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May 9, 2021

ENGL 5384

Accessibility in Learning Spaces

The year 2020 taught a lot of us that we were unprepared for a shift in our collective "normal," from our daily routines of leaving the house to sending our children to school. Remote schooling became necessary, regardless of students' individual needs. For many learners, this meant they would have to stay home and access their teachers and courses online. For others, needing to quarantine at home meant there was a strain on personal resources, such as the need for childcare, as well as the time it would take to assist their children with their online learning. Many worked from home while supplementing online instruction, particularly for smaller children that could not work a computer themselves. The landscape of "Learning Spaces" needed to be adapted and was reshaped and redefined for everyone. As this was the situation many families found themselves in, modifications needed to be made to multiple spaces to make them accessible as spaces in which learning could take place. In this paper, we will take a look at learning spaces, accessibility within these spaces, improvements to accessibility within these spaces that can be made, and how Universal Design for Learning can be implemented to aid in these improvements.

What is Considered a "Learning Space"?

For the purposes of this paper, a learning space will be defined as any space in which learning takes place. This could include a more traditional learning space such as a classroom, or a student's desk in their living room. This can also include nontraditional spaces such as the cars parked outside of their schools, public libraries, in parking lots, or at Wi-Fi buses so that the

students, and sometimes their teachers, had access to Wi-Fi in areas where Wi-Fi was unavailable or in instances in which students' families or teachers were unable to afford wireless internet.

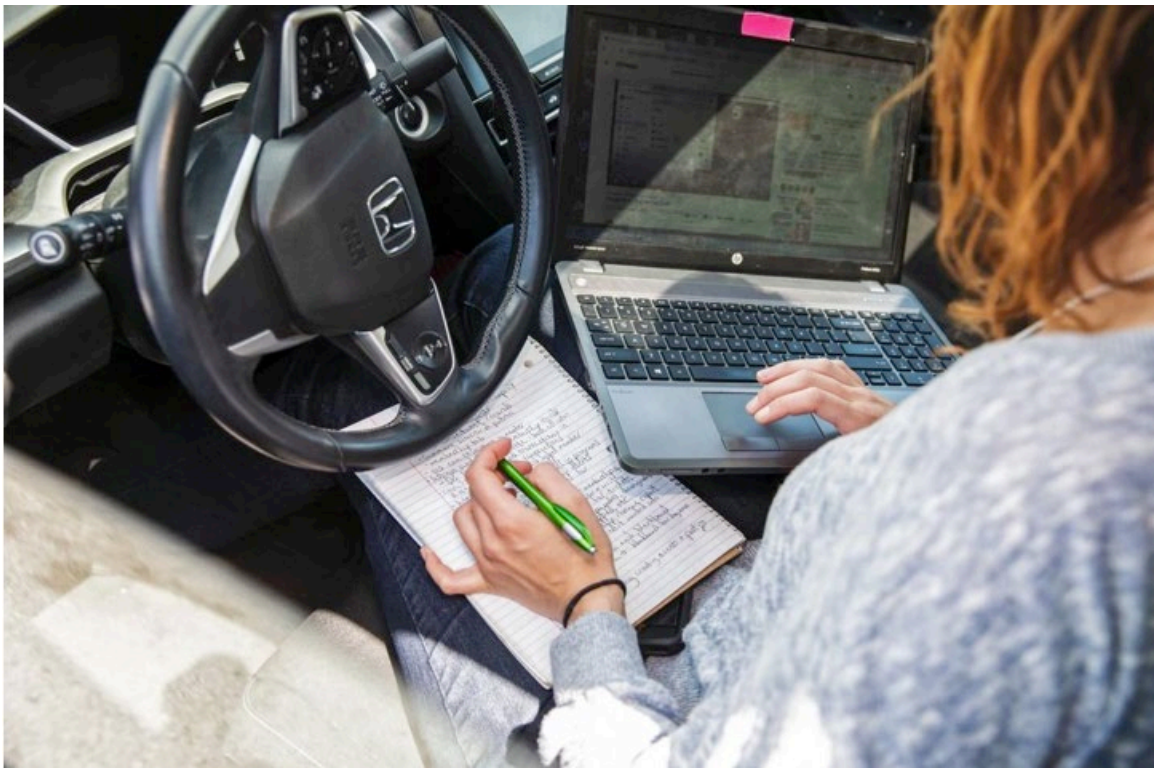

Figure 1.: Cars can also be considered learning spaces. Gina Leonardo worked online while parked at Do Space, a community center in Omaha. Photo credit: Calla Kessler/The New York Times.

