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A Description of an Advanced Computer Skills Training Program Designed to Prepare Individuals Who Are Visually Impaired for the Modern Workplace

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In 2015, National Industries for the Blind (NIB) identified a source of difficulty in finding well-qualified applicants who are visually impaired (i.e., those who are blind or have low vision) for employment in services positions. Like most individuals, people who are visually impaired develop technology skills sufficient to perform the functions they need in daily life, but few have comprehensive knowledge of how to navigate the Internet and programs commonly used in the workplace, such as the Microsoft Office suite (van der Geest et al., 2014). Visually impaired people cannot simply click a HELP button to learn how a program interacts with assistive technology (AT). For this reason, NIB evaluated ways to create a pool of candidates with the skill sets needed for careers offering upward mobility. Professional Mastery of Office Technology for Employment (ProMOTE) was born out of the conviction that visually impaired people can perform as capably as their sighted counterparts when given proper tools and training.

Established in 1938, NIB has been creating employment opportunities for visually impaired people, primarily through the manufacture and sale of products to the federal government, for more than 80 years. In recent decades, NIB and its network of associated nonprofit agencies have expanded employment opportunities beyond manufacturing by developing career paths in warehouse management and distribution services, customer service, order entry, invoicing, customer care and call center services, database management, and retail management and operations. NIB has also developed training programs for upwardly mobile, professional careers for visually

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impaired people, including its Business Leaders Program (started in 2003) and the Contract Management Support training program (established in 2009).

Despite the efforts of NIB and its associated nonprofit agencies, visually impaired people continue to face challenges in finding employment. In the United States, approximately 70% of visually impaired people are not employed (Bell & Silverman, 2018).

Since technology plays an ever-increasing role in the workplace, it both bolsters the capabilities of visually impaired people and raises new challenges (Petty, 2005). To address these challenges and create new avenues into the skilled workforce, NIB developed ProMOTE. This one-of-a-kind training program helps visually impaired people gain the necessary high level of proficiency and confidence to navigate the interaction of common software programs and assistive technology. Piloted in 2016, ProMOTE provides visually impaired people the advanced-level training they need to successfully use Microsoft Office (hereafter, Office) software with AT.

Method

The ProMOTE curriculum

NIB engaged AT consultants from Training Compliance Support Access (TCSA), in Rockville, MD, to develop the ProMOTE curriculum. The immersive, 40-hour-per-week, 4-week training program is modeled on a common workplace schedule with time-sensitive deadlines. Participants attend lectures and complete exercises in the morning, and in the afternoon, they tackle projects based on the material that was introduced earlier that day.

Applicants to the program must demonstrate an intermediate level of knowledge of Office software and AT. Those accepted into the program learn to master JAWS (Freedom Scientific's Job Access With Speech, which provides speech and braille output) or ZoomText (a magnification and reading program by Freedom Scientific) together with the Office suite and Internet browsers.

At the beginning of each task, a trainer or team of two trainers takes a maximum of eight participants through all common computer-related office operations performed with the software to close any gaps in the participant's knowledge.

By the end of the program, ProMOTE graduates have mastered more than 100 keystrokes to perform professional office tasks in Microsoft Word, Excel, PowerPoint, and Outlook; conduct advanced Internet research; navigate Windows; create accessible documents; format visually pleasing documents; configure, manipulate, and troubleshoot AT; and discuss AT with both information technology professionals and people who are less familiar with such technology. NIB presents participants with a certificate of completion and provides assistance with their job searches.

Pilot programs

NIB ran two ProMOTE pilot programs in 2016. Requests for proposals seeking hosts with appropriate training facilities, lodging, and dining accommodations for participants were sent to NIB's network of associated agencies. The Carroll Center for the Blind in Newton, MA, hosted the first pilot in January; The Olmsted Center for Sight in Buffalo, NY, hosted the second in August.

To find participants, NIB advertised the ProMOTE pilot programs through its weekly e-newsletter and social network, at rehabilitation centers around the country, and in the community of organizations serving visually impaired people. Eight applicants were chosen for each cohort based on level of

computer skill, ability to commit to the full 4 weeks, and proximity to the training facility.

The attendees ranged from 20 to 50 years of age. In feedback surveys, participants who were employed said they needed higher level computer skills to advance professionally and believed the training program would open doors to upward mobility. Participants who had not worked in some time said they enrolled to become more marketable to employers. Participants were recommended by vocational rehabilitation services, NIB, its associated agencies, and other nonprofit organizations. Students who participated in the first pilot program were JAWS users; students in the second pilot were ZoomText users.

The Carroll Center participants resided at a campus dormitory during the program. The Olmsted attendees stayed at a nearby hotel. All meals, lodging, travel expenses, and costs associated with the programs were covered by grants from NIB.

Each pilot was taught by two trainers from TCSA. At the first session, both trainers were sighted. At the second, one trainer was blind and one was sighted. Through the pilot programs, NIB learned that having one blind and one sighted trainer is optimal.

Developing more trainers

NIB recognized that developing a larger pool of ProMOTE trainers would benefit its associated agencies in several ways: They could provide ProMOTE training to more visually impaired people, expand current training offerings, improve current employees' skills to facilitate upward mobility, and expand options for employment in services positions. NIB turned again to TCSA to develop a program to prepare visually impaired and sighted trainers to teach the ProMOTE curriculum.

To launch the effort, NIB conducted two webinars to educate associated agency staff about required qualifications for the "train-the-trainer" pilot programs and introduce program guidelines. Of 36 webinar participants, 17 applied and 10 were selected, representing seven NIB associated agencies. All of the selected participants demonstrated advanced computer skills and had experience as trainers. At the week-long program, held in March 2017 at NIB headquarters in Alexandria, VA, trainers learned to set up a ProMOTE classroom, teach in a group setting, employ new methods of teaching a variety of AT elements, and work through common classroom scenarios.

