

# Breaking Through, Rising Up

Strategies for Propelling Women of Color  
in Technology

Supported by

Citi Foundation

**npower**

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# Foreword

What will it take to truly diversify the tech industry and give more people of color—particularly women of color—the opportunity to contribute to the digital economy and drive the innovations that pervade our society?

At NPower, through our work to help diverse communities launch careers in technology, we have come to the clear understanding that technological innovation by a monolithic workforce will not truly address the problems of our whole society. Critical groups, often those most marginalized, will continually be left behind.

Citi Foundation's global Pathways to Progress program is designed to invest in combating persistent youth unemployment. Our work with Citi Foundation has sought to address the immense and widening gender equality gap throughout the technology sector that is limiting opportunities for the most underrepresented community—women of color.

This report is the result of a groundbreaking philanthropic venture between NPower and Citi Foundation to delve into the societal, educational, economic and cultural barriers limiting young women of color from pursuing and thriving in careers in tech. Our goal is to substantially increase the number of women of color in its programs in the pivotal period between completion of high school and entry into the workforce where so many young women of color from low-income backgrounds slip through the cracks.

Coupled with our programmatic efforts to increase women of color in our program, we commissioned a year-long research effort, which gathered perspectives from more than 1,000 NPower students and alumni, as well as nearly 60 employers, scholars, and practitioners, including leaders from peer organizations.

Through this research, we learned more about what it takes to support women of color in technology training programs and to ensure their success in the workplace. We want to encourage collective and intentional

efforts by service providers, employers, and funders to invest in proven strategies as well as to test new ideas and approaches.

While we believe a more equitable industry is possible, we recognize that this work is not easy. It will take intention, investment, and innovation to realize a future where clear pathways exist for all people regardless of ethnicity, gender, or socio-economic background to succeed in our digital economy. It will take cross-sector awareness and action by practitioners and executives alike. At its core, this is a human rights issue and a business imperative.

Our hope is that the research findings will provide more guidance for organizations serving young women of color and spark more widespread change in mindset and practice across the industry.

The COVID-19 pandemic has changed the way we all live and work. As the country recovers from the health impacts, and the economy begins to rebound, it reinforces that communities of color who have been most impacted by the pandemic—particularly women of color—must be part of any inclusive workforce plan.

We have learned, by responding to these recent challenges, that the ability for training programs to offer virtual learning platforms, virtual mentorship and emergency funds to students facing hardships will go a long way in providing additional support to young women who need flexibility to care for loved ones.



**Bertina Ceccarelli**  
CEO, NPower





Students enrolled in NPower's program in Baltimore, Maryland.





NPower New York students, Fall 2018

# Executive Summary

In the next decade, jobs in computer and mathematical occupations are expected to grow by 13 percent, with nearly 600,000 new jobs on the horizon (Bureau of Labor Statistics, 2017). Yet opportunities in the technology industry have not been evenly distributed. The technology workforce is predominately male and predominately white. Women of color make up less than 10 percent of the computing workforce.

Recognizing the need to not only shift the dynamics of the technology industry, but also to expand economic opportunities for women of color, in May 2018 Citi Foundation awarded a \$1.64 million grant to NPower to increase the enrollment of young women in its program from 25 percent to 40 percent by the year 2022, equipping them with the technology skills needed to prosper in the digital economy.

As 40 by 22 approaches its two-year mark, NPower seeks to share some of its lessons learned, while also garnering insights from the broader field to lift up effective practices that can inform the work of its peer training programs as well as the employers who partner with them.

This report focuses on the unique potential of nonprofit technology training programs to address unmet demands in the field, while also providing critical economic opportunities to women of color who may not have had access to traditional pipelines into technology jobs.

**To date, the intersection of gender, race, and class in the technology industry has received little attention. This paper, through qualitative and quantitative data, describes what is required to invest in and benefit from the talent of women of color from low-to-moderate income communities.**

## Among the Key Themes in This Report:

- Nonprofit technology training programs address an important niche in expanding the talent pipeline for women of color from low-to-moderate income communities.
- Engaging women of color in these programs is an imperative—both to create economic opportunities for women of color and to access untapped talent for a sector with a high number of unfilled jobs.
- Both goals are achievable and can reap significant benefits yet require intentionality in how practitioners and employers support women of color in technology roles and set them up to thrive in technology careers.

Research findings in this paper cover three broad areas:

- 1) The motivations and barriers women of color report in pursuing technology training.
- 2) The ways in which technology training programs can increase women of color's participation.
- 3) How employers can create a culture of inclusion that allows women of color to thrive in the workplace.

The paper also highlights policy levers that can help expand opportunities for women of color in technology and concludes with a call to action for practitioners, employers and funders.

## Pursuing Technology Training: Motivations and Barriers

Female students indicate that their number one reason for pursuing technology training is a strong interest in technology. In addition, women of color cited the desire to improve upon their current employment situation—to get on a career track, make a career change, and get into a career with growth potential as motivations.

Even as young women of color express hope and optimism for their futures through their participation in technology training programs, women reported experiencing a variety of challenges while enrolled in

programs. Most notably, two-thirds of women of color enrolled in NPower's program reported experiencing financial stress. A critical mass of female participants also reported health challenges and difficulty managing caregiving responsibilities at rates that were significantly higher than male students.

## Supporting Women of Color's Participation in Technology Training Programs

Most larger technology training programs have four core aspects to their programs: 1) recruitment; 2) support services; 3) instruction; and 4) job placement services.

Technology training programs can uniquely engage and support women of color in each of these domains to ensure their success in the program and beyond. Some of the recommended programmatic strategies highlighted here benefit both men and women, but because women tend to experience greater barriers to participation, shifts in practice can be especially effective in increasing the enrollment and engagement of women of color.

### Recruitment

Technology training programs can create communications and marketing materials that speak directly to women of color, featuring images of women of color and speaking to what we know motivates their participation—an interest in technology (however informal) and a desire for economic mobility. Training programs can also leverage partnerships with community-based organizations to expand their pool of applicants and engage alumnae ambassadors to provide peer-to-peer encouragement.

### Support Services

Given that women tend to face more challenges than male students, wraparound services provided by programs take on added importance. Technology training programs can be intentional about support services, ranging from providing bridge programs as on-ramps to technology training to allocating emergency funds to

address unanticipated difficulties. Programs can also be intentional about providing social support through female role models and affinity groups.

### **Instruction**

Technology training programs can ensure gender-inclusive classrooms by being attentive to the ways in which bias shows up in the classroom and using a variety of instructional approaches to ensure engagement from female students. Training programs can also strive to increase the presence of female instructors to provide role models in the classroom.

### **Job Placement Services**

Technology training programs can support women of color's transition into the workplace by creating strong partnerships with employers and screening them for strong diversity and inclusion practices. In addition, they can prepare their women of color students to recognize and address potential experiences with bias in the workplace.

## **Surviving and Thriving In the Workplace**

This section examines the experiences of alumnae from technology training programs, and explores the ways in which employers can create a culture of inclusion to support the career advancement and success of women of color.

