

CONTENT EXPERTISE

Applying Universal Design for Workplace Inclusion of the Blind & Visually Impaired Employee

Tara Parker¹, Amy Peterson¹¹ Department of Educational Studies in Psychology, Research, Methodology and Counseling, University of Alabama

Keywords: blind, visually impaired, employment, barriers, universal design, vocational rehabilitation, inclusive design, reasonable accommodation, attitudes, discrimination

<https://doi.org/10.70385/001c.132433>

The Rehabilitation Professional

Vol. 33, Issue 1, 2025

Historically, in education, at work, and in public settings, blind and visually impaired individuals have encountered discrimination and social exclusion, which can curtail their potential and accomplishments. Such ultimately also results in not only a lower employment rate, but also a lack of potential workplace advancement (Ulldemolins, et al., 2012), when compared against the general population. As we are all aware, workplace barriers of both an obvious nature, as well as subtle ones, lead to related individuals becoming unfortunately and needlessly stagnant or delayed in career interest, enthusiasm, and ultimately, progress. In order to advance a greater overall inclusion of this marginalized group, the authors here desire to create awareness and mitigating strategies for greater workplace parity for those blind and/or with visual impairments. In turn, overall societal access and acceptance may also benefit as well.

For this paper, the authors explore the research of barriers encountered by blind and visually impaired Americans, as well as examine the associated and institutionalized challenges and pitfalls linked to the lack of universal design in architectural or physical environments, and safety protocols, as noticeably found in the workplace. Meanwhile, the research also revealed failures linked to the lack of universal design, thus preventing technological accessibility across communication landscapes. By analyzing existing literature, real world experiences and expert consultation, the aim is to elucidate the environmental and communication impediments of blind and visually impaired employees and propose actionable strategies for resolution utilizing universal design principles. Ultimately, the paper underscores the importance of diminishing barriers and fostering a culture of inclusion, equity, and accessibility in the workplace not only by providing accommodations, but equally through universal design as an undeveloped beneficial factor for more consideration. Lastly, the article highlights the pivotal role as encumbered by the Vocational Rehabilitation Counselor who is trained to address this topic as an addition to reasonable workplace modification.

Research on the employment rate of blind and visually impaired workers reveals resolute disparities. Such is true as the employment rate of blind and visually impaired people has historically been far lower than those in general demographics. Statistically, 44 percent or less than half of people diagnosed with blindness or visual impairment are participating in competitive,

integrated employment. As opposed to nearly 80 percent of those without disabilities (American Foundation for the Blind, 2024). To prepare for the workforce, these individuals often undergo specialized preparation and vocational rehabilitation to develop and hone their skills in essential areas such as mobility, assistive technology, communication and self-advocacy. Despite the availability of comprehensive services, overwhelming employment disproportions still exist.

For the demographic of blind and visually impaired individuals who persevere to enter the labor force, they often face a multitude of barriers related to maintaining their employment. One of the greatest hurdles of blind and visually impaired job candidates is overcoming employers' opinions of their abilities to contribute and be a valuable addition to the organization (American Foundation for the Blind, 2024); however, even greater systemic issues are at hand. In our research, there were recurrent themes of barriers of blind and visually impaired employees in the workplace. These themes included the vast numbers of challenges linked to technology, physical environment, and safety protocols, thus driving the need for centralized initiatives to mitigate issues across each of the landscapes.

Employers offer reasonable accommodations, as under the Americans with Disabilities Act, organizations with 15 or more employees are required to do so (Office of Disability Employment Policy, 2024). Nonetheless, it does not negate the need for an equitable approach that considers the needs of all users, as well as aid in reducing the need for accommodations. The approach by which spaces, products or services are developed and built to be usable to the greatest extent possible by everyone, regardless of disability, is known as universal design (Center for Universal Design, 1997). The term was coined by architect Ronald Mace and is built on seven principles that were originally developed to aid in the fields of design and architecture, but has progressed to become a foundational framework for the development of products and environments (Disabilities, Opportunities, Internetworking, and Technology, 2021). [Table 1](#), provides the principles and definitions of the universal design framework. Universal design in the workplace is applicable for addressing the challenges of blind and visually impaired employees in areas such as architectural or physical environments, and safety protocols. Similarly, universal design can be implemented to address the technology and communication barriers of the job.

