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Universal Design Creates Equity and Inclusion: Moving from Theory to Practice

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Universal Design Creates Equity and Inclusion: Moving from Theory to Practice

Abstract

Universal design focuses on small changes that can be made to benefit everyone. Universal design principles can be applied to both physical and virtual environments and help provide universal access to technology and information. This paper provides a case study of the design of a library computer kiosk in an academic library, using principles of universal design to create a universally accessible workstation. The paper provides an overview of features included in the workstation, images of the workstation, and includes discussion of additional considerations and lessons learned from the design experience.

Keywords

universal design, universal access, accessibility, library computer workstation

Cover Page Footnote

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Universal Design Creates Equity and Inclusion: Moving from Theory to Practice

The first tenet of the American Library Association's (ALA) Code of Ethics (2008) asserts that librarians must "provide the highest level of service to all library users through appropriately and usefully organized resources; equitable service policies; equitable access, and accurate, unbiased, and courteous responses to all requests" (n.p.). Within this standard of access and service, librarians consider and provide for the numerous diversities, identities, challenges, and abilities that comprise today's communities. In the United States, an estimated 26 percent of adults have some type of disability (Center for Disease Control and Prevention, 2018), making this subgroup the largest minority group in the country. As librarians strive to design and create libraries and library services that are as "flexible, accommodating, and diverse as our communities" (Cooke, 2017, p. 1), *universal design*, or "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (Center for Universal Design, 2019, "About UD"), provides libraries with foundational guidelines for how to best provide inclusive and equitable infrastructures and technologies to meet the needs of community members with disabilities and other diversities. This paper provides a case study of the design of a library computer kiosk in an academic library, using principles of universal design to create a universally accessible workstation.

Accessibility, Usability, and Universal Design:

Exceeding the Minimum and Setting New Standards for Inclusion

The legal definition of *accessible* is that "a person with a disability is afforded the opportunity to acquire the same information, engage in the same interactions, and enjoy the same services as a person without a disability in an equally effective and equally integrated manner, with substantially equivalent ease of use. The person with a disability must be able to obtain the information as fully, equally, and independently as a person without a disability" (Burgstahler, 2017, n.p.). . When a workspace or

technology meets the letter of the law in terms of compliance with standards set forth in the Americans with Disabilities Act or other legislation or guidelines, this does not necessarily mean that the item is usable by everyone or meets all needs. While much of the diversity research in our field focuses on library access to adults with sensory disabilities (Hill, 2013), disability can include blindness/visual impairment, including: corrected vision; deafness/hearing impairment/hearing loss; head/brain injury; mental illness; mobility or orthopedic impairment or arthritis; speech or communication impairment; neurological impairment; cognitive impairment; learning disability/learning difference; Post Traumatic Stress ; and other cognitive and physical variations. Other important considerations include the presence of one or more of these characteristics on a temporary basis, and many can present at various times across the lifespan. In addition, some of these characteristics are visible, while others are invisible. When, where, why, and how labels are assigned and accepted or rejected is subjective. For example, does everyone who wears glasses or contact lenses automatically also have the label of having a disability? No. Why? Because needs have been appropriately accommodated, and characteristics have been accepted within social norms. Through inclusion, we have the power to deconstruct barriers, ability-related or otherwise. Accessibility is for everyone.

Universal design is a concept that originated in the field of architecture. Very simply stated, universal design may be defined as making small changes that benefit everyone. More broadly defined by the Center for Universal Design at North Carolina State University, universal design is “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design.” (Center for Universal Design, 2019, “About UD”). Universal design ensures that individuals representing any culture, age, size, weight, race, gender, or ability can experience an environment that promotes current and future health, safety, and well-being. Ultimately, universal design offers social benefits through safety and security for all, economic benefits in being cost efficient, and environmental benefits in being resource efficient. Examples of universal design from the

physical or built environment include (among others): curb cuts; level points of entrance and egress; automatic/push button access for exterior and interior doors (this is an important consideration for restroom doors and staff workspaces as well); and levered handles to replace traditional door knobs, as levered handles are both more easily grasped than knobs, and provide alternative means of opening a door with limited motor skills that prevent grasping.

More broadly, universal access and design may be applied to any environment - physical or virtual. Perhaps put most succinctly, universal access and design could be defined as ensuring service is available to “Everyone. Everywhere. Every time.” And indeed, universal access and design are about just that. So, too, are libraries. Regardless of their location, size, or form, libraries are synonymous with opportunity. Libraries have the power to break barriers and create opportunities for everyone who uses them. One way to break barriers and create opportunities is through planning for and adopting accessible technologies.