### **Experiences in the Workplace**

NPower alumni, both male and female, report generally positive experiences as they transition into the workplace, reporting high levels of belonging, strong support from managers, and ample access to role models and mentors. In many ways, these findings are a testament to the preparation provided through technology training programs as well as employers who are thoughtful and forward-thinking about creating an inclusive workplace.

- On a scale of 1 to 5 (with 5 representing “strong agreement”), both male and female alumni of color had average ratings of 4 or higher on items related to dimensions of belonging and inclusion. Alumni felt valued and respected at their companies, felt comfortable sharing opinions and ideas, and believed their organizations had a strong commitment to diversity and equity.
- Female alumnae of color reported they had ample networking opportunities (68 percent), role models in the industry (78 percent), and mentors in the industry (74 percent). A vast majority (77 percent) also indicated they were offered the necessary training and support needed to advance in their careers. These rates were similar to their male counterparts.

At the same time, these positive experiences are coupled with data that show that women of color alumnae of NPower's program report significantly higher levels of bias in the workplace and that concerns about gender bias are top of mind as they advance in their careers.

- When asked about eight distinct forms of bias, women of color were three times more likely to report experiencing incidents of stereotyping or discrimination in the workplace than men (28 percent vs 9 percent).
- When asked about barriers to future success, 24 percent of women of color worried about facing stereotypes about their commitment or ability based on their gender, compared to only 1 percent of men who worried about gender bias.

While this survey data underscores the promise of technology training programs and strong partnerships with employers, it also highlights the stark societal realities around bias and discrimination that continue to play out in the workplace and the importance of concerted efforts by employers to address and mitigate these dynamics in the workplace by building a culture of inclusion.

### **Building a Culture of Inclusion in the Workplace**

Technology training programs help prepare women of color coming from nontraditional backgrounds for the workplace—helping them develop the skills and strategies to navigate not only a male-dominated field, but also a corporate or white-collar culture that may be new to them. Even as women develop strategies to succeed



in the workplace, it is equally if not more important for employers to foster a culture that is inclusive of gender, racial/ethnic, and socioeconomic diversity. Employers can create this culture by doing the following:

- 1) Shift the mindset to include individuals from nontraditional educational backgrounds as part of the talent pipeline. Invest in the supports needed to recruit and retain this talent.
- 2) Foster inclusive leadership and establish accountability metrics.
- 3) Encourage authenticity and bringing one's whole self to the workplace.
- 4) Ensure opportunities for women of color to tap into networks and get exposure for their work.
- 5) Promote career advancement and training and build a learning culture.

## Call to Action

This research highlights the ways in which the talent pipeline of women of color remains largely untapped and under-resourced. Creating economic opportunities for those who have the least access to them and shifting mindsets about the potential of women of color in technology may not be an easy endeavor. It will take collective and intentional efforts by funders, practitioners, and employers to invest in what we know works as well as the courage to test new ideas and approaches to expand our toolbox of strategies and solutions.



NPower students collaborating on a project at their San Jose classroom.

### Practitioners can:

- Commit to ongoing professional development opportunities to ensure that staff are aware of how gender bias may be affecting the classroom culture and program environment and that they have the know-how to interrupt and mitigate bias when it appears.
- Consider flexible training options, including online or evening/weekend courses, that can better accommodate caregiving or employment responsibilities.
- Partner strategically with other technology training programs to create a more holistic set of services and opportunities for students and alumnae.
- Conduct regular surveys of program participants and alumni to understand their challenges, motivations, experiences, and the longer-term return on investment.

### Employers can:

- Consider skills-based hiring and embrace individuals from nontraditional backgrounds, recognizing that while there may be some challenges, it is a necessary and fruitful endeavor in building the 21st century workforce.
- Be intentional about mentorship and sponsorship opportunities for women of color to ensure that they have an opportunity to advance in their careers.
- Commit to ongoing professional development related to equity and inclusion and develop benchmarks for equity and inclusion goals to demonstrate accountability.

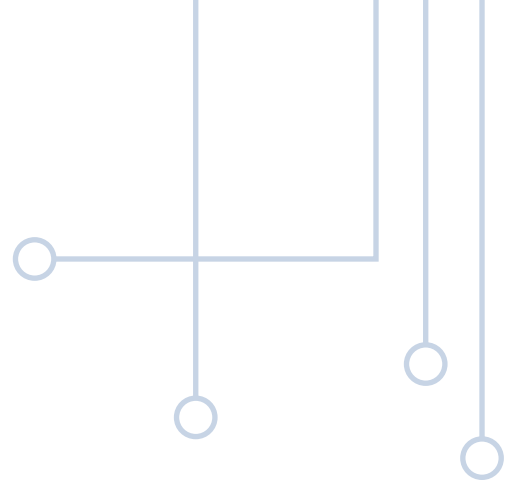
### Funders can:

- Increase investments in nonprofit technology training specifically to engage and support women of color.
- Invest not only in classroom training, but also in wraparound services, including childcare, transportation, and mental health resources, that address the full set of supports needed to succeed.
- Serve as advocates within the funding community to convey the importance of targeted support for engaging women of color in technology.



01

# Introduction



*In March 2014, Ateika Samuel gave birth to her son Jace. She describes that day as a time of overwhelming emotions—among them, happiness, fear, and anticipation.*

Looking back on that moment, Ateika says, “I was overjoyed. But, truthfully, I knew that I was also in over my head. There I was unemployed, with the responsibility of raising a newborn. At the time, I was living in my home country of St. Vincent and the Grenadines, amongst my siblings, and I was completely dependent on them for everything. Even with a community college degree, I was struggling to find work. So, by day, I hunted for jobs, and by night, I hunted for sleep.”

Eventually Ateika landed a job as a supervisor at a restaurant, balancing her 12-hour shifts at work with her second 12-hour shift as a mom. Ateika yearned for more, though, aspiring for a more fulfilling career and wanting to provide for her son.

When the opportunity to move to the U.S. arose, she jumped at it, but struggled to find work upon her arrival. She heard about NPower, a technology training program, from a family friend and applied. “Suddenly, my days were a blur of rigorous training, lengthy syllabuses, and high expectations. It was challenging. And that was exactly what I wanted. But that didn’t make it easy. And there definitely were times when I thought about giving up. Someone—an instructor, a classmate, a staff member in Brooklyn—always seemed to turn up when I needed it, constantly reassuring me that if I kept moving forward, and if I kept trying, I would achieve the life that I envisioned.”

Fifteen weeks of training, and an A+ certification later, Ateika joined Citigroup’s Executive Support Team for her internship. That internship turned into a full-time consultant role and a year later, Ateika was hired as a salaried employee. Within a year, Ateika was promoted at Citi, where she continues to develop project management and strategic thinking skills, while pursuing a degree in information systems.

**A**teika's story is a powerful one about perseverance and opportunity—an antidote to the abysmal statistics showing that less than 10 percent of the technology workforce consists of women of color. Ateika's journey also highlights the pivotal role high-quality technology training programs can play in addressing the shortage of tech talent, while serving as a gateway to jobs in the new economy, lifting people out of poverty into the middle class.