Results

ProMOTE participants

ProMOTE participants gained specific technical skills and a clear understanding of AT, Office programs, Internet browsers, and how they work together. Attendees demonstrated their knowledge through a final project requiring each student to manipulate a complex data spreadsheet, analyze data, create charts and a PowerPoint presentation, and e-mail the file via Outlook.

The graduates also gained a sense of empowerment and self-confidence. A current NIB employee, who chose to participate in ProMOTE to improve his skills with ZoomText, said, "I did not know what to expect, but once there, I learned to use Excel, Word, and PowerPoint. My confidence has been boosted[,] and I've become more efficient in my daily work. I left with vastly more than I came with."

Another participant was unemployed despite a diligent job search. "I had several interviews, but no luck getting hired," she recalled. "I knew advancing my skills in Microsoft Word, Excel, Outlook, and PowerPoint would pay off once I did obtain a job." This participant now works as an e-commerce customer care representative for

NIB. Reflecting on ProMOTE she said, "The program helped me a lot. I'm able to perform all of my job duties confidently and efficiently."

Other participants lauded the program on course evaluation forms. One said, "The course was excellent. I have a number of co-workers who would benefit from attending a course just like this [one] to improve their effectiveness in Office programs." Another remarked, "I believe this program has great potential for any student.... This program builds confidence[,] as well as skills that will be translated to all [areas] of life." A third participant noted, "I really got the most out of learning how to use Office with ZoomText and the keystrokes that will make me more productive."

In follow-up studies conducted within 1 year of the training program, more than 50% of participants traced improvement in their employment status to the program: Three found jobs and six were promoted.

During the training sessions, participants also discussed common challenges visually impaired people face when searching for jobs and working, and how to address common misconceptions. Time spent together at lunch and during breaks helped build a cohesive cohort and created a safe environment in which students could share ideas and learn new perspectives, and participants remained in contact with one another as friends and professional resources after the program concluded.

Train-the-trainer participants

Of 10 participants in the train-the-trainer pilot program, the trainer from East Texas Lighthouse for the Blind, in Tyler, TX, was the first to teach the ProMOTE curriculum at her associated agency. After teaching a pilot training session for agency staff members, she led a train-the-trainer seminar with four participants from outside the agency who provided feedback on her teaching style. She has since taught an Office certification program. In an interview, she said the Microsoft program "is nothing like ProMOTE. It doesn't even come close."

Other NIB train-the-trainer pilot participants are working on holding ProMOTE programs locally. Blind and Vision Rehabilitation Services of Pittsburgh hosted 2 sessions in 2019; IFB Solutions in Winston-Salem, NC, has used some elements of ProMOTE in training but has yet to run a full program. Other agencies are working on scheduling and conducting ProMOTE sessions for people with visual impairments in their service areas.

As with the ProMOTE students, the train-the-trainer program participants formed a cohesive group and stayed in contact following their own program to share ideas, challenges, and solutions.

Conclusion

Through the ProMOTE and the train-the-trainer pilot programs, NIB learned valuable lessons regarding cost, structure, and participant preparation to address as the program evolves.

Cost

Participants need to travel to the training site, reside in lodging near the training center, and receive meals. Associated agencies are exploring funding options for local programs through blind and vocational rehabilitation services. Training more ProMOTE trainers will expand the program around the United States and should reduce costs by meeting people where they are, enabling more people to attend and benefit from the program.

In the spring of 2019, East Texas tested a format that utilized 2 weeks of remote instruction and 2 weeks of in-person

instruction at a training center. Participants began the training at their home agencies and completed the final 2 weeks of instruction on site. The virtual element followed the same structure as the classroom sessions, and trainers were able to connect to each participant's computer to see and hear what was onscreen and help resolve individual issues.

Model

The cohort model maximizes resources, making it possible for one or two trainers to teach up to eight students simultaneously. It also helps to build peer networks, which can result in the sharing of resources and the formation of friendships among participants. Group learning, however, can also present challenges. Although cohorts in the NIB pilot programs were homogenous with regard to JAWS or ZoomText use, not every ProMOTE cohort will be. If users of both types of AT participate in a single program, trainers must understand different approaches to learning and adapt to the needs of the various students. Specifically, people who are blind must use JAWS and a few use braille display technology, while people with low vision tend to use ZoomText. Instructors must be well trained to adjust to myriad needs within a group.

Candidates

A challenge NIB did not anticipate was a dearth of technologically skilled candidates. Both participants and trainers need to have a baseline level of skills—intermediate for participants, advanced for trainers. NIB found many AT trainers could teach basic software functions, but not at the advanced level of skills required by ProMOTE. Many participant-applicants had basic knowledge of Office programs and AT, but not intermediate skills.

For these reasons, NIB looked into developing a pre-ProMOTE program to give candidates the prerequisite technology education. In June 2019, East Texas Lighthouse piloted its Assistive Technology Instructor Program (ATIP) to elevate the teaching skills of JAWS and ZoomText trainers. ATIP provides instruction on teaching Microsoft Word, Excel, and PowerPoint and basic commands, conducting one-on-one and group instruction, and other skills AT trainers need to be effective. A second train-the-trainer session was held in November 2019.

Overall, ProMOTE provides a replicable model for providing visually impaired people with advanced skills for upwardly mobile positions in the workforce. Its tools and training prepare visually impaired people to compete in the workforce as tech-savvy, confident professionals ready to meet the demands of modern offices.

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