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Knowledge Translation for Employment Research

NRTC ON BLINDNESS & LOW VISION | STATE

Supporting Workplace Success: Addressing Barriers to Assistive Technology Use for People Who Are Blind or Have Low Vision

OVERVIEW

- Strong AT skills and braille proficiency are associated with employment among people who are B/LV.
- Employed adults who are B/LV frequently rely on computers, mobile devices, and a wide range of AT, but they continue to face barriers such as limited access to high-quality AT training or software with sufficient accessibility features.
- Research shows that many workers must teach themselves AT, despite preferring hands-on instruction, and often purchase essential technologies used at work themselves.
- Addressing training gaps, improving accessibility of workplace systems, and expanding access to core AT may improve efficiency, job readiness, and workplace success.

This info brief looks at research conducted by the National Research & Training Center on Blindness and Low Vision (NRTC), which is funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). The brief highlights key findings and implications related to the barriers and potential solutions for people who are blind or have low vision (B/LV) using AT in the workplace. The information in this brief is intended for employers/businesses, disability advocates and professionals, and people who are B/LV.

• BACKGROUND •

Assistive technology (AT), combined with braille literacy, plays an important role in supporting employment for people who are B/LV. Research indicates that employed people who are B/LV are more likely than unemployed people who are B/LV to demonstrate braille proficiency and to use core workplace AT such as screen readers and refreshable braille devices (RBDs), which are tactile tools that convert digital text to braille.[1,2,3]

As digital skills become increasingly essential in today's workforce, it is critical that people who are B/LV have access to and training for AT tools. These supports enable full participation and success in work-related tasks. Participants in recent studies reported using an average of seven different types of AT to perform work activities, illustrating that multiple tools are often needed to complete different types of tasks.[3]

Despite this widespread use, people who are B/LV frequently face barriers that affect their ability to work efficiently such as difficulties accessing workplace software, as well as broader barriers such as limited AT training.[4,5] These findings suggest that workplace success depends not just on having AT, but on having accessible systems, adequate training, and sustained support to use these tools effectively.

KEY RESEARCH FINDINGS

A longitudinal survey research project conducted between 2020 and 2025 examined AT use in the workplace. The study involved implementing four surveys, one per year between 2021 and 2024, with the same group of employed people who are B/LV. Below are some key highlights from the survey findings.

AT is central to everyday work, but barriers remain

A 2021 survey of 314 employed people who are B/LV found that 98.1% used a computer at work and 88.2% used a tablet or smartphone, demonstrating the central role of technology in daily job tasks.[3] Despite this, findings across several surveys from the longitudinal study identified specific barriers in completing common job tasks.[3,4,5] Reported challenges included:

- Accessing workplace software, databases, and websites
- Working with PDFs, spreadsheets, and slide presentations
- Accessing printed or visual materials such as charts and images
- Covering the high cost of assistive technology devices themselves

These barriers affect common workplace functions, including communication, data entry, presentation development, and document review, indicating that accessibility issues can directly affect how efficiently work tasks are completed.

Workers rely on multiple AT tools to complete different tasks

The same 2021 survey found that participants reported using a wide range of AT tools at work.[3] These tools included:

- Screen readers (most common)
- Optical character recognition (OCR) tools
- Smartphone and tablet apps
- Refreshable braille devices

The need to use multiple tools suggests that no single technology fully supports all workplace tasks. Instead, workers combine tools to fill gaps. For example, using OCR to access printed materials, and braille devices for precision tasks like editing text.

Refreshable braille devices support specific high-value tasks

Another study included 304 employed survey participants who were legally blind, using survey data collected between 2021 and 2022.[5] It found that about half of workers used refreshable braille devices, particularly for:

- Taking notes during meetings
- Drafting and reviewing documents
- Making presentations
- Accessing email and web content

Participants also reported several reasons for using these devices in a 2023 survey of 110 individuals who are B/LV.[1] Reported reasons included:

- Ability to work in noisy environments
- Improved accuracy for spelling, formatting, and numerical information
- Greater efficiency compared to audio-only access[1]

More than 85% of users rated these devices as important or essential to their work, especially for tasks requiring careful reading or editing.[1]

Training gaps are widespread and persistent

A survey conducted in 2022 and included 315 B/LV participants consistently reported a gap between their preferred and actual approaches to learning AT, favoring hands-on instruction but primarily relying on self-teaching in practice.[4] Many study participants:

- Did not receive formal training for several commonly used tools
- Reported needing additional training even after employment
- Learned through trial and error, online resources, or peer support[4]

These findings suggest that people who are B/LV are often expected to independently develop skills required for increasingly complex digital work environments.