By evaluating and utilizing universal design initiatives to solve work barriers, employers can not only create a more inclusive workplace, but generate employment opportunities for blind and visually impaired personnel, and help reduce the persistent employment disparities between blind and sighted persons. The purpose of this paper was to explore and convey research on the barriers linked to the lack of universal design in the workplace in the areas of architectural or physical environments, safety

Table 1. Universal Design Principles and Definitions

Principle for Use	Design/Definition
Equitable	Useful and marketable to people with diverse abilities.
Flexibility	Accommodates a range of preferences and abilities.
Simple and Intuitive	Use is easy to understand, regardless of user's experience
Perceptible Information	Communicates necessary information to the user, regardless of conditions or user's sensory abilities
Tolerance for Error	Minimizes hazards and errors
Low Physical Exertion	Can be used with minimum of fatigue
Appropriate Size and Space	Appropriate size and space for approach, reach and use – regardless of user's size or mobility.

Note: from the General Services Administration; 2024, Universal Design: what is it? <https://www.section508.gov/blog/Universal-Design-What-is-it/>

protocols, and technology. Moreover, the authors sought to bring light to the ways in which the principles can enhance the work experience of employees with such disabilities.

Literature Review

In order to investigate this issue, the authors conducted a scoping literature review. The scoping review systemically maps what is currently known, any research used, gaps that exist, and future research that still needs to be conducted. The process included (a) developing a research question; (b) finding studies related to the research question; (c) analyzing the studies found; and (d) collecting, summarizing, and reporting the results. Factors found in the literature were represented in five major themes, (a) job quality and satisfaction, (b) environmental, (c) education and training, (d) safety, and (e) technological factors.

Another method for investigating the issue was through expert consultation. The interview was conducted with Angela L. Braden, MEd, MA, a professor of speech communications and rehabilitation counselor. In addition to being an expert resource for disabilities, Ms. Braden is a person who is visually impaired. Drawing on years of research and practical experience, Ms. Braden provided insight and guidance related not only to employment barriers, but also mitigation strategies aimed to reduce critical work delays and stoppage, as well as safety risks and diminished employee independence. Furthermore, Ms. Braden offered her expertise on the implications of the lack of workplace universal design as it relates not only to the physical and career barriers, but the emotional and motivational hurdles it presents to blind and visually-impaired employees (A. Braden, personal communication, February 6, 2024).

Procedures

A central research theory was used to guide this study. It was utilized to explore the barriers experienced by individuals with visual impairment in the workplace and to examine how the implementation and application of universal design can effectively resolve issues. To answer the inquiries, a literature search was conducted using several databases including Scout and EBSCOhost. Boolean search terms included: (blind) AND (work) AND

(universal design learning OR UDL). To analyze more recent trends the search was limited to full-text peer-reviewed articles published from 2003 to 2024. The database generated 18 articles. After a review of the titles and abstracts, 10 of the articles did not meet criteria and were excluded. The exclusion was either because it was not related to the topic of universal design for workers who are blind or visually impaired or because it was not an American based study. The remaining eight were included. The eight articles were then reviewed and recurrent themes of barriers were identified.

Another Boolean search included: (blind) AND (vocational rehabilitation) AND (accommodation). To analyze more recent trends the search was limited to full-text peer-reviewed articles published from 2000 to 2024. The database generated 162 articles. In order to focus this search further, the search was refined to be solely related to the United States. This resulted in 15 articles. After a review of the titles and abstracts, eight of the articles did not meet the criteria and were excluded due to geographical location or unrelated topics. The remaining seven were included and were then reviewed. Recurrent themes, barriers, and information relevant to vocational rehabilitation counseling were identified.

A third Boolean search included: (vocational rehabilitation) AND (blind low vision) AND (employment). To analyze more recent trends the search was limited to full-text peer-reviewed articles published from 2000 to 2024. The database generated 182 articles. In order to focus this search further, this search was also refined to be solely related to the United States. This resulted in 13 articles. After a review of the titles and abstracts, four of the articles did not meet the criteria and were excluded due to geographical location or unrelated topics. The remaining nine were included and were then reviewed. Recurrent themes, barriers, and information relevant to barriers to successful employment for individuals who are blind or visually impaired were identified.

