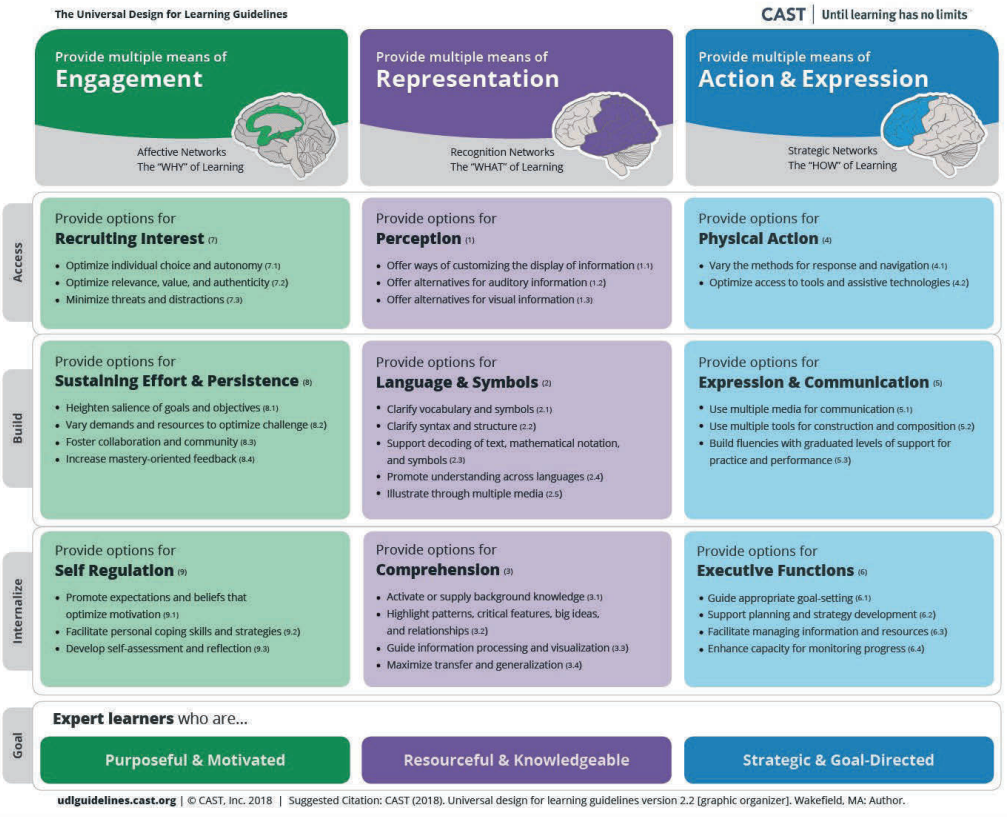

Figure 6.2. Universal Design for Learning Guidelines, version 2.2 (CAST, 2018).

This does not happen by magic, however. And the goal is not merely to provide students with choices. The intent is to produce high performance with curriculum that is not only accessible but also engaging. There should be sustained engagement in learning tasks by increasing the complexity (Edyburn, 2010). Again, by focusing on the course objectives, the professor is able to determine critical concepts and means of providing enduring understanding for students.

Take a look at some of the following vignettes and think about what you would do if you were presented with these scenarios in your classes. Remember, think outside the box. It is your class, and you can develop creative solutions that provide a more engaging environment for all students, not just those with access issues. The key is to be proactive, reflective, open, and willing to change.

Absences Due to Disabilities

Emma has a chronic illness that sometimes causes her to miss class, usually without much warning. In her biology class, students are working in groups to interpret figures in a paper from the primary

Table 6.1 *Planning for UDL Strategies*

Instructional strategy in traditional lecture class	Instructional strategy in active learning class	Possible barriers	UDL option
Students read text	Students read text	Students may have: • reading difficulties • vision issues • reading comprehension difficulties	Provide: • multiple forms of text such as digital format • speech-to-text option • book on tape
Professor lectures	Students engage in group work	Students may have: • attention issues • receptive processing disorder • hearing issues • social anxiety	Provide: • multiple modes for working • allowance for students to work remotely • utilization of a microphone or PA system • low interaction roles
Professor demonstrates and begins a class discussion	Professor demonstrates and begins a class discussion	Students may have: • social anxiety • frequent absences • difficulty hearing demonstration	Provide: • alternative methods to respond, such as active response cards • allowance for remote access • polling program that is anonymous (such as Poll Everywhere or Kahoot!) • augmented sound
Students write essays	Students write quick responses	Students may have: • fine motor issues • poor typing ability • poor handwriting • processing issues • organizational planning issues	Provide: • speech-to-text option • drawing • movie • PPT • diorama/poster

