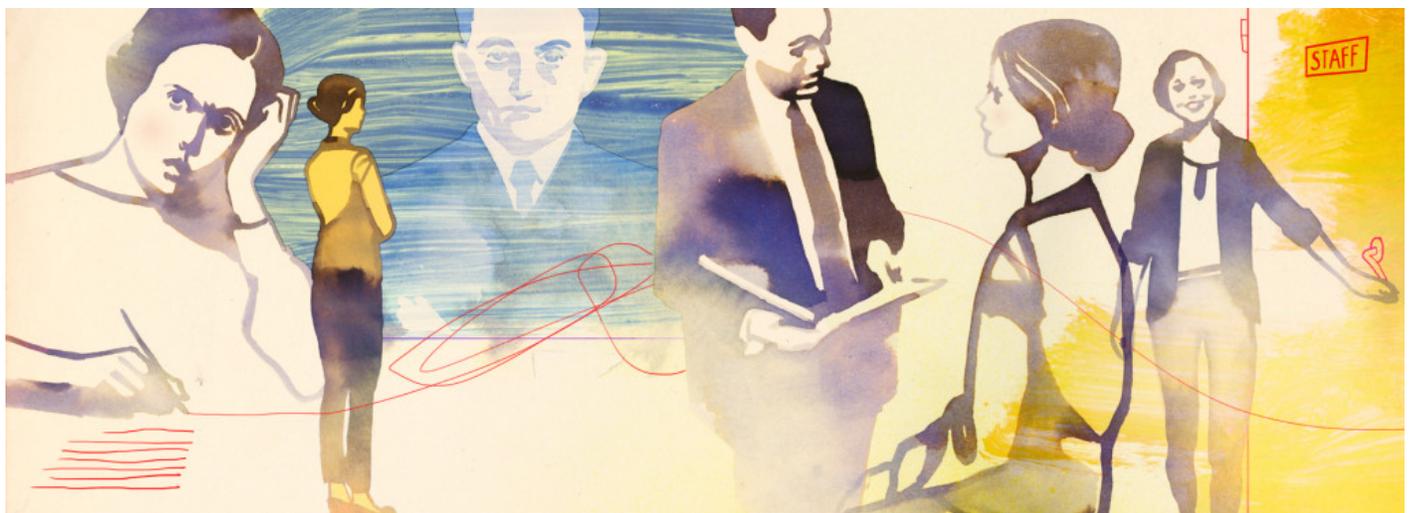


DEEP DIVE

# Work in progress: An inside look at autism's job boom

BY ELIZABETH PRESTON

20 JULY 2016



*Illustration by Tina Berning*

George glares at me from behind his desk. His hair is buzzed short and his mouth is set in a sneer. He asks about my prior work experience, then replies sarcastically, “Okay, well, what you’d be doing *here* would be a little different from that.”

This would be the toughest job interview I’ve ever been on, if it were real. Luckily, George is a digital avatar, speaking to me from a large screen. He’s part of a team of virtual job interviewers helping to train young adults with autism at the **Dan Marino Foundation** in Fort Lauderdale, Florida. Students here learn workplace skills, train for industry certifications and complete internships. With the avatars (who may or may not be in a good mood), they also practice interviewing — a hurdle that otherwise can be insurmountable for job seekers with autism.

Learning to handle an interview is only the first step for people with autism looking for work. Often, they have no college degree, and if they do have experience, it may be from several jobs that didn’t last long. When at work, they may struggle with anxiety, have trouble communicating with

their managers or estrange coworkers with their behaviors. In the United States, only **55 percent of adults with autism had worked** at any point during the six years after high school graduation, according to a 2012 study. By contrast, 74 percent of young adults with intellectual disability had some work experience. (Although people with autism can face difficulties finding work at any age, studies and interventions tend to focus on those transitioning out of high school or college.)

“These kids nowadays in this program, they’re very lucky,” says Michelle Canazaro, who has autism and works part-time as an office assistant at the Dan Marino Foundation. “They get to have the technology that I didn’t.” Canazaro worked at a retail warehouse after high school and vocational school. But she hated the job, and eventually was let go. She interviewed for other jobs but didn’t get anywhere. Other candidates had more experience. She remembers wearing “a nice pink top with a pair of black dress pants” to a retail interview where she ended up having to sit on the floor. “They said I was a little overdressed,” she says. “Well, I didn’t know.”