School Campuses

The most traditional learning space, a classroom on a school campus, is usually the first space people think of when discussing learning spaces. Classrooms are adaptable to be arranged however an instructor feels it would be most conducive to assisting students' learning. School campuses have additional places available in which students can learn, such as study rooms, cafeteria, gymnasiums, science and computer labs, and outdoor areas. Some schools even have classrooms dedicated to learning specific vocations, such as automotive class, or cooking courses.

In the Home

Another traditional learning space, most people have varying amounts of space dedicated as learning spaces in their homes. This learning space can be a desk in a child's room or a den, maybe even an entire office. In some households, the only space available for a learning space is a temporary setup at the dining room table. Sometimes families do not have room for a designated space, and the student has to use their laptop computer or tablet in their bed, or on their couch.

Online Learning

In this paper, the terms "online learning" and "online learning spaces" will refer to online learning programs used by primary, secondary, and higher educational settings. The online learning space is constantly evolving. As educational professionals learn more about what makes online learning effective, this space consistently looks different, mostly depending on the mode of online instruction. Improvements are made to online learning programs all the time. The learning spaces of online learning program platforms such as Blackboard and Schoology became absolutely critical to all learners upon schools needing to close down due to the Covid-19 pandemic.

Internet

The internet in itself is not only a catalyst for online instruction, but it is in itself a learning space. Aside from online instruction, there are many avenues of learning on the internet, including but not limited to online libraries, educational websites, and tutorial videos.

What is currently in place to assist with accessibility in learning spaces?

In order to assess what improvements must be made to accessibility in learning spaces, we must first assess what measures are currently in place. This section will take a look at some of the accommodations currently being used in the aforementioned learning spaces.

As a result of the Americans with Disabilities Act of 1990 (ADA), schools must provide accommodations to people with disabilities to allow for accessibility on multiple levels: from the physical buildings and structures to the accommodations allowing for people who learn differently to also access public school learning, either in-person or online. According to Understood.org, measures put in place to aid the learning of people with disabilities can be sectioned into accommodations, being how the student is taught the material, and modifications, which modify what a student is taught or expected to learn ("The Differences Between…"). On their page "Common Accommodations and Modifications in School," Understood.org lists various common accommodations offered to students with learning disabilities, such as:

- Presentation accommodations, which change the way the information is presented to the student, which include:
    - Listening to audio recordings instead of text, as well as utilizing audiobooks, movies/videos and digital media instead of reading print versions of the material;
    - Working with less information on a page, and possibly using larger print.
- Response accommodations, which change the way students complete assignments or tests
    - Respond in an alternate format, such as spoken or written responses;
    - Take notes by computer using a word processor.
- Setting accommodations
    - Work or test in a different setting, like a quiet room;
    - Sit where they would learn better (for example, near the teacher, or the whiteboard).
- Timing accommodations
    - Providing more time to take an exam.

Common modifications include:

- Assignment modifications
    - Complete different homework problems / test questions than peers;
    - Create alternate projects or assignments.
- Curriculum modifications
    - Modify the standard of which the student is being graded by or assessed;
    - Be excused from particular projects. (“Common Accommodations…”)

Any of these accommodations and modifications would provide an enormous amount of support to a student with a disability. This type of support would go very far in helping the student to feel the teacher is an ally there to help them do their best and not contribute towards an adversarial relationship between the student and teacher. The accommodations and modifications above would be effective in both in-person learning and with online students as well. These would also help regardless if the student has a visible or an invisible disability. Additional in-person learning / on-campus accommodations include calming rooms, quiet rooms, accessible building entrances and ramps, signage directing people to those accessible entrances, and accessible restrooms.

Online learning / at home students also have accessibility needs that need to be addressed. Visually impaired students use a number of items to assist them in online learning, such as web readers, screen magnification, accessible websites. The captioning of online course lectures (also known as Captioned Online Courses, or COC) has been seen to help not only deaf/hard of hearing students, but students in general.