Given the ubiquity of technology in our daily lives, it is no surprise that technology is one of the fastest growing sectors of the economy. In the next decade, jobs in computer and mathematical occupations are expected to grow by 13 percent, with nearly 600,000 new jobs on the horizon (Bureau of Labor Statistics, 2017). Yet opportunities in the technology industry have not been evenly distributed. The technology workforce is predominately male and predominately white.

As the tech industry faces calls to increase the diversity of its workforce, much of the focus has been on strengthening traditional pathways through K-12 and post-secondary education. Yet research shows that girls of color, particularly those from low-income backgrounds, have diminished access to computing coursework in their early educational experiences compared to males and compared to white students, putting them at an even greater disadvantage in becoming full participants in the fastest growing sector of the U.S. economy. According to *Rebooting Representation*, a recent report by Pivotal Ventures and McKinsey & Company, it is for this reason that multiple on-ramps and later on-ramps are crucial to ensuring that women of color become better represented in the technology workforce (Pivotal Ventures; McKinsey & Company, 2019).

Greater diversity in the technology workforce, including that of women of color, is essential not only to fill current employment gaps in the sector, but also to ensure greater relevance and innovation in the sector. Increasingly, examples of how implicit gender and racial bias are built into algorithms and product design are coming to the forefront. Having women of color at the table, helping to create and refine the technology of the future, is one way to mitigate these biases and foster genuine innovation (Alfonseca, 2019).

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## 40 by 22: Advancing Young Women of Color in Tech

Recognizing the need to not only shift the dynamics of the technology industry, but also to expand economic opportunities for women of color, in May 2018 Citi Foundation awarded a \$1.64 million grant to NPower to increase the enrollment of young women in its program, equipping them with the technology skills needed to prosper in the digital economy.

Citi Foundation's grant reaches the program's sites in California, Maryland, Missouri, New Jersey, New York, and Texas. The ultimate goal is for NPower to increase enrollment of young women from approximately 25 percent to 40 percent by the end of the year 2022, along with a parallel goal of increasing the percent of female instructional staff to 40 percent by the year 2020.

Dubbed "40 by 22," the initiative's explicit focus on increasing the representation and success of women in technology training programs is one of the most prominent efforts of its kind in the nonprofit sector. Tia Hodges, senior program officer at the Citi Foundation, describes 40 by 22 as "a call to action"—one that aims to "elevate the conversation on increasing the number of young women of color in technology."

Through Citi Foundation's support, NPower has engaged in a multi-faceted effort to achieve greater gender parity in its work. NPower has focused on deepening programmatic strategies to increase the recruitment

**Multiple on-ramps and later on-ramps are crucial to ensuring that women of color become better represented in the technology workforce.**



and retention of women of color in its classes, created dynamic and targeted marketing campaigns to raise the visibility of women of color in technology and change the narrative about their role in the field, established a National Instructor Institute to recruit female instructors and to give all training staff more structured coaching and guidance to improve the student experience, and examined its own internal policies, practices, and awareness around gender bias.

NPower's leadership will be the first to acknowledge there have been hits and misses. At the same time, the very presence of the initiative has fostered a deeper sense of intention, commitment, and awareness among staff, students, and employers around what it takes to support women of color as they pursue careers in technology.

As 40 by 22 approaches its two-year mark, there are signs of progress—enrollment of women has increased to 31 percent and the instructional staff has gone from one female instructor in 2018 to recruiting and onboarding six additional female instructors two years later. In this report NPower seeks to share some of its lessons learned, while also garnering insights from the broader field to lift up effective practices that can inform the work of its peer training programs as well as the employers who work with them.

## Building Blocks of 40 by 22

- **Programmatic strategies to increase the recruitment and retention of women of color**
- **Dynamic marketing and communications efforts to raise the visibility of women of color in technology**
- **Increased recruitment of female instructors and deeper staff training through a newly established Instructor Institute**
- **Reflection on internal policies and practices, including professional development related to gender bias**

## About this Research

This report focuses on the unique potential of nonprofit technology training programs to address unmet demands in the field, while also providing critical economic opportunities to women of color who may not have had access to traditional pipelines into technology jobs.

**To date, the intersection of gender, race, and class in the technology industry has received little attention. This paper, through qualitative and quantitative data, describes what is required to invest in and benefit from the talent of women of color from low-to-moderate income communities.**

Based on surveys and interviews with NPower students, alumni, and staff, as well as interviews with practitioners, scholars, and employers, this paper explores the reasons women of color pursue technology training, potential barriers in enrolling and participating in training opportunities, and best practices for supporting women in technology training. The report also highlights experiences in the workplace after women of color graduate from technology training programs and recommendations for how employers can create an inclusive culture that allows women of color to thrive and advance in their careers.

Considerations for policymakers to leverage and amplify the potential of technology training programs are also offered.

## AMONG THE KEY THEMES IN THIS REPORT:

- **Nonprofit technology training programs address an important niche in expanding the talent pipeline for women of color from low-to-moderate income communities;**
- **Engaging women of color in these programs is an imperative—both to create economic opportunities for women of color and to access untapped talent for a sector with a high number of unfilled jobs;**
- **Both goals are achievable and can reap significant benefits yet require intentionality in how practitioners and employers support women of color in technology roles and set them up to thrive in technology careers.**

Intentionality is a recurring mantra in this report. Expanding economic opportunity and shifting the demographics of the technology workforce will not simply happen in due time. In fact, the number of women of color in technology jobs has *decreased* in recent years (McAlear, Scott, Scott, & Weiss, 2018).

Technology training programs need to assess their programs critically and deliberately implement approaches that do a better job of serving women of color, while also forging effective partnerships with employers, who must be similarly intentional and thoughtful about how they can create an inclusive workplace culture that supports women of color, an effort that will ultimately help them become more productive, efficient, innovative, and competitive in the marketplace.

While this report focuses on the experiences of women of color, dedicated attention to this group can help promote inclusion and opportunity for everyone. Attention to a more inclusive classroom and work culture can create a stronger sense of commitment and community for everyone, ultimately contributing to more potent outcomes. As one of our interviewees observes, “Think about how the high tides can lift all boats. When you put the money, energy, time, and resources to increase the level of support [for women of color], you’re going to see fruits from your labor across the board.”



## Report Snapshot

**To date, the intersection of gender, race, and class in the technology industry has received little attention.**

**This paper, through qualitative and quantitative data, describes what is required to invest in and benefit from the talent of women of color from low-to-moderate income communities.**

**Commissioned by NPower with support from the Citi Foundation, this report draws upon a year-long data collection effort and integrates data from the following sources:**

**566**

Survey responses from NPower students

**436**

Survey responses from NPower alumni

**57**

Interviews with practitioners, scholars, students, alumni, and employers

**5**

Focus groups of NPower staff

**3**

Convenings featuring insights from women of color leaders in technology

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See Appendix A for detailed information on the methodology.