Yet, like Canazaro, many adults with autism are eager to work. And the past few years have brought a surge in companies seeking to hire people like her, from **large corporations such as Microsoft** to small companies that almost exclusively employ people on the spectrum. These companies say that unemployed and underemployed adults with autism represent not just a societal problem, but an untapped labor force with unique potential.



**Virtual inspiration:** Students at the Dan Marino Foundation practice interviewing with avatars; Kevin, shown here, is easy-going.

Photographs Courtesy ViTA DMF.org

Programs such as the one in Florida are trying to address the gap between willing workers and these companies by helping to train job candidates or retool hiring processes. “The number of employment initiatives today for adults with autism is far more than ever before,” says **Michael Bernick**, a California lawyer and former state employment director. Companies that have implemented autism hiring programs report seeing benefits for the whole workplace that range from better results for clients to improved management.

So far, though, unemployment rates for adults with autism don’t seem to be improving. The U.S. Bureau of Labor Statistics doesn’t track adults with autism separately. But based on his

experience, Bernick doubts the new initiatives have made a real dent. “They’re reaching a very modest number of people,” he says. It may turn out that some efforts provide more hype than help.

“Let’s don’t force a square peg in a round hole; let’s create more square holes.” Gary Moore

## A foot in the door:

For an individual with autism, landing a first job can be a struggle. Bryan Siravo spent four years in vocational school learning skills such as information technology and repair of casino equipment. Despite at least 15 job interviews, he couldn’t find work. He came to the Dan Marino Foundation in 2011 for a summer internship, and later enrolled in an information technology program there. He learned etiquette and interview skills while doing coursework toward a Microsoft certification. The foundation’s staff helped him land internships with an insurance company and a trophy manufacturer. Finally, in 2014, he got a job working part-time at a storage facility.

Siravo says he didn’t mind the long commute by bus, or the fact that his role was closer to maintenance than information technology, but he notes that there were some difficult adjustments nonetheless. He and his supervisor “sort of had tiffs,” Siravo says. “She thought I was using my disability to make excuses, which I never do.”

Siravo was ready to quit, until Steffen Lue, a career services manager at the foundation, intervened. This issue came down to communication, Lue says: Siravo needed a set schedule, and his manager needed him to report back to her. Not only was the issue resolved, but Lue says the two “became best friends.” (The manager agrees.) When the foundation hired Siravo in 2015 to do tech support for its virtual interview program, people at the storage facility joked that the foundation had “stolen” their employee.

The program Siravo attended has evolved into a school called the Marino Campus, where students pay tuition for 10 months of classes in hospitality, retail or information technology, culminating in national-level certification exams. At the same time, they learn social and workplace skills, practice interviewing with both people and digital avatars, and go through two internships.

Staff members make sure students apply classroom skills during their internships, something people with autism often find difficult to do. Job coaches also help them figure out bus schedules, address family issues and role-play interviews. With clients on the spectrum, Lue says, it can be hard to predict all the topics to cover. He recalls picking up one client to drive him to an interview, only to discover that the young man had dressed in his lucky wizard outfit.

Of the first 16 students, who graduated last year, 9 are employed. This year's class has 32 students. A second campus is scheduled to open this September at Florida International University in Miami.

Once the graduates get a foot in the door, Lue says, "they're more motivated to work than a neurotypical. It's the honest truth." Even as interns, the students are invaluable, says **Rebecca Bratter**, shareholder at the law firm Greenspoon Marder in Fort Lauderdale, which has taken on about a dozen Marino interns over the past two years. The students take pride in their work and do tasks none of the employees want to, such as handling a backlog of returned mail, Bratter says. "[We didn't] know how much we really needed them until we got them."

Even people with severe autism who might not seem like good candidates for the workplace **can do well** if given enough initial support, says **Paul Wehman**, professor of physical medicine and rehabilitation at Virginia Commonwealth University in Richmond. Wehman has been studying ways for people with severe autism and disabilities to transition into employment since the 1980s. Beginning in 2009, he led a randomized controlled trial in which his team placed 31 young adults with autism in a series of three 10-week hospital internships. "Some of these folks were pretty quirky," Wehman says — nonverbal, or prone to outbursts.

The internships charged the students with tasks such as binding books, sanitizing equipment and checking expiration dates on drugs. The students also had classroom training. Meanwhile, 18 controls continued with their existing high school special education programs. Three months after their internships ended, 90 percent of the participants were employed part-time within the hospital; they had also become significantly more independent in the workplace, as measured by how much physical assistance, verbal instruction or other help they needed. Of the control group participants, only one person had gained employment in the same time period.