A fourth Boolean search included: (inclusive design) AND (workplace accessibility). To analyze more recent trends the search was limited to full-text peer-reviewed articles published within the last year. The database generated 10 articles. After a review of the titles and abstracts, nine of the articles did not meet the criteria and were excluded. The remaining article was reviewed and the recurrent themes, barriers, and information relevant to barriers to successful employment for individuals who are blind or visually impaired, as well as issues related to exclusion were identified.

A final Boolean search included: (workplace) AND (universal design) AND (barriers). The search criteria were set to peer-reviewed articles and it yielded 16,200 articles. To analyze more recent trends the search was limited to full-text peer-reviewed articles published within the last year. The database generated 31 articles. After a review of the titles and abstracts, it was found that each of the article had some relevant information; however, only two of the articles met the criteria for having specific information and included

the recurrent themes related to barriers and universal design, thus the other 29 articles were excluded. Ultimately, 403 articles were identified and after screening for review criteria, 376 were excluded, and 27 were included.

Position Statement

The collective research substantiated recurring themes and barriers for individuals who are blind or have low vision; including environmental, technological, training, and safety factors. All of the identified factors can be mitigated by the successful implementation of universal design. Universal design in the workplace is significant for ensuring accessibility, as well as ensuring employers meet legal and ethical obligations to accommodate employees with disabilities (Van Laer et al., 2022). The seven foundational principles of universal design provide guidance on design as it relates to reducing barriers of the physical environment and safety protocols of a worksite. In reviewing workspaces of both private and public entities, it was found that most environments were structured and uniform, seemingly tailored to the industry or tasks. The narrow consideration of universal design in space design lends to a perspective known as ableist organizational spaces, as they are designed with the illusory average employee in mind (Van Laer et al., 2022). For clarity, ableist organizational spaces or those without universal design do not always lack accessibility, as the two are vastly different. In terms of reducing workplace barriers for blind and visually impaired employees, an employer could offer accessibility solutions, which are the minimum requirements of law; however, universal design can be used by anyone, regardless of ability. Often, universal design removes the need for accessibility initiatives (Van Laer et al., 2022).

Universal Design is an approach which may be readily integrated as part of the changeover process in approaching the goals of inclusivity in any setting. The approach is based on three principles that cite universal design should provide multiple means of representation, multiple means of action and expression, and multiple means of engagement (Dell et al., 2017). Similarly, universal design in the workplace is based on developing training and job materials to accommodate all abilities, for use by all employees. This method eliminates the barriers of the blind and visually-impaired by ensuring printed and digital materials are properly formatted and compatible with assistive applications (Dell et al., 2017). Moreover, it ensures that training practices and workplace technology are multifaceted for the diverse needs of all learners, and not only those who are blind or visually-impaired.

The theory behind universal design offers inclusivity, by considering all learning styles and those with disabilities. The goal of universal design is to encourage individuals to be knowledgeable, reduce barriers, and encourage embracing diversity and accommodations (National Consortium on Deaf-Blindness (NCDB) & Hartmann, 2011). These considerations provide individuals with a sense of equality in their workplaces. Ultimately, education, training, and employment cannot be fit the same way for each person. Employment requires accommodation and flexibility as many individuals

with disabilities including vision impairment cannot be put in a cookie cutter mold (National Consortium on Deaf-Blindness (NCDB) & Hartmann, 2011). It is for these reasons that universal design can enhance employment opportunities for all and is not limited to employees who are blind and visually impaired.

Analysis and Argumentation

Research and consultation for reducing environmental and safety barriers using universal design in the workplace yielded solutions and approaches such as eliminating structural barriers and using open floor plan design (Van Laer et al., 2022). Additional measures included use of tactile material to differentiate spaces, Braille inclusive signage, adjustable and ergonomic work stations, circadian lighting, elimination of protruding structures, safety alarms, planned safety routes, door levers, and flat panel light switches (Van Laer et al., 2022). The implementation of these aspects has the potential to greatly reduce the functional, social, and emotional barriers of blind and visually impaired employees in their offices. The literature reviewed revealed compounding evidence of a correlation among factors such as the lack of universal design or ableist organizational spaces, company safety costs, and employee well-being; each of which presented barriers to blind and visually impaired employees.