Experiential Learning Through Service Learning: A Case Study

The University of South Carolina’s School of Library and Information Science is committed to equipping its graduates with the knowledge, resources, tools, and skills necessary to serve their libraries and information organizations and their communities. Experiential and service learning are integral to the curriculum and are embedded throughout numerous course assignments and assessments. As part of a library technology class with Dr. Clayton Copeland, students engaged in a semester long Universal Access Equipment Selection project. Combining theory with service learning, the Introduction to Information Technologies course introduced students to the concepts of accessibility and universal access and design, as well as basic technology concepts (i.e., operating systems, hardware, software, and assistive technologies). The students then partnered with library and information science organizations to conduct a technology needs assessment. Based on those assessments, as well as

content from course lectures, the literature, and examples of equity of access and universal design, students were then tasked with designing and writing a proposal for one or more universally designed and universally accessible computer workstations for their partnering library or other information organization. The assignment included the following parameters:

1. Conduct a needs assessment;
2. Based on tenets of universal access and design, propose a computer workstation that addresses the needs assessment. The workstation must exceed minimum guidelines and standards for accessible workstations for patrons with disabilities and should incorporate features that will be useful and helpful to *all* users. Note: It is acknowledged that many assistive technologies and devices may have originated to provide accommodations for users with disabilities. However, in the application of universal access and design, students are encouraged to consider other populations for whom the various assistive features will make an important impact. For example, we may officially label closed captioning capabilities as a feature for those who are deaf or are hard of hearing. Closed captioning, however, can also create accessibility and ease of access for the following populations, among others: second language learners; varied learning styles or learning preferences (i.e., people who learn best when both hearing information and reading it); cognitive or processing differences; and populations with emerging or developing literacy skills;
3. Provide a budget and budget justification (costs for licensing and ongoing maintenance and upgrades must also be incorporated);
4. Provide a full listing, with links to supporting documentation and professional reviews, for all components;

5. Provide the proposed configuration (with supporting documentation and justification) for the configuration of the workstation. Address factors such as flexibility, durability, maintenance.

Moving Beyond the Classroom: From Theory to Practice

Having had a prior career in building construction, co-author Brady Cross was no stranger to the concepts of universal design in the built environment. As a then-masters student in the University of South Carolina's School of Library and Information Science, Cross was intrigued by Copeland's Introduction to Information Technologies course and the Universal Access Equipment Selection assignment. At the time, he was also an Access Services Specialist in the Kimbel Library at Coastal Carolina University, and took the opportunity to use the Kimbel Library as a case study for his Universal Access Equipment Selection proposal.

Upon completing the proposal, Cross shared it with his supervisor who, in turn, shared the proposal with the library administration, and the equipment and accompanying purchases for furnishings (a height-adjustable desk and ergonomic chair) purchases were approved. The resulting computer workstation achieved the goal of providing equity for those who are otherwise marginalized by existing inadequate technology, but also provides access for any library user who might benefit from the universal design. Once all components of the workstation were purchased, next steps included: determining a name for the workstation for reference in all signage, marketing and promotional materials, and other communications, as well as marketing and promotion of the accessible workstation itself. Because universal design for improved user access was the guiding principle for this computer kiosk, it was named the Universal Access Workstation (UAW). The UAW ensures there is an equitable environment by which those with varying levels of ability can access digital and virtual information (i.e., library databases and the Internet) because of the assistive and adaptive technology associated with the

machine. Those who were previously unable to access library materials for class were able to participate in the learning process as a result of the UAW.

UAW Overview

While it is important to note that any universally accessible computer workstation will vary in some ways due to necessary customization for the library type, community, and even compatibility with a library's existing technologies, Kimbel Library's UAW features furniture such as a push-button adjustable height desk, which increases both comfort and accessibility for patrons of all heights, and patrons with varying physical needs. Other ergonomic components are a fully adjustable high-backed office chair with headrest, a footrest, and a wrist rest. The all-in-one large screen monitor/computer combination is designed to accommodate many peripheral assistive and adaptive technology devices. Some of the assistive and adaptive components of the UAW are an adaptive trackball mouse, hands-free input device, a switch that can be operated by different means (interfaces with the trackball mouse and can become the left and right click buttons), high-visibility keyboard and mouse, noise-cancelling microphone, and a document camera, which also allows for magnification of materials. The UAW also features the following software: screen reading/writing, voice capture (speech-to-text), document magnifiers, optical character recognition (OCR) conversion, and other accessibility features enabled in the operating system.

Features of Universal Access Workstation

Software	Hardware and Furniture
<ul style="list-style-type: none"> ● Screen readers ● Voice capture ● Document reader (converts text to OCR) ● Document magnifiers ● Adaptive internet browser extensions ● Hands-free input device software ● Accessibility functions enabled in operating system ● (A purchase request for JAWS along with a better document camera is in process) 	<ul style="list-style-type: none"> ● Large screen monitor ● Document camera ● Noise-cancelling microphone and headphones ● High-visibility keyboard and mouse ● Hands-free input system (pointing device replaces mouse) ● Adaptive trackball mouse ● Switch ● Ergonomic chair ● Footrest ● Wrist wrest ● Push-button adjustable height work table