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# Tackling the Leaky Tech Pipeline

“I was always good with technology, but never studied it.  
I never had anyone in my family who was an engineer or a coder.  
I wanted a career and a better future for myself, but I couldn’t afford to stay in college.”

These were the refrains we heard over and over from young women of color interviewed for this project. Developed by the Kapor Center, the [Leaky Tech Pipeline](#) framework gives shape to these sentiments and deconstructs the reasons why there is such a lack of diversity in the tech ecosystem (Scott, Klein, McAlear, Martin, & Koshy, 2018). The framework details barriers to underrepresented groups within PreK-12 education and higher education and how these barriers persist into the tech workplace and entrepreneurship and venture capital opportunities.

Within PreK-12 education, for example, inequitable funding streams for public schools mean that students in high-poverty schools, who are disproportionately Black and Latinx, attend schools that lack advanced course offerings in math and computer science, computer equipment, and broadband access.

Diminished access to early computing education means that many students of color are already at a disadvantage when they graduate high school. In turn, the lack of quality academic preparation and the prohibitive costs of colleges and universities put higher education out of reach for many students of color.

Repairing the leaky pipeline and creating more equitable access to technology education that doesn’t leave low to middle income communities and women behind will require significant resources and public will. **Although these are necessary efforts, it will take years if not decades to implement these interventions and to see their benefits.**

Meanwhile, the need to fill technology jobs is an urgent one. Without the talent to fill these jobs, the U.S. will become increasingly vulnerable in a global economy that relies on technology as a core competency. Complementing efforts to strengthen traditional educational pathways, technology training programs can play an important role in strengthening the pipeline, while creating opportunities for under-represented groups.

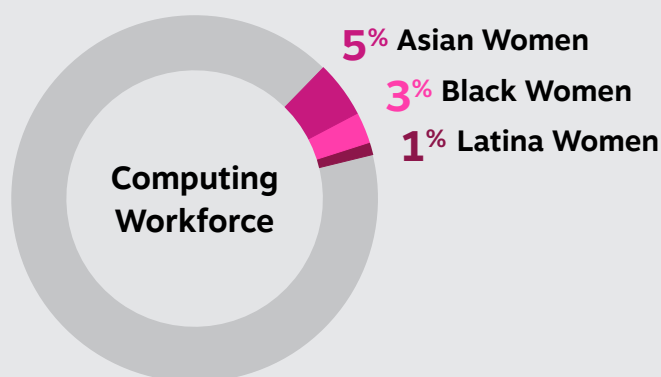
Careers in technology lie in contrast to other employment opportunities for women of color that can focus on low-wage, low-growth positions. Home health aides and personal care aides, for example, are among the top five fastest growing occupations in the country. These aides are predominately women of color and median pay is about \$24,000 a year. In contrast, median pay for entry-level computer support specialists is about \$53,000 a year (Bureau of Labor Statistics, 2018). Moreover, those entering the field have significant potential for career growth as technology jobs exist in almost every industry.

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## BY THE NUMBERS

### Women of Color in Technology

**Women make up only 26% of the technology workforce and hold only 11% of senior leadership positions at tech companies. Representation of women of color in technology positions is even lower.**



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Analysis conducted by National Center for Women and Information Technology based on data from Bureau of Labor Statistics, Labor Force Characteristics by Race and Ethnicity, 2017

# Technology Training Programs: A Lay of the Land

Technology training programs run the gamut, including government sponsored workforce development programs, nonprofit organizations offering technology training, for profit bootcamps, university-sponsored training academies, community college certificate programs, and company-sponsored training and re-training initiatives.

This paper focuses on nonprofit organizations offering technology training for adults, particularly for young adults. Bootcamps and university-based programs tend to be available to anyone who can pay, while company-sponsored training may be limited to an organization's existing employees.

**In contrast, most nonprofit technology training programs have an explicit mission to reach the most under-served groups, typically individuals from low-to-moderate income communities, most of whom do not have college degrees. These programs primarily serve students of color.**

Leah Freeman, director of public relations at LaunchCode, explains the importance of nonprofit technology training programs in the broader technology training ecosystem, "Programs need to be accessible, affordable, and accelerated in order to really make a dent in the tech talent gap and to make a dent in diversifying the tech industry. You're never going to get more women into the tech industry if you expect them to drop \$12,000 for a coding bootcamp or \$30,000 for a computer science degree and sacrifice responsibilities at home to

go to school full time. The boot camp industry is wildly successful, but the people that they're graduating look like the same people in the tech industry now. And that's a big problem. So that's what we're really trying to change with our programs."

Within the nonprofit sector, among the most prominent organizations are Year Up, Per Scholas, NPower, and LaunchCode. Each has a presence in multiple cities across the country. Additionally, there are numerous smaller nonprofits across the country that also provide technology training within a particular market. Notably, some of these programs, such as Byte Back and Pursuit, are well-poised to scale outside of their current markets.

Like the technology sector at large, men enroll in technology training programs at higher rates than women. Data provided by technology training programs show that enrollment rates of women hover around 25-35 percent in the large national programs, though individual sites sometimes had higher rates and some cohorts had participation rates approaching 40 percent. Some of the smaller programs also reported enrollment rates for women of color closer to 40 percent. Retention rates for students varied widely among those programs that shared data, from 50 percent to 85 percent, but none of the programs reported substantial differences in attrition between male and female students.<sup>1</sup>

**Programs need to be accessible, affordable, and accelerated in order to really make a dent in the tech talent gap and to make a dent in diversifying the tech industry.**

**LEAH FREEMAN**  
LaunchCode

<sup>1</sup> Five technology training programs voluntarily shared data on enrollment and retention rates for this project. Data quality varies among programs so these figures are provided as a point of reference, rather than hard and fast figures.



## A CLOSER LOOK

# National Technology Training Programs

## npower

NPower delivers 23 weeks of technology training to young adults 18-25 and to military veterans and their spouses in 7 U.S. markets, as well as Canada. NPower provides professional development, wraparound services, as well as support for internship, registered apprenticeships, and job placements. NPower also offers advanced training for alumni.

## yearup

Year Up supports low-income young adults, ages 18-24, to gain the skills, experiences, and networks necessary to launch their professional career. Year Up operates in 18 U.S. markets and is a one-year, intensive training program that includes a combination of hands-on skills development, corporate internships, and wraparound support.

## PER SCHOLAS

Per Scholas provides intensive, full-time, 12-18-week technology training, with career development instruction and job placement support to unemployed and underemployed adults 18 and over. Per Scholas operates in 11 U.S. markets.

## launch \_code

LaunchCode is a St. Louis-based nonprofit creating economic opportunity by adding new talent to tech ecosystems across the nation. Operating in 4 markets, LaunchCode's programs are free and accessible to motivated individuals who are assessed for passion, drive and aptitude rather than credentials.



NPower students participate in a volunteer Tech Challenge event at Citi, 2019.

A decorative graphic in the top left corner consisting of several light blue lines that start horizontally and then bend at a 45-degree angle, creating a circuit-like pattern. Small circles are placed at various points along these lines.