There is also strong correlation between environmental barriers and the need for accommodations. Øien (2022) encourages the need to focus on the lighting of a workspace when working with individuals in vocational rehabilitation programs, as focusing on the physical environment can reduce the gap produced by disability. He notes that a focus on the physical environment enables and encourages the individual. Ultimately, a holistic approach to rehabilitation counseling is supported to consider all aspects of the workplace (Øien, 2022). As per a review of workplace insurance claims data via the Liberty Mutual Workplace Safety Index (2024), the top 10 causes of workplace injuries costs businesses more than \$58 billion every year (Liberty Mutual Insurance, 2024). The probability of these injuries is immensely increased for individuals who lack visual acuity. Universal design enhances the safety of the workplace for blind and visually impaired employees by reducing the risks associated with accidents and injuries and increasing the functionality of these employees.

Furthermore, during consultation with rehabilitation expert, Ms. Braden (2024), she articulated the dangers of blind and visually impaired employees operating in workspaces void of inclusive design. These dangers include the inability to acquire proper orientation and mobility training. Orientation and mobility training is essential instruction to blind and low vision individuals, as it allows them the opportunity to acclimate to an environment and grants travel independent (Virgili & Rubin, 2010). In ableist or difficult to navigation workspaces, a blind or visually impaired employee's independence could be limited to his or her workspace, thus resulting in a lack of professional interaction, feelings of isolation and emotional barriers related

to employment (A. Braden, personal communication, April 5, 2024). Ultimately, when organizations employ universal design to ensure the maximum usability in the physical environment, it aids blind and low vision workers to increase productivity, safety, and can boost employee assurance.

Equally significant to enhancing the work experiences and opportunities of blind and visually impaired employees is universal design for learning. Rooted in education, universal design for learning can prepare blind and low vision employees for the workforce and the subsequent challenges, thus it is important through the formative years leading to entrance to the workforce. Research by D'Agostino suggests that accessibility and accommodations can encourage success and independence (2022). This study was developed in order to help faculty in education understand how to use adaptive and assistive technology. The goal of this research was to assist with using accommodations and identifying challenges for individuals who are blind or low vision.

D'Agostino's research suggests that information needs to be presented in a way that not only those who are blind or low vision can understand and retain. The environment needs to be enhanced to promote everyone's capacity to work and flourish (D'Agostino, 2022). This may include providing information in a variety of ways, including auditory and tactile information.

The role of the vocational rehabilitation professionals involves advocating for the use of universal design as well as accommodations for clients in educational settings and workers in occupational ones. The use of universal design reduces ableism, which is common discrimination against individuals with disabilities (Sherwood & Kattari, 2021). Discrimination against those with disabilities has been a societal norm.

Ms. Braden (2024) offered equally validating argument to the importance of universal design in the workplace, as she shared that often the lack thereof can contribute to individuals with disabilities never realizing their potential and contribution. Ms. Braden offered insight into barriers blind and visually impaired individuals experience before and during employment. These barriers can set the stage for ongoing issues related to the lack of inclusion and support (A. Braden, personal communication, April 5, 2024). Disability is often a barrier for occupational retainment and satisfaction. For this reason, universal design principles were developed by the University of Connecticut to encourage inclusivity and accessibility. This includes socialization, collaboration, and exchange between individuals in an inclusive and supportive environment (Sherwood & Kattari, 2021). Accessibility in vocational rehabilitation includes considering additional support and training for both employers and blind and visually impaired clientele. Vocational rehabilitation professionals can communicate with employers to advocate for the benefits of accommodations in order to overcome implicit attitudes (McDonnall & Antonelli, 2022).

Accommodations are commonly beneficial in the workplace, though not as commonly requested. Normalizing accommodations can start with management, to help destigmatize accommodations for individuals entering the work environment. It is the role of vocational rehabilitation counselors to assist clients in advocating for accommodations. As it relates to individuals who are blind or visually impaired, the ability to read and access instructions and emergency information is imperative. Furthermore, the ability to have independence at work adds to confidence and overall job satisfaction.

In the workplace, many persons with disabilities feel they need to identify themselves as vulnerable and disabled in order to obtain accommodations, which furthers the stigmatization they experience (Moloney et al., 2019). Universal design not only provides accessibility, but also helps to overcome discrimination against accommodations. Due to stigmatization against individuals with disabilities, they are often overlooked as valuable candidates. Sherwood and Kattari (2021) empathized that accommodations are not an advantage against the able-bodied. Rather it was noted that it provides equality for individuals who do not have the full capacity of able-bodied individuals. However, many persons with disabilities experience prejudice and discrimination upon the request for an accommodation. This results in these employees ultimately working harder with a goal of being seen on an equal basis as non-disabled coworkers (Moloney et al., 2019).