> More importantly, COC is an essential accessibility service for students who have slight or mild hearing loss and who are non-signers. Despite the fact, Disability

> Services at the CPU registered only 10 DHH students, the survey collection identified 138 students who reported slight or mild hearing loss. That is, DHH students who have slight or mild hearing loss may not register Disability Services at universities. (Yabe 44)

Widely used software such as PowerPoint and Zoom are making captions available on their platforms, most of the time without extra cost to the user.

Special Needs Learners

Many special needs students need accessibility devices to be able to function on a daily basis. Some students have physical disabilities that prevent them from speaking and they need Voice Output Communication Aids (VOCAs) or Speech Generating Devices (SGDs) to communicate. Many blind students need instruction in Braille to be able to learn. The Individuals with Disabilities Education Act (IDEA) focuses on the access of education of disabled persons of all ages. IDEA included legislation regarding Braille and other assistive technology (AT): "In 1997, language was added to [IDEA], stipulating that braille be taught to students with visual impairments… [reinforcing] that braille is the foremost medium for literacy for blind students." (D'Andrea 114-115). Additional AT special needs learners use includes but is not limited to text to speech engines and screen magnification and modification of contrast settings.

Accessibility Obstacles

In person classroom and campus facilities that are not designed with disabled persons in mind: classes that are across campus from one another,

The Government Accountability Office (the "GAO") produced a report in June 2020 that published a study on 55 schools in the country and how they measured up against the 2010 ADA Standards for Accessible Design (the "2010 Standards") with a focus on structural and physical barriers. (GAO 7). Only 11 schools of the 55 met the Standards criteria. The 2010 Standards "set

minimum requirements – both scoping and technical – for newly designed and constructed or altered State and local government facilities, public accommodations, and commercial facilities to be readily accessible to and usable by individuals with disabilities." (ADA Fact Sheet iv). These standards are put in place to help provide guidance on what measures need to be put in place. As it is about to be 11 years since the Standards have been created, perhaps it is time for them to be revisited to ensure they remain current and address any new issues that have presented themselves over the past 11 years.

How Can Current Accessibility in Learning Spaces Be Improved?

Something that could help improve current accessibility in learning spaces could be to use a participatory process in the creation of school design. In the creation of a school for the blind, blind students were included in the design of the school using tactile maps to help in conducting interviews and 3D questionnaires using tactile models to get student feedback (as shown in Figure 2).

> The first tactile model was designed to measure acoustic comfort levels. Blind students were asked about noise levels in their classrooms and indicated their answers through the specific tactile model, which emits sounds in three different noise levels as a Likert scale. The sounds were classroom noises recorded in the school itself, so the test survey would represent the reality of the student's daily experiences. (p. 11)

Figure 2. Tactile sound model designed for questionnaires in environmental comfort surveys with blind children.

User testing is widely used in technical communication. It makes so much sense to have the people using the facility everyday to have a say in how the building is designed. The daily users of that building will have the clearest ideas as to how it could be designed for them to get optimal use of the building.

Making the aforementioned accommodations and modifications available to all students could go far towards improving accessibility. Making captions standard on all video lectures could also benefit everyone by making those videos accessible to everyone, regardless of disability status.

Universal Design for Learning

Universal Design for Learning is amazing because it allows for educators to make lessons personable to students, therefore making the students more engaged in the assignment so that they put forth more effort and actually enjoy working on the assignments.

There are eight principles of Universal Instructional Design (UID):

- Creating welcoming classrooms;
- Determining essential components of a course;
- Communicating clear expectations
- Providing timely and constructive feedback;
- Exploring use of natural supports for learning, including technology;
- Designing teaching methods that consider diverse learning styles, abilities, ways of knowing, and previous experience and background knowledge;
- Promoting interaction among and between faculty and students (Goff & Higbee, 2008). (Rao "Universal Instructional Design…")

If educators and curriculum designers could find more ways to incorporate these principles into instruction, then that would help learning becoming more about making education accessible to not just a few but to everyone.

Conclusion

Learning, whether it is in-person or online, still has a long way to go with regards to making progress in becoming accessible for everyone. Learning spaces have the ability to become more accessible if only people would consistently work towards making it a reality, not only for people with disabilities, but also for people that do not identify as disabled, as so many people feel that because their level of disability is "slight" that they do not qualify for the same help as someone with a visible disability qualifies for, which is not the case. Universal Design could be the key to making learning accessible across the board, and hopefully educators will continue to make advances in the field to make more learning spaces more easily accessible.

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