02

# **Pursuing Technology Training: Motivations and Barriers**

# Motivated by a Passion for Technology and A Desire for Economic Mobility



“

I was enrolled in college. I was pretty much on my third strike and just when I finally decided to get it together and focus on school, I ended up losing my financial aid. I didn't want to just find a random job. I needed to find something that could really help me not only get the income that I wanted to have, but also fulfill me in an actual career.... I've always had an interest in IT.

**ASIA SLAUGHTER**

NPower alumna in St. Louis | Technical Support Specialist at KPMG



“

I had little knowledge about technology, though I had shadowed my grandfather for years on his career path as an IT technician. NPower presented me an opportunity to get started in my career. They opened the doors to skills building, networking and furthering my professional development.

**NYEEMA THOMAS**

NPower alumna in Jersey City | Discovery Analyst at Merck



“

I wasn't feeling fulfilled. I ended up falling into a vicious cycle of getting a job, working hard, and then losing motivation. I worked survival jobs because they were necessary as opposed to finding a career that I was interested in...I wanted to find that joy again and make a career out of it. It was clear to me that IT was the career I needed to pursue.

**COURTNEY GRANT**

NPower alumna in New York City | IS&T Client Service Technician, CBS

**T**he stories of Asia, Nyeema, and Courtney highlight the variety of reasons that prompt young women of color to pursue technology training. Foremost among these, though, is an interest in technology. Ninety percent of female participants indicated that a desire to learn more about technology motivated them to enroll.

In interviews, many female students reported a natural inclination toward technology, whether it was a knack for figuring out how to fix cell phones or an interest in gaming. In many cases, though, due to inequities in public education, these women never had exposure to any formal educational experiences to nurture those talents. Research by Mission Measurement shows that *interest* is a critical first step towards a successful career in technology. When coupled with supports to develop *proficiency* and *persistence*, women are best positioned to succeed in technology careers (Pivotal Ventures; McKinsey & Company, 2019).

The desire for economic mobility was also a strong motivator. Sixty-seven percent of female students (compared to sixty percent of male students) indicated they were working at the time of enrollment, primarily in service jobs, and pursued technology training to get on a career track.

Indeed, staff across different technology programs shared anecdotal observations that women were more likely than male students to articulate a desire for financial stability and mobility as an important consideration. Many students were surprised to learn that training opportunities were free. This made programs attractive to many female candidates, particularly those concerned about incurring student debt or not being able to meet their basic living expenses or family obligations.

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**90%**

of female students pursued NPower because they were interested in technology.

**67%**

of female students were working in low-wage jobs and enrolled to get on a career track.

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## Increased Barriers to Participation

Even as young women of color express hope and optimism for their futures through their participation in technology training programs, once enrolled, women report facing a variety of challenges while they were in the program. Overall, women reported significantly more challenges than male students. Presumably, many of these same challenges deterred women from enrolling in the first place. Interviews with female students who withdrew from NPower after six weeks or more found that personal circumstances, such as childcare challenges, were the primary reason for leaving, not difficulty with the course content.

### FINANCIAL DIFFICULTIES

Both female and male students and alumni report that they consistently faced difficulty managing their financial commitments while in the program. Sixty-six percent of women (compared to 59 percent of men) indicated that they frequently or sometimes experienced financial difficulties while in the program. Though most nonprofit technology training programs offer their services free of charge, participation in these programs often limits students' earning potential while they are in the program. (Nearly 60 percent of students indicated they worked either full-time or part-time while participating in technology training.) Meanwhile, students still face financial obligations to cover expenses for necessities such as housing, food, and transportation. Indeed, staff cited the lack of stable housing, past debt, and lack of reliable transportation as challenges for their students.

### CAREGIVING RESPONSIBILITIES

Women were significantly more likely than male students to report that childcare responsibilities, as well as caring for their own health issues or a loved one's health issues, posed difficulties for them while they were in the program.

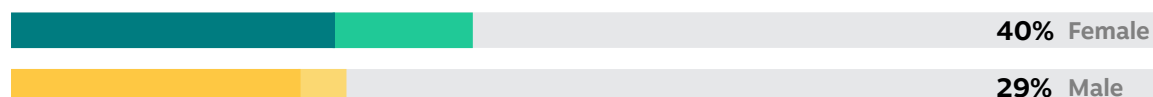


## Challenges Experienced While Enrolled in Tech Training

### Difficulty managing financial commitments



### Difficulty with your own health\*



### Difficulty managing a family member or loved one's health issues \*



### Difficulty managing childcare responsibilities\*



### Lack of stable housing



**Female** Sometimes Frequently **Male** Sometimes Frequently

Based on responses from 617 male alumni and students and 292 female alumni and students from NPower. Respondents could endorse all items that applied to them. Totals do not add up to 100%.

More than 90 percent of alumni and students identified as a member of a racial/ethnic minority group.

\* Statistically significant differences between male and females. There is a less than 5 percent probability that differences between male and female students are due to chance.

Nicollette Valliant, a social support manager at NPower's Jersey City site, observes the gendered nature of caregiving responsibilities, as well as the challenge of finding effective solutions, "A lot [of our female students] had issues with attendance because of the fact that they didn't have reliable childcare...Honestly, if a female student starts the program and they don't have a daycare that they use already, the amount of time it takes for me to help them get a childcare voucher can be two to three months. The program's half over at that point, so it's kind of too little, too late. And even outside of childcare itself,

a lot of our female students are caregivers, whether it's to a parent or a grandparent. I see our female students getting called because their little brother's sick and they just stay home. I don't necessarily see a lot of our male students have that issue."

In the case of families whose first language is not English, caregiving includes helping non-English speaking family members with translation needs and other forms of support, particularly with legal or medical matters.

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# Structural Factors affecting Women's Participation in Technology Training

Lack of representation, poverty, and discrimination can be significant, and sometimes unrecognized, sources of stress. As technology training programs seek to serve women of color more effectively, it is important for program staff to be aware of and understand the ways in which the broader realities of students' lives may affect their ability to participate and succeed in their programs.

## Lack of representation

Research consistently shows the lack of representation of women in technology serves as a barrier to even considering the field as a viable career path. In addition to explicit messages of exclusion, women and girls are faced with a variety of implicit messages throughout their lives that technology is not for them—being steered toward some areas of work and not others or seeing movie and television portrayals of white male computer “nerds,” for example.

Diana Albarrán Chicas, the daughter of immigrants and the first person in her family to attend college, began her career pathway at a collegiate summer enrichment program, ultimately earning an engineering degree from MIT. As a volunteer with Latinas in STEM, she now works to encourage young women of color to pursue technology and reflects on her own experiences, “When you're one of the few women surrounded by men, being able to adjust your frame of mind and to believe that you belong there and feeling like that you have to constantly be proving yourself, it becomes overwhelming.”