As substantiated, the adoption of universal design is an axis for fostering an inclusive and equitable settings in the workplace for individuals with disabilities – specifically those with blindness or low vision. Employers that execute the principles of universal design not only acknowledge the diversity of their employees, but facilitate these individual's endeavors to exceed their potential through engaged learning and employment.

Counterarguments

Universal design is not a jargon phrase that organizations can use to showcase culture or the public appearance of inclusivity, but rather must be a committed drive and principle to remove barriers and foster independence for employees (Ielegems & Vanrie, 2023). Despite the vast benefits of universal design in the workplace, there exist some implications and limits related to systemic application. Research revealed the resistance to universal design is widely linked to cost, awareness, education, and balancing design with aesthetics. For organizations undergoing new construction, it is a larger investment to implement universal design as opposed to the expenditures related to conventional designs; however, the investment on the front-end pales in comparison to the cost of remodeling and retrofitting current builds for accessibility and universal design (Ielegems & Vanrie, 2023).

Furthermore, companies must be aware that the cost of construction is determined by considering the quality and range of use against the design costs. In a study conducted by the Mary Free Bed YMCA in Grand Rapids, Michigan during the design of its 36-acre complex, it was found that universal design was approximately 1.7 percent of the total project (Houghton, 2021).

Subsequently, universal design granted a wider range of use of the facility, which prompted increased revenue from membership and the investment into universal design was recovered in 18 months (Houghton, 2021). Universal design is shown to be less costly to implement, as accessibility options are built into operating systems, thus the larger tasks for application is related to developing readable material and using compatible software to the provided resources (Houghton, 2021).

In addition to cost, bringing awareness to the principles of universal design may present a hurdle, which can fuel resistance to change as well. Due to the legal compliance related to the Americans with Disabilities Act, corporations work to ensure accessibility across technology; however, the decision-makers must realize that universal design is not merely for employees with disabilities, but can be beneficial in meeting the needs of all employees. The widespread adoption of universal design often stalls due to the lack of familiarity with the principles and practices, as well as how to apply the standards (Ielegems & Vanrie, 2023). When adequately implemented, universal design in the workplace can support training, technology, and fuel employee development and growth. Similarly, when blind and visually impaired employees experience barriers such as inaccessible content, inoperable software, their learning and work is less meaningful and less likely to be retained. In turn, this hinders opportunities for growth, individual contribution, and job satisfaction (A. Braden, personal communication, April 5, 2024).

In detailing pitfalls that blind and visually impaired employees endure in the workplace, Ms. Braden provided an account of her own experiences. Ms. Braden cited that although she has worked in the capacity of a rehabilitation counselor, aiding others through supported employment and frequently advocated for disability inclusion, she has experienced productivity issues related to a lack of universal design for learning. She detailed how she has received improperly formatted materials that were not compatible with her JAWS software and sitting through training that was not developed for everyone, which she agreed is aligned with the ableist mindset. Ms. Braden recalled experiencing complete work stoppages while awaiting a strategy to get the support necessary to access her workstation and required tasks (A. Braden, personal communication, April 5, 2024). While implementation of universal design does have some implications; in terms of benefits on the backend and improved outcomes, it is substantiated that each is well worth the cost, time, education, and adoption processes.

Discussion

Due to the implications related to awareness and education surrounding universal design employers can seek education as a means for clarifying the purpose, goals, and benefits of the framework, thus making entities such as vocational rehabilitation agencies a resource. However, proper training for rehabilitation professionals must be widespread. Evidence validating the need for such training was found by Sabata (2008). A research study was completed to ascertain the accommodations typically recommended by

various vocational rehabilitation professionals. The research included individuals with various limitations, including participants with visual and sensory limitations. This study revealed that computer systems and specific tools were commonly utilized and adaptive strategies similar to the universal design are rarely recommended by vocational counselors. This research ultimately suggested that vocational counselors recommend the same accommodations, despite the specific limitation (Sabata et al., 2008).