Wehman is in the third year of a larger follow-up study at four hospitals, which will have 80 to 90 people in the treatment group and a similar number of controls. He declined to reveal specifics before the study ends, but says that so far, the results echo the earlier study's finding that supported internships can help adults with autism find and keep jobs. "Their learning trajectory is excellent when given the right training and support," Wehman says. One participant was asked in a job interview what he liked about the workplace, and he simply answered, "Lunch!" But because the employer had seen the work he could do during his internship, he got the job.

Back at the Dan Marino Foundation, Siravo is finally working in the field he trained for — as support technician for the avatar program, called Virtual Interactive Training Agent.

A hidden human operator controls the virtual experience, moving the avatar to new questions as a student gives answers, says the program's manager, Robert Ahlness. Instructors score recordings of the virtual interviews and discuss them in class. Six avatars, men and women of different ethnicities, appear in various moods and settings to give the students experience with the many

types of interviewers they might encounter. George was set to 'hostile' when I met him. For a gentle experience, Ahlness uses an avatar named Kevin set to 'soft touch,' who gives encouraging feedback such as "Very cool" and "You're doing great!" Using avatars is more efficient and consistent than role-playing with people, says Ahlness, and it's also less stressful for students with autism, who may feel uncomfortable in social situations.



**Looking ahead:** Beyond interviewing skills, nonprofit organizations coach students on workplace etiquette and social expectations.

In a pilot study, the foundation found that four sessions with an avatar improved students' interview scores by 80 percent. "The difference between beginning and end is amazing," says the foundation's chief executive officer, Mary Partin. The foundation plans to sell subscriptions to the program to other organizations that help people with autism or other disabilities.

At Northwestern University in Chicago, **Matthew Smith** uses a similar system with veterans and those with severe mental illness, among others. Smith's program, which uses videos of actors, wasn't designed for people with autism. But last year, Smith and his colleagues published a trial of 26 young adults with autism. They found that 8 of the 15 people who got the virtual training found a job or volunteer position within six months, compared with 2 of the 8 who were not trained. (The difference was significant only after the researchers controlled for prior employment and post-training self-confidence.) Smith, a social worker and assistant professor of psychiatry and behavioral sciences, has applied for funding to adapt his virtual reality program for people with autism.

## Square holes:

"A lot of our crew like it dark," Gary Moore whispers as he walks into a dimmed computer lab in Plano, Texas. About a dozen adults, mostly young men, are at the terminals or writing on a large whiteboard. A team meeting begins, but not everyone participates. One man yawns audibly every few minutes; another stands and wanders away.

Unlike the Dan Marino Foundation, the **nonPareil Institute**, a nonprofit technology company, aims to become a for-profit employer. About 140 people with autism — dubbed 'crew members' — study software development here, paying monthly fees to work through a set curriculum.

The staff and crew have published a few e-books and built eight mobile applications. (In one, a game called "Space Ape," a Russian chimp rides a rocket while collecting bananas.) These products have generated almost no revenue so far, says Moore, the institute's co-founder. Donor contributions and student fees support the organization's \$2.3 million budget. But Moore says he hopes the apps and other products will eventually make enough money to return revenue to the crew. Since the Plano campus opened in 2010, the institute has hired 7 or 8 crew members full-time, and about 30 part-time. Just one blockbuster app, Moore says, could allow the institute to hire all of its crew members. "The real goal," Moore says, "is we build an app here that's the next Candy Crush."

In another room, two computer monitors are set back to back so their users face each other. A young man at one monitor is building a game environment. The other monitor replicates everything he does, so his instructor can observe without physically looking over his shoulder.

This low-pressure setup is one of the ways the institute tries to make people with autism more comfortable. Another is the digital platform that manages the curriculum, which assigns homework tasks as 'quests' for students to complete at their own pace. There are no grades. "It's nonjudgmental," says founder and chief executive officer Dan Selec, who designed the platform.

Back in the darkened computer lab, crew member Jacob Waters is digitally polishing an illustration for a children's e-book about a pig with green spots. The pig is "kind of a misfit," Waters says in a barely audible voice. He wrote and illustrated two other e-books that the institute published. When he saw his work released to the public, he says, "I admit it was a pretty big deal at first."