## Discrimination

A litany of research shows the ways in which racism, sexism, and classism continue to operate in systemic ways in the United States. Women are still paid less than men for similar work, while women of color are paid less than white women for comparable work. Both explicit and implicit forms of discrimination are considered chronic stressors that are associated with diminished physical and mental health outcomes. For women of color enrolled in technology training programs, discrimination can manifest

not only in the context of gender and race, but also through bias about socio-economic status. These experiences can be internalized and manifest as imposter syndrome.

## Poverty/Neighborhood conditions

Like discrimination, poverty can serve as a chronic stressor. People living in low-income communities are less likely to have access to good schools, quality healthcare, and decent housing. The lack of stable housing, for example, surfaced as a challenge among a critical mass of female students in technology training programs. Staff report that some students are homeless or on the cusp of homelessness, yet wait lists for subsidized housing, in cities such as Baltimore, can be years long.

Some get pushed out away from city centers where stable and affordable housing may be more plentiful, but access to reliable transportation and job opportunities are less so. Poverty is also associated with higher levels of exposure to violence and poorer health outcomes, to name just a few of the sources of chronic stress and trauma for those who live in low-to-moderate income communities.

Marie Thornton, former recruitment manager at NPower's St. Louis site, shares the following observation about neighborhood conditions and the ways in which these conditions impact how participants show up for training, “They see this as a future, but when they leave out of these doors, their reality is not the same as the professional environment we are training them for. Our students are hurting and are dealing with real things—family members that are gang affiliated, gun violence, single parenting with lack of childcare options, etc. They have to live in both worlds and switch gears for survival mode. I think about how hard it is to navigate between the two—surviving the present and preparing for the future.”

☺

**[Students are] dealing with real things...[It's] hard...to navigate between the two—surviving the present and preparing for the future.**

**MARIE THORNTON**  
NPower

☺

03

# **Supporting Women of Color's Participation in Technology Training Programs**

**M**irroring trends in technology jobs more broadly, women of color are underrepresented within technology training programs. That said, the representation of women in technology training programs tends to be higher than it is among STEM majors at colleges and universities, and thus bears greater promise in diversifying the technology workforce. At the same time, all programs interviewed for this research believe they need to do more to recruit more women into their programs, provide supports to ensure program completion, and engage women after their graduation to ensure that they thrive in their technology careers.

Intentionality throughout the process is key. Shifts in women's participation will not occur if programs wait for the tides to turn; rather staff must proactively develop strategies and interventions to ensure that their programming speaks to women of color and their unique needs.

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## Building a Foundation of Inclusion and Equity

Like any other organization seeking to serve women of color effectively, technology training programs must prioritize building a diverse team and demonstrating a strong commitment to equity and inclusion across its organization.

### **Demonstrate an ongoing commitment to equity and inclusion.**

Equity and inclusion are not end goals; rather they are values that require constant reflection and assessment. Technology training programs can demonstrate this commitment in a variety of ways—by making their values explicit, by having diverse boards, by pushing conversations about diversity, equity, and inclusion in their industry and with their employer partners, and by committing to their own, ongoing professional development.

Per Scholas, for example, has an internal initiative called Inclusion by Intention that centers equity and inclusion in the staff's daily work, from how they serve as leaders and thought partners to employers to the ways in which they

interact with and support their students. The initiative recognizes that both staff and students need to be able to bring their authentic selves into the workplace. Likewise, Year Up has a robust staff learning curriculum which includes professional development related to a variety of equity and inclusion topics, including internalized racism, gender bias, and implicit bias.

NPower's staff recently held its first-ever staff-wide gender bias training, which led to some immediate changes such as including an expanded list of gender options on student applications, as well as a longer-term commitment to engage in professional development related to equity and inclusion. By beginning the journey of unpacking one's own biases, staff can more effectively recognize how bias shows up and how it can be mitigated within the program.

Karen Peterson, founder and chief executive officer of the National Girls Collaborative Project, helps support gender inclusion in STEM programming across the country. In delivering trainings, she says, "We've been focusing on training that increases self-awareness because if a facilitator or instructor is not aware of their own biases, you can't get to where you need to get to in the classroom for it to be generally equitable."

Importantly, this applies to instructors and staff of all genders, "I say in my talks, 'Men are not the problem. And women are not the answer.' It's not a female or male problem. It's an issue we all have to address."

“If a facilitator or instructor is not aware of their own biases, you can't get to where you need to get to in the classroom for it to be generally equitable.”

**KAREN PETERSON**

National Girls Collaborative Project

### Hire a diverse team of staff and instructors.

Just as the lack of role models in the workforce can deter women from continuing in their careers, the lack of role models within training programs can also be a deterrent.

Knowledge House, a training program in the Bronx, whose female student population has ranged from 30 to 40 percent credits the diversity of its staff, particularly its roots in the community as a critical factor to their success. Jerelyn Rodriguez, co-founder and chief executive officer of Knowledge House, notes, “100% of our staff are of color. Most of us either grew up in the Bronx or we currently live in the Bronx. So everyone in some ways represents the community that we serve. We organically deliver the curriculum and case management in a way that makes our students comfortable.”

Both program staff and instructional staff should reflect the diversity of its students. While program staff tend to be gender-balanced, instructional staff at most programs interviewed for this study continue to be predominately male. One executive director acknowledged that she had received feedback that the classroom environment was “very bro-ish” and “male centric.” A staff member at another program observed that “Male students saw [the primary male instructor] as their buddy, who they could talk to about video games. I did not see the female students respond that way.”

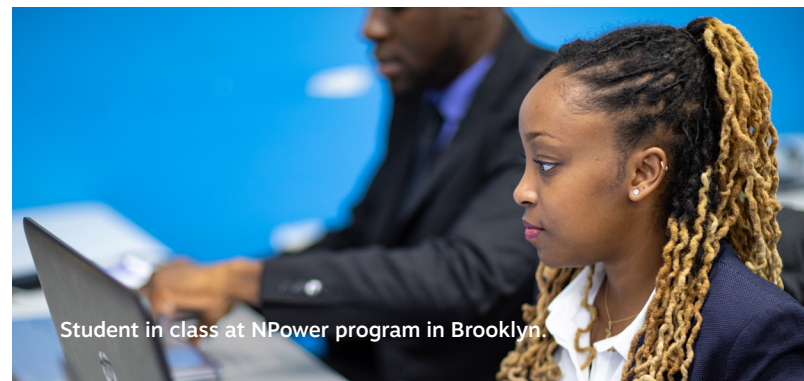
Some programs, including NPower, are making concerted efforts to hire female instructors or assistant instructors to ensure that women have role models in the classroom. With its National Instructor Institute, NPower has expanded its recruitment strategies to attract more female instructors. Through the Institute, NPower ensures that all instructional staff have the coaching and mentorship needed to improve the learning experience, particularly for female students. Regina Dombkowski, an NPower alumna, who currently works as senior vice president at Citi, describes the value she saw in having a female instructor, “I was very fortunate because my instructor was female and she served as a role model. To see [that] she’s really amazing [and] she knows what she’s talking about and to see men respecting her—she showed me that this was actually a viable career option. I would not be in the career today if it was not for her.”