Upon acquiring said training rehabilitation counselors would be best suited to convey to organizations the principles of each of the universal design systems, as well as the correlation with accommodations and employee well-being. It has been found that negative employer attitudes can impact individuals who are blind or have low vision, as well as their job satisfaction. Employer attitudes are thought to be a primary reason impacting successful versus unsuccessful employment among the demographic. A study was conducted to determine how vocational rehabilitation services impact employer attitudes towards those who are blind or visually impaired (Capella McDonnall et al., 2013). Vocational rehabilitation professionals are encouraged to provide information and education focused on rehabilitative services and accommodations. In the Capella McDonnall study (2013), vocational services that were found to be supportive partners for services included on-the-job training, job development, and encouraging supportive relationships between employers and employees. Similarly, research was conducted by McDonnall and Antonelli (2019) to determine what factors were associated with the hiring of individuals with visual impairment. This study sampled 388 hiring managers who completed a detailed online survey. The results suggested that beneficial factors in employing those with vision loss included vocational rehabilitation professional involvement, company policies, and personal opinions and morals (McDonnall & Antonelli, 2019).

In addition to providing employer training on universal design, rehabilitation counselors can promote the principles through various other avenues. Perhaps the most integral effort is to ensure that the counselors themselves are implementing the principles in the ways in which they execute their communication and training to clients. Additional methods rehabilitation counselors can use to drive universal design includes outreach to protection and advocacy agencies for collaborative initiatives that seek to advocate for environments and employment training that meet standards. Lastly, rehabilitation counselors could also work to aid the change of perspective as it relates to disabilities in workplace. For instance, disabilities are viewed as a medical issue that must be address by a healthcare provider, whereas universal design promotes addressing disabilities from a social aspect by reducing the marginalization of the individuals (Higbee & Goff, 2008). If rehabilitation counselors could help employers to shift the perspective, it could change the employment options of millions of disabled individuals around the nation.

The universal design framework is impactful and proven to help overcome systemic stigmatization, thus it should challenge employers and vocational rehabilitation counselors alike to utilize practitioners and make it common knowledge. Universal access and design can be used to encourage employment and job satisfaction (Mackelprang & Clute, 2009) and to facilitate removal of environmental barriers.

Conclusion

Statistics show that individuals who are blind or visually impaired are less likely to be competitively employed, as compared to individuals without disabilities. Individuals who are blind or visually impaired are less likely to successfully enter the workforce and maintain employment. In order to best prepare for the workforce, these individuals can benefit from additional preparation, training, and vocational rehabilitation services. Nonetheless, stigmatization and lack of education still occurs in the workforce. Universal design can be used in the workplace to address the challenges faced by these individuals. Universal design also encourages inclusivity, eliminates barriers, and encourages the use of accommodations (National Consortium on Deaf-Blindness (NCDB) & Hartmann, 2011). Educational and technological resources are crucial for implementation of universal design and inclusivity in the workplace. As the research has shown, there is a definitive place in the workplace for the advantages provided by universal design and the ways in which each method can foster more positive experiences for employees.

Submitted: March 01, 2025 CDT. Accepted: March 01, 2025 CDT. Published: March 15, 2025 CDT.



This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CCBY-NC-ND-4.0). View this license's legal deed at <https://creativecommons.org/licenses/by-nc-nd/4.0> and legal code at <https://creativecommons.org/licenses/by-nc-nd/4.0/legalcode> for more information.