Note. PA = public address; PPT = PowerPoint; UDL = Universal Design for Learning.

scientific literature. They spend one class period studying their figure and putting together a short presentation. The next class period they will be presenting their figure to the class. The presentations are short, informal, and ungraded. The primary purpose is to help prepare them for the more formal presentations later in the semester. Emma is unable to attend class on the first day when the groups are formed and they prepare their presentations. She emails the instructor a few days later stating that she missed class because of her disability. What is an appropriate accommodation? The presentation is ungraded, so she will not be penalized if she just sits in the audience and does not present, but she has missed out on the opportunity to practice interpreting figures, the hands-on learning experience, and presenting. All of the figures in the paper have already been assigned, so she cannot simply be assigned another figure to present on her own. This particular class does not have regular groups. If it did, she could check in with her regular group members and still participate in the presentation on the second day. Are there other ways to manage this scenario?

Certainly, students with disabilities are not the only students who miss classes. On any given day, there may be absences from a class, and having procedures in place for accessing class work when absent would benefit everyone. Most colleges utilize a learning management system (LMS) platform such as Canvas or Blackboard. Perhaps the professor could have selected two to three extra figures to add to the LMS for additional practice for students that could be used by anyone missing class. If there are systems in place that allow students to refer to the LMS when they have missed a class, then everyone benefits. The professor can post class PowerPoints, quizzes, and assignments to the LMS along with options for participation. If the class had a buddy system in place, any student missing class could learn from their buddy. If a student needs to miss multiple days, it is now possible to attend class remotely using any number of virtual meeting systems. Using Google Drive, a student could participate in class simultaneously with peers in real time. There is also no need to miss a presentation. An absent student can easily be available on any one of the many video conference calling systems that most universities have subscriptions to and present on the monitor or screen while the rest of the team is in the classroom.

In cases where the student has missed so many classes that it seems impossible to catch up, a conversation with the student and the ODS counselor will begin a process to develop solutions. Sometimes the student has to take an incomplete or take the class again. These things can be negotiated with the team in place. Communication is always key in situations such as this.

Privacy Issues

In a computing class, Jack and Radhu are expected to work together each week to do in-class pair programming exercises. These are learning exercises that help the students practice some of the new programming concepts being introduced. Pair programming is a specific paradigm in which the students take turns in two roles: driver and navigator. The driver is the person who has the key-

board and who actually types in the code; the navigator has the lab instructions and is in charge of figuring out what to do step-by-step. In an ideal world, the two students discuss and agree on each step before it is typed in. A typical lab may have two to four different parts, and the students are supposed to switch roles for each part.

Jack has dyslexia and is registered with disability services. He has accommodations on his computer for reading the online textbook. The lab instructions are typically handed out on paper so that the students only have one laptop open. This ensures that the navigator has to play an active role. Jack expresses to the instructor that he really prefers to just stay in the driver role at the keyboard and have his partner be the navigator. However, he does not want his partner to know about his disability. This poses a real dilemma for the instructor. First, should the instructor agree to this request for Jack to always be driver and Radhu to always be navigator? That disadvantages Radhu, and takes away an educational opportunity for him, since he also needs practice being at the keyboard. An alternative might be to give Jack the instructions ahead of time so that he can look them over before class, and/or to let him view them online, where he might be able to use accommodation software that helps with the dyslexia. Regardless of the course of action, it is unclear how to provide any accommodation in such a situation without Radhu becoming aware that an accommodation is being provided to Jack.

Once again, there are many students without disabilities who may also have difficulty following the instructions when presented on paper. If all students were able to view the instructions online in advance then Jack would not stand out as having a disability. All students would have the option of reviewing instructions in advance. Alternatively, utilizing a read-aloud program could help many in the class. This is a feature that is available on any document, and a student could easily use a cell phone or tablet with headphones and have it be seen as socially acceptable. Confidentiality about the ODS accommodations is essential, yet when all students know that there are multiple means of accessing the material, it does not stand out as being related to a disability. It just seems to be a natural course of action.

With regard to the student's request to only be in the driver role, that is certainly an example of a request that can be denied. These two roles require the students to develop specific skills. Many students prefer to work alone and may even request working alone. In each case, the professor must determine whether working cooperatively is key to the instructional design and/or a critical skill within the particular field. For instance, preservice teachers must learn to work cooperatively in order to be effective in a school setting. This is also a 21st-century skill that is important for people within the workforce. University settings can provide excellent opportunities to develop these skills.