Skills, experience, and employment are closely related

Research findings suggest a relationship between AT skills, braille proficiency, and employment outcomes for individuals who are B/LV.[5,6] Research findings include:

- Higher AT skill levels are associated with employment for people who are B/LV
- Stronger braille skills are linked to both AT use and being employed
- Individuals who experienced vision loss earlier in life are more likely to have developed braille proficiency

These findings do not establish causation but suggest that access to skills and tools may play an important role in preparing people who are B/LV for employment and long-term success.

IMPLICATIONS

For Employers

Research findings suggest that workplace accessibility and support—rather than access to technology alone—play a key role in enabling employees who are B/LV to work effectively. Key actions employers can take:

Improve accessibility of workplace systems

- Evaluate commonly used tools (e.g., PDFs, spreadsheets, presentation software) for compatibility with AT
- Ensure internal databases, websites, and documents are accessible
- Provide accessible templates for common tasks such as presentations or forms

Provide structured and ongoing AT training

- Offer initial training when employees begin using new tools
- Provide ongoing support as tools or job responsibilities change
- Allow time for employees to build proficiency

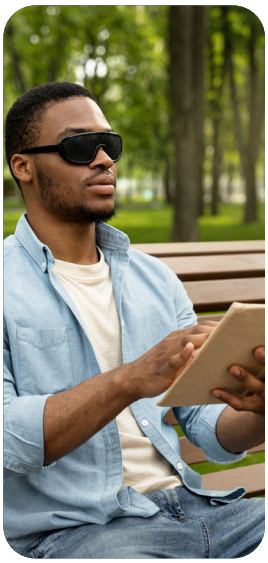
Employers should also consider funding core AT such as RBDs so that employees who are B/LV are not required to pay for them themselves. Vocational rehabilitation (VR) agencies and state AT programs may loan AT or help cover its cost. See the following links for additional details.

- Assistive Technology | ACL Administration for Community Living
- Accessible Technology | U.S. Department of Labor
- Resources for Employers | ACL Administration for Community Living

For Professionals (VR counselors, educators, and service providers)

Key actions professionals can take:

- Ensure individuals have strong foundational skills in widely used AT (screen readers, mobile apps, OCR tools)
- Connect individuals and employers with funding sources for AT
- Look for hands-on braille instruction opportunities, especially for individuals who experience vision loss later in life
- Advocate for workplace accommodations



For People who are B/LV

Research suggests that building and maintaining AT skills is an ongoing process. Key actions people who are B/LV can take:

- Combine formal training with self-directed learning
- Explore multiple tools to find those that best support specific tasks
- Develop problem-solving skills for adapting to new technologies
- Consider braille as one of several tools that may improve efficiency, particularly for tasks such as detailed reading or editing

Some organizations provide free distance or virtual education and practical support to people who are B/LV, including braille literacy. They include:

- Hadley
- Braille Institute

Some programs may help fund AT. They include:

- Assistive Technology | ACL Administration for Community Living

Some organizations provide affordable and accessible computers and digital training. They include:

- Computers for the Blind

RELATED RESOURCES

- Factors Associated with Proficient Braille Skills in Adults
- Comparison of Assistive Technology Use and Beliefs Among Employed and Unemployed People Who Are Blind
- Use of Braille in the Workplace by People Who are Blind
- Learning Assistive Technology: Preferences, Methods, and the Need for Improved Training
- Assistive Technology Use in the Workplace by People with Blindness and Low Vision: Perceived Skill Level, Satisfaction, and Challenges
- Challenges with AT in the Workplace: Accessibility Issues Top the List

REFERENCES

1. McDonnall, M. C., Boydstun, J., & Steverson, A. (in press). Advantages of using refreshable braille devices at work. *The New RE:View.*

2. McDonnall, M. C., Sergi, K., & Steverson, A. (2023, September 11). Comparison of assistive technology use and beliefs among employed and unemployed people who are blind. *The New RE:View, 1*(2), 12–27. https://doi.org/10.56733/tnr.22.012

3. McDonnall, M. C., Steverson, A., Sessler Trinkowsky, R., & Sergi, K. (2023). Assistive technology use in the workplace by people with blindness and low vision: Perceived skill level, satisfaction, and challenges. *Assistive Technology, 36*(6), 429–436. https://doi.org/10.1080/10400435.2023.2213762

4. McDonnall, M. C., Steverson, A., & Boydstun, J. (2024). Actual and preferred methods for learning to use assistive technology. *Assistive Technology Outcomes and Benefits*, 2024, 20–35.

5. McDonnall, M. C., Sessler Trinkowsky, R., & Steverson, A. (2024). Use of braille in the workplace by people who are blind. *Journal on Technology and Persons with Disabilities*, 12, 58–75.

6. McDonnall, M. C., Steverson, A., Boydstun, J., & D'Andrea, F. M. (2025). Factors associated with proficient braille skills. *Journal of Visual Impairment & Blindness, 119*(2), 97–108. https://doi.org/10.1177/0145482x251328240

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