## Centering Women of Color across the Program

Most larger technology training programs have four core aspects of to their programs: 1) recruitment; 2) support services; 3) instruction; and 4) job placement services. Technology training programs can uniquely engage and support women of color in each of these domains to ensure their success in the program and beyond. Some of the recommended programmatic strategies highlighted here benefit both men and women, but because women tend to experience greater barriers to participation, shifts in practice can be especially effective in increasing the enrollment and engagement of women of color.

### RECRUITMENT

While a few technology training programs reported cohorts consisting of 40 to 45 percent women of color, none of the programs we examined had sustained those numbers consistently over time. There are no silver bullets and no hard and fast answers about how to maintain a critical mass of women of color in technology programs. Changing the tide will not be easy and increases in female enrollment at technology training programs will ultimately need to be accompanied by parallel efforts to increase girls’ exposure to and participation in STEM curricula earlier in the educational pipeline and to change outdated societal narratives about women of color in technology.



Student in class at NPower program in Brooklyn.



# Supporting Women of Color in Technology Training Programs

Technology training programs can uniquely engage and support women of color in each aspect of their programming. Some of the recommended strategies highlighted here benefit both men and women, but because women tend to experience greater barriers to participation, shifts in practice can be especially effective in increasing the enrollment and engagement of women of color.



## Recruitment

- Look for untapped interests that might translate into tech fields.
- Highlight the wide array of career opportunities available in technology.
- Develop marketing materials that are inclusive of women.
- Build partnerships with community-based organizations that serve women.
- Use community-based approaches to recruitment.
- Offer streamlined interview and application processes.
- Engage alumnae ambassadors.



## Social Support Services

- Provide bridge programs as on-ramps to technology training.
- Provide wraparound support services.
- Create a supportive, familial environment.
- Provide female role models and mentors.
- Offer affinity groups, meetups, and events for women.
- Provide stipends or emergency funds to mitigate financial challenges.



## Instruction

- Provide a variety of instructional approaches, especially hands-on instruction and small group learning.
- Offer examples and entry points that are inclusive and relevant.
- Provide part-time and/or online course offerings.
- Encourage and foster peer learning opportunities.
- Be attentive to female students' confidence levels and be proactive about encouraging them.



## Job Placement Services

- Educate employers about technology training programs.
- Develop strong partnerships with employers.
- Ensure that internships and apprenticeships provide meaningful experiences.
- Give students an idea of what to expect.
- Create alumnae networks that can support female graduates.

To move the needle, training programs are experimenting with a range of recruitment strategies to help them achieve greater representation of women of color in their programs. The following section describes promising strategies, many of which improve recruitment overall, but can be especially effective in reaching a broader swath of prospective female candidates.

### **Look for untapped interests that might translate into tech fields.**

Although most nonprofit technology training programs do not require previous technology experience, our data show that a genuine interest and passion for technology, however informal, is important in being able to succeed in training programs. Programs that recruit women for the sake of increasing gender diversity without careful screening for aptitude and interest are likely to see higher rates of attrition.

To screen for candidates who have an intrinsic interest in the field and who are thus more likely to complete the program and thrive in their future careers, recruitment managers suggest assessing for skills that can translate into success in technology careers: someone who enjoys solving puzzles or someone who is involved in gaming, for instance. In this vein, LaunchCode uses a problem-solving assessment as part of its screening criteria.

In addition, recruitment managers cited intangible qualities such as a desire to learn, a sense of motivation, and perseverance as important criteria. Leah Freeman of LaunchCode shares, “We like to say that we assess people for passion, drive, and attitude. What we’re looking for is people who are super motivated to succeed and who want the job afterwards and are willing to put in the work. We’re looking for people that have the aptitude to learn new skills and enjoy doing so.”

### **Highlight the wide array of career opportunities available in technology.**

Technology roles exist in just about every single industry and the increasing importance of technology means that there are a wide range of career pathways within those roles—from project management to cybersecurity. Prospective applicants may not be aware of the diversity of career opportunities available to them. Raising applicants’ awareness of these pathways can help make technology training more attractive for some women.

Theresa Suarez-Johnson, program director at NPower’s Brooklyn site, shares, “What I find is working is identifying opportunities within IT that women gravitate towards. I noticed that a lot of women are interested in the healthcare field, social services. So when we’re recruiting and talking about the program or highlighting those, we’re showing them that tech does live in those sectors.”

Similarly, Year Up, in its initial meetings with applicants, talks to prospective students about their broad career interests and, with female students in particular, makes an effort to expose them to the ways that an interest in “helping people” or “problem-solving” can translate into opportunities in the tech sector.

### **Develop marketing materials that are inclusive of women.**

Program websites, social media postings, advertisements, and email outreach should feature women of color who, ideally, are actual program participants or alumni. Per Scholas recently undertook an exhaustive review of its website to ensure inclusion of images featuring diverse women and to use asset-based, rather than deficit-based language. Likewise, a major component of NPower’s 40 by 22 initiative involves a marketing and social media campaign that features the stories and experiences of women of color in its program. Its campaign, which consists of content-rich online ads with inspiring and empowering messaging has generated over 1 million impressions, reached over 670K people, and boasted over 50K in digital engagements. It has been the organization’s most successful and engaged campaign to date.



40 by 22 marketing campaign example.

Even when images of women are present, interviewees cautioned that they should feel accessible to women from lower-income backgrounds, for example, not feeling too corporate. Similarly, given that women may not have a formal background in technology, but rather a general interest in the field, using language that appeals to women's desire for professional growth, a financially secure future, or an inclination toward technology are likely to be more effective rather than using technology jargon and/or acronyms that may inadvertently turn women away from programs.

### **Build partnerships with community-based organizations that serve women.**

While technology training programs may partner with agencies that focus on connecting their clients to workforce development programs, it is important to go beyond traditional workforce development programs and be inclusive of community-based programs that work with women, which can help expand the pool of potential applicants. As part of the 40 by 22 campaign, NPower has partnered with nonprofit organizations and corporate sponsors to co-host recruitment events with interactive activities to generate excitement about the field.

### **Use community-based approaches to recruitment.**

As programs become more intentional about recruiting women of color into their classes, recruitment managers are becoming more creative in their outreach, often times meeting women where they are in the community—churches, grocery stores, parks, etc. One recruitment manager, for example, said she left informational material at her doctor's office as a way of reaching women who may not be part of specific programs.

### **Conduct female-only information sessions.**

Some programs have experimented with female-only information sessions, even for classes that are co-ed, as a way to establish connection and communicate that women are important and valued in the program.

While not a widespread practice, it may hold some promise in signaling inclusion and providing a level of comfort for women who are considering pursuing such programs. Although information sessions can take place at program offices, community-based information

## **If You Can See It, You Can Be It**

As part of the 40 by 22 initiative, NPower held three convenings to inform and inspire women of color pursuing technology careers, amplifying the message, “If you can see it, you can be it.”

Each convening featured a powerhouse slate of senior women of color leaders in technology, offering honest, real-world perspectives on the challenges of being in the industry, as well as tips on how to succeed and thrive in a technology career. Below are descriptions and links for each convening.

[Breaking Through: Tackling Barriers for Young Women of Color in IT](#) was held at the New York offices of Google. Panelists shared their personal stories of advancing in the IT field and how they navigated the obstacles before them.

[Rising Up: Propelling Career Growth and Wage Equity](#), held in St. Louis at the headquarters of World Wide Technology, featured “mini-TED talks” highlighting three themes relevant to women in the workplace—negotiation, advocacy, and employer support. Following the TED talks, senior women of color leaders facilitated more intimate small group conversations with attendees.

[Reaching Back: Building a Path as a Mentor and Leader](#) was hosted by LinkedIn in San Francisco and focused on mentorship and sponsorship and engaged both aspiring women technologists and Bay Area employers.



For more information about these convenings, visit the [40 x 22 site](#).

sessions are another way to expand the potential pool of applicants and reach those who may not be familiar with the organization.

### **Offer streamlined application and interview processes.**

Some programs have multiple touchpoints as part of the interview process, which can result in attrition in the interview process itself. Applicants with transportation challenges, caregiving responsibilities, or school/work commitments may self-select out of the application process. Conducting video interviews, on the spot interviews at recruitment events, or one-day interview blitzes with relevant staff members can help minimize those who may “drop out” during the application and selection process.

### **Engage alumnae ambassadors.**

Hearing from women who come from similar backgrounds can be a powerful way to encourage women to consider technology as a possible career path.

With many of its students coming from word of mouth referrals, Year Up has started to engage alumni ambassadors more deeply in its efforts to recruit women into its technology programs. Year Up harnesses the authenticity of alumni messengers, while also providing them with some basic training and tools to be effective spokespeople for the program. In working with their alumni ambassadors, male and female, the organization encourages them to communicate that everyone, regardless of their gender or race, should have access to opportunities in the tech sector, emphasizing a message of inclusion.

To amplify the impact of word of mouth referrals in its program, NPower initiated a targeted online alumni referral recruitment campaign, which provided customized links to prospective applicants, adding a more personal touch to recruitment efforts. More than 100 alumni participated in this campaign, resulting in 148 student referrals and 31 enrolled students.

## **SUPPORT SERVICES**

As noted earlier in the report, once women are recruited into a program, they can face a variety of challenges. Importantly, students rated all forms of social support—from staff, classmates, and friends/family—highly in providing motivation to complete the program. Highest among these, however, was support from staff, suggesting that a thoughtful set of supports can help increase retention rates and achieve better programmatic outcomes.

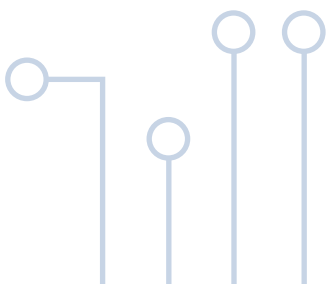
### **Provide bridge programs as on-ramps to technology training.**

To expand the pool of students that programs can potentially serve, some have bridge programs. These programs are designed to help students develop the basic skills needed to succeed in technology training. While bridge programs are not geared towards women specifically, they can help bring more women into the program by expanding the overall pool of prospective students.

### **Provide wraparound support services.**

Recognizing that students are likely to face personal challenges outside of the classroom, all of the larger programs as well as some of the smaller programs provide wraparound support services to ensure successful completion of training. While these supports are beneficial to students regardless of gender, they are especially important for women to complete their programs given that they report higher levels of personal challenges and difficulties while they are enrolled in the program.

Social workers on staff play a critical role in connecting women to needed resources, including applying for public assistance and connecting women to housing, health, and childcare services. Nicollette Valliant, a social support manager at NPower’s Jersey City site, describes her role this way, “My primary function is to support students with whatever barriers they have, whether it’s ‘I’m having a hard time paying my car bill this month, do you have any resources?’ ‘My mom is sick and we don’t have health insurance, what do I do?’ ‘My babysitter cancelled and I’m not going to make it to class today, do you have any connections in terms of childcare?’ Things like that.



A large part of my role is just building rapport, helping them to understand that you don't necessarily have to tell me everything that is going on, but I am here to support you in whatever you need so that you can be successful."

In addition to helping students' access social services and other resources, social workers have regular check-ins with students to provide emotional support and encouragement, while also ensuring students are staying on track with attendance, exam performance, and other program requirements. Social workers also help students prepare for interviews by conducting mock interviews, providing professional clothing, and offering guidance on professional make-up and styling depending on the student's desired work environment.

**A large part of my role is just building rapport, helping them to understand that you don't have to tell me everything that is going on, but I am here to support you in whatever you need so that you can be successful.**

**NICOLLETTE VALLIANT**

NPower

### **Create a supportive, familial environment.**

Survey data from NPower students show that one of the factors contributing to their success in the program is support from staff. Indeed, many women cited the familial nature of relationships as a source of motivation, encouragement, and importantly, growing confidence. Jaquetta Graham, a former NPower student recruiter in Baltimore, says one of the most important parts of

her job is to "show that you care about them as a person first...having that family-oriented type of atmosphere." Interestingly, in a program geared toward middle school students in San Jose, California, the simple act of writing handwritten notes of invitation to potential female participants helped boost female participation substantially, underscoring the importance of creating a personal connection and signaling an inclusive learning environment.

### **Provide female role models and mentors.**

All technology training programs interviewed for this project cite the presence of role models as an important aspect of engaging, supporting, and inspiring women. Technology training programs sought to bring in guest speakers and connect students to alumnae to ensure that women could see others who had forged a similar path ahead them. Alyssa Cisneros, formerly of the Silicon Valley Leadership Group, notes how powerful such experiences can be, "Some of the questions these young women have asked speakers, it just pulls your heart out. 'Have you dealt with sexism and racism and how do you deal with that?'" Honest conversations such as these can help women know that they are not alone, while receiving valuable guidance on how to navigate their own journeys in the sector.

### **Offer affinity groups, meetups, and events for women.**

Networking and peer support opportunities can also serve as sources of critical support. Pursuit, a Queens-based social impact organization that offers a four-year technology training and career fellowship, for example, has an affinity group for female students to voice their thoughts, perspectives, and concerns around their experience in the tech industry. In addition, programs can connect their female students to events and meetups in the community to help expand their networks and meet other women who are working in technology.

### **Provide stipends or emergency funds to mitigate financial challenges.**

Because financial difficulties are such a significant challenge for students, stipends for program participation can provide essential support in completing the program. Although most programs do not have the resources to



provide stipends, Year Up has been able to provide stipends ranging from \$150-\$280 every two weeks to students. Recently, based on internal research about the role of stipends in supporting students, Year Up has decided to lower its stipends and re-direct the resources into an emergency fund. By doing so, Year Up hopes to facilitate a more equitable distribution of funds to students that experience unexpected challenges related to housing, transportation, or other difficulties that might jeopardize their participation in the program. Both stipends and emergency funds represent a relatively small short-term