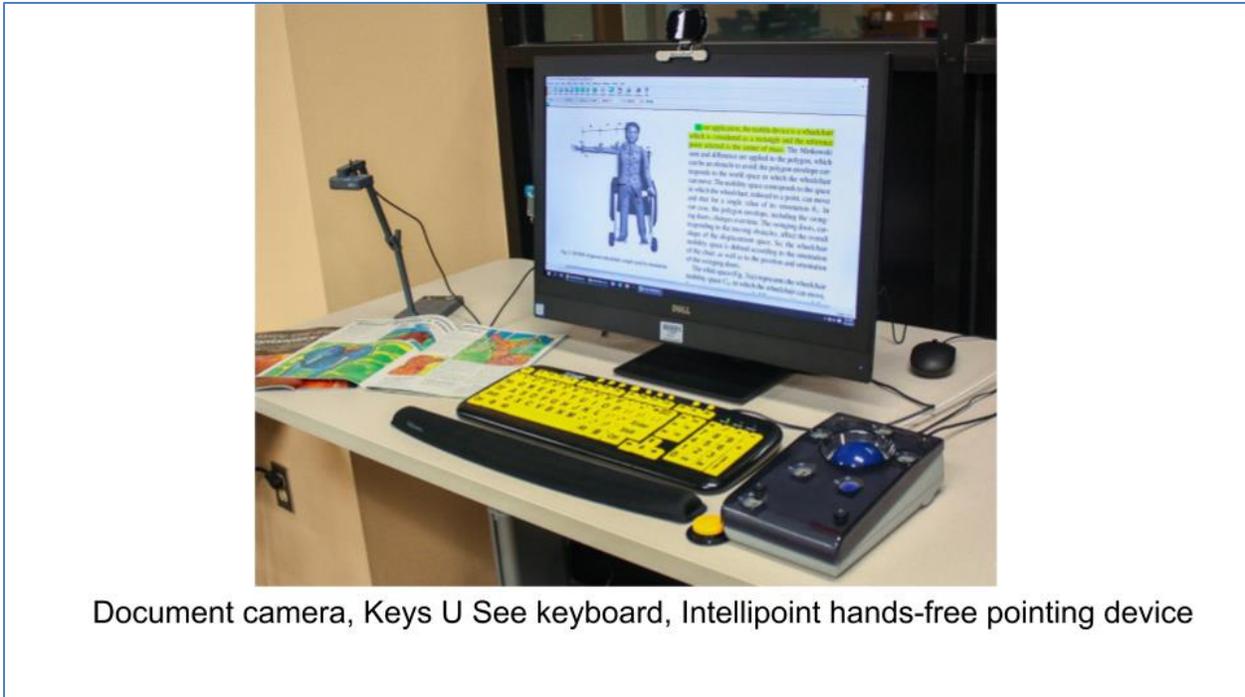
The UAW can be lowered or raised for sitting or standing



The adjustable height table is push-button operated



Note the ergonomic footrest and wrist rest which is to be used with the ergonomic chair (not pictured)



Additional Considerations

With planning and implementation of the UAW came additional considerations, including the following:

1. Alignment with the library's mission, vision, goals, objectives, and strategic plan, policies and procedures, and budget;
2. Creation of new policies and procedures (e.g., if this station is the only accessible station in the library, how will access be ensured for more than one disabled patron using the library at the same time? will there be a time limit for use if others are waiting?);
3. Creation of new policies and procedures (reservations, time limits if the multiple users need the equipment, how to handle prioritizing access for users with disabilities);
4. Signage and labeling;
5. Safety and security;
6. Marketing and promotion.

Reflections and Lessons Learned

The implementation of the UAW was straightforward, but hindsight offers perspective that might be of use as others are creating universal design workstations in their own libraries. For example, some of the smaller items that make up the UAW could easily be mixed in with personal belongings (such as the noise-cancelling microphone), therefore making the smaller items available for checkout at the circulation desk can help ensure they remain available for all users. Cross also observed the need for a marketing plan for the UAW. The library ultimately created a brochure to be shared across the campus community (and beyond). Notifying the university's Accessibility and Disability Services department and ensuring that the UAW was recognized and promoted by that department was also important. The Accessibility and Disability Services department incorporated images of the UAW into a tour showcasing their services to new employees, including faculty, and students.

Planning where the UAW would be located within the library space and where it might be utilized most effectively was another key consideration. The goal of implementing the UAW is to de-marginalize persons who need the accommodations the station offers. Therefore, ensuring the UAW was in a mainstream area, not tucked into a back corner, was important. Making the UAW blend in with the other workstations around it was another way to accomplish this.

Conclusions

Accessibility is everyone's responsibility. True accessibility - universal access and design - is about everyone, everywhere, every time. We can promote accessibility and Universal Design through practice by ensuring our facilities include the appropriate assistive and adaptive equipment. Universal design will require buy-in from all levels of the community's leadership, as it involves budget, policy, and planning. Our key role as librarians is to ensure we are providing leadership for the community by incorporating Universal design into all aspects of our institutions such as facility design, collection management, technology, and instruction.

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