Although many of the people studying here make significant progress in both software and social skills, Moore says, the tech industry is too fast-paced and competitive for most of his crew. "That industry is not a good fit for most adults with autism," he says. "Let's don't force a square peg in a round hole; let's create more square holes."

"The work seems to be tailored exactly to take advantage of my various mental quirks."  
John Cha

### Corporate crusades:

For adults with autism who are seeking jobs on their own, options are growing. A few companies specialize in hiring people with autism to test software. For New Jersey resident John Cha, who graduated from college in 2011 with a degree in math, it's been a great fit. Cha, who has autism, had difficulties getting hired previously, but found work at **ULTRA Testing**, which primarily employs people with autism. "The work is immensely enjoyable, and seems to be tailored exactly to take advantage of my various mental quirks," Cha says. For example, he says, he gets bored easily, but the job lets him work independently and switch tasks often. Other software-testing companies, including Specialisterne Denmark and Aspiritech, follow the same model, relying on employees on the spectrum.

Three-quarters of ULTRA's roughly 32 employees have autism. The company looks for people with relevant skills, such as exceptional analytical reasoning and pattern recognition, rather than previous experience. Co-founder **Rajesh Anandan** says that tapping into this overlooked talent pool is hugely successful; he has little turnover and claims his testers outperform those at other companies. One client had been working with IBM to test its new software, but ULTRA's staff then tested the software and found 56 percent more bugs than IBM's workers had.

In the past few years, Microsoft, SAP, and Hewlett-Packard Australia have all begun initiatives to hire more people on the spectrum in a variety of roles. Growing public awareness of autism is helping to drive the trend, says Bernick, who last year co-wrote a book on the subject, "**The Autism Job Club: The Neurodiverse Workforce in the New Normal of Employment.**" Companies also want to tap into the reputed talents of employees with autism, such as focus, loyalty and attention to detail.

Jose Velasco, head of SAP's Autism at Work program in the U.S., says the multinational software corporation started its initiative to add more perspectives to the workplace, drive innovation and retain the best talent. Its goal is to have 1 percent of its global workforce, or about 650 employees, on the autism spectrum. Microsoft recruits candidates with autism and assesses them in two-week 'academies,' rather than via a traditional application process that might stymie people with autism. "There's a lot of talent in this community that was not getting through what I would call the traditional front door," says Microsoft's Neil Barnett, director of Inclusive Hiring Programs. Microsoft has brought on 16 employees since its initiative began last year. SAP has hired 39 new U.S. employees with autism since 2013, and about 100 worldwide. Hewlett-Packard Australia, which in 2014 announced a plan to train 12 new employees with autism, declined to comment on the program's progress.

All of these companies partner with the nonprofit advisory firm **Specialisterne USA**, which helps employers create hiring programs and find talent, and build supports for the new employees. Executive director Mark Grein estimates that Specialisterne has facilitated between 200 and 250 U.S. hires in the past couple of years.

To help their new employees succeed, SAP and Microsoft set up 'support circles,' and both companies report retention rates above 90 percent so far. Bernick says good data on retention are hard to come by, but based on his own experience, these companies are in the minority: Without the right support from an employer, many people with autism don't last long in their jobs. Wehman agrees. "Let's not make this puppy dogs and rainbows," he says. "The reality is there's some challenges."

**Marcia Scheiner**, founder and president of the **Asperger Syndrome Training and Employment Partnership**, a consulting firm that helps employers become more autism-friendly, has also seen a surge in interest over the past five years, especially from tech companies. But she cautions that a career in science, technology, engineering or mathematics (STEM) is not always the answer. "Not everybody on the autism spectrum wants to be a software tester, or is excellent in the STEM fields," she says. Grein says Specialisterne is also working with large clients, which he declined to name, in banking, accounting, consulting and healthcare.

Employers are sometimes surprised by the changes that emerge after the new hires. "Managers have told us that they have had to become more precise and less ambiguous in their communications," says Velasco. As team leaders adjust communication styles for employees with autism, they become better at talking to other workers, too. Barnett agrees. "We're starting to see that universal benefit," he says. "You could call it Good Management 101." He says after being trained to work with employees who have autism, managers begin giving more feedback even to those who don't have the condition, and asking employees which communication styles they prefer.

Employers with successful workplace programs may find that hiring people with autism just turns

out to be good business. That doesn't mean it will be easy. "Everyone thinks this is a great idea," Barnett says. "But finding the talent, finding the roles and bringing it all together takes effort."