Noise Levels

Aditya teaches a large active learning class in a large active learning classroom. She uses a team-based learning approach, online polling/quiz platforms, and a variety of other active learning activities. She regularly has students get up and move around the room. The teams are assigned at the beginning of the semester and have lots of opportunities for collaborative, peer learning. All

in all, this creates a climate that Aditya is very proud of—the classroom is lively, and the students are highly engaged throughout the class. She gets rave reviews from her students saying that the class is fun and that it is a great learning environment. Unfortunately, at the end of last semester, Aditya received feedback in an anonymous survey from a student who said he wished he had not taken her class because he has ADHD and auditory processing issues. He said that he consistently found it really hard to focus and concentrate because of the high levels of noise that are part of the classroom environment. Now Aditya feels awful that this student had such a bad experience. At the same time, she is frustrated that he did not come to her earlier in the semester when she might have been able to do something about it. Even so, she is not sure what she would have done about it if she had known.

Not all students are going to enjoy being in an active learning classroom. For some it takes some reflection after the fact to realize how much the format promoted deeper learning. Instructors can also take some steps to make their class activities more accessible and less stressful for all students. For example, online polling questions can be ungraded or based on participation, rather than accuracy, and students should be given adequate time to answer them (Cooper, Downing, & Brownell, 2018). Activities can be posted online in advance so that students have time to prepare before class. Nevertheless, there will always be students for whom this is not the best choice of class format. To avoid a mismatch in learning styles, universities could flag courses that are active learning classes or that use an FFAL approach. If that is not possible, it is important to explain how the active learning or FFAL class will function and provide examples of activities and expectations at the beginning of the course. That provides students with the opportunity to transfer to a different class. Midsemester surveys can be useful for determining how students feel they are managing in the setting. This is a good time to meet with students for whom the setting is not working and try to develop a plan to improve the situation. Even so, students may not realize that this style does not fit their needs until it is too late. Students need to make these decisions for themselves and be responsible for their learning. It is never appropriate to tell a student with a disability that the class would not be appropriate for them. That would be a violation of the ADA.

Social Interaction Issues

Students in an electronics lab have to work together in class each week to complete active learning lab activities that count toward the students' final grades. One of the students in the class, Aaron, exhibits a lot of social awkwardness, but he has not registered with disability services. He approaches Professor Atkins and asks if he can work alone instead of with a partner. He is very insistent that he can only work alone. Professor Atkins feels really strongly that the students need to talk with one another as they do the work so that they can practice communication in the discipline and so that they can hear other perspectives on the activity. Plus, each lab is a lot of work and would be hard for a student to complete on his/ or her own. He really does not want to let Aaron work alone, but he does see that Aaron really struggles with social interaction. He guesses that Aaron is probably somewhere on the autism spectrum. He eventually decides to let Aaron work

alone, but he asks him to work next to another pair and instructs him to ask the pair of students next to him questions if he runs into any issues. Professor Atkins is also concerned that this sets a bad precedent and that other students are going to also ask to work alone.

There are many students who exhibit social phobias. Whether or not a student has registered with disability services, a professor could look at this as an opportunity to employ UDL. What are the barriers to students in the class? How can the professor offer multiple modes of expression in the course? If it is critical to develop an ease of expression using content-specific language, perhaps a PowerPoint with voice-over or an audio presentation could be used as a means of presenting the lab results. This is also an opportunity to speak to the student about possible scaffolding that could be used as a means of building the student's ability to interact with peers. This would be a case where the professor would have to determine what the course objectives are and whether the student was unable to access course objectives because of this inability to work with others. Also, the professor could determine how much additional scaffolding and training would be required for the student to develop an ease of working with others. There is a lot to be considered, and each situation may be very different. The likelihood of everyone wanting to work alone is small; sometimes one has to be willing to just take a chance. As mentioned in the previous vignette with Jack, each case is individual, and all factors must be considered.

The vignettes and suggestions in this chapter are suggestive only. If nothing else, perhaps they have provided the reader with a new lens for addressing access in a university-level course. Each situation that presents itself will be unique. The best way to approach access is to be open-minded and creative, and to ask for help when faced with a challenge. The ODS in any university is designed to serve as a resource for faculty as much as it is meant to provide services for students. Most offer training, tutorials, and consultation for faculty. This is especially helpful when it comes to learning about assistive technology, various accommodations, and methods for making documents accessible.

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