References

- American Foundation for the Blind. (2024). *Reviewing disability employment research for people who are blind or visually impaired*. American Foundation for the Blind. <https://afb.org/research-and-initiatives/employment/reviewing-disability-employment-research-people-blind-visually>
- Capella McDonnall, M., Zhou, L., & Crudden, A. (2013). Employer attitudes towards persons who are blind and visually impaired: Perspectives and recommendations from vocational rehabilitation personnel. *Journal of Rehabilitation*, 79(3), 17–24.
- Center for Universal Design. (1997). *Center for universal design*. <https://design.ncsu.edu/research/center-for-universal-design/>
- D'Agostino, A. T. (2022). Accessible teaching and learning in the undergraduate chemistry course and laboratory for blind and low-vision students. *Journal of Chemical Education*, 99(1), 140–147. <https://doi.org/10.1021/acs.jchemed.1c00285>
- Dell, A. G., Newton, D. A., & Petroff, J. G. (2017). *Assistive technology in the classroom: Enhancing the school experiences of students with disabilities* (3rd ed.). Pearson.
- DO-IT (Disabilities, Opportunities, Internetworking, and Technology). (2021). *Universal design: Process, principles, and applications*. University of Washington. <https://www.washington.edu/doit/universal-design-process-principles-and-applications>
- Higbee, J., & Goff, E. (2008). *Pedagogy and student services for institutional transformation: Implementing universal design in higher education*. University of Minnesota Center for Research. https://www.researchgate.net/profile/David-Arendale/publication/327667869_Arendale_D_R_Ghere_D_2008_Teaching_history_using_Universal_Instructional_Design_In_J_L_Higbee_E_Goff_Eds_Pedagogy_and_student_services_for_institutional_transformation_Implementing_Universal_Design_in/links/5b9d0eb9a6fdccd3cb589bf8/Arendale-D-R-Ghere-D-2008-Teaching-history-using-Universal-Instructional-Design-In-J-L-Higbee-E-Goff-Eds-Pedagogy-and-student-services-for-institutional-transformation-Implementing-Universal-D.pdf#page=277
- Houghton, A. (2021). *How accessibility in the built environment increases revenue with greater usability*. Disability Inclusion Solutions. https://disabilityinclusion.com/blog/how-accessibility-in-the-built-environment-increases-revenue-with-greater-usability/?trk=article-ssr-frontend-pulse_little-text-block
- Ielegems, E., & Vanrie, J. (2023). The cost of universal design for public buildings: Exploring a realistic, context-dependent research approach. *Archnet-IJAR, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/ARCH-07-2023-0178>
- Liberty Mutual Insurance. (2024). *2022 Workplace safety index*. <https://business.libertymutual.com/insights/2022-workplace-safety-index/>
- Mackelprang, R. W., & Clute, M. A. (2009). Access for all: Universal design and the employment of people with disabilities. *Journal of Social Work in Disability & Rehabilitation*, 8(3–4), 205–221. <https://doi.org/10.1080/15367100903202771>
- McDonnall, M. C., & Antonelli, K. (2019). A second look at factors associated with employer hiring behavior regarding people who are blind and have low vision. *Journal of Visual Impairment & Blindness*, 113(6), 538–550. <https://doi.org/10.1177/0145482X19887642>
- McDonnall, M. C., & Antonelli, K. (2022). Changing employers' implicit attitudes about the competence of people who are blind. *Journal of Visual Impairment & Blindness*, 116(3), 361–372. <https://doi.org/10.1177/0145482X221105512>

- Moloney, M. E., Brown, R. L., Ciciurkaite, G., & Foley, S. M. (2019). "Going the Extra Mile": Disclosure, Accommodation, and Stigma Management among Working Women with Disabilities. *Deviant Behavior*, 40(8), 942–956. <https://doi.org/10.1080/01639625.2018.1445445>
- National Consortium on Deaf-Blindness (NCDB), & Hartmann, E. (2011). Universal design for learning. *Practice Perspectives--Highlighting Information on Deaf-Blindness*, 8.
- Office of Disability Employment Policy. (2024). *Accommodations*. U.S. Department of Labor. <https://www.dol.gov/agencies/odep/program-areas/employers/accommodations>
- Øien, T. B. (2022). A study of environmental factors in low vision rehabilitation. *Frontiers in Rehabilitation Sciences*, 3, 829903. <https://doi.org/10.3389/fresc.2022.829903>
- Sabata, D., Williams, M. D., Milchus, K., Baker, P. M. A., & Sanford, J. A. (2008). A retrospective analysis of recommendations for workplace accommodations for persons with mobility and sensory limitations. *Assistive Technology: The Official Journal of RESNA*, 20(1), 28. <https://doi.org/10.1080/10400435.2008.10131929>
- Sherwood, K. L., & Kattari, S. K. (2021). Reducing ableism in social work education through universal design for learning and policy. *Journal of Social Work Education*, 59(1), 119–132. <https://doi.org/10.1080/10437797.2021.1997686>
- Van Laer, K., Jammaers, E., & Hoeven, W. (2022). Disabling organizational spaces: Exploring the processes through which spatial environments disable employees with impairments. *Organization*, 29(6), 1018–1035. <https://doi.org/10.1177/1350508419894698>
- Virgili, G., & Rubin, G. (2010). Orientation and mobility training for adults with low vision. *The Cochrane Database of Systematic Reviews*, 2010(5), CD003925. <https://doi.org/10.1002/14651858.CD003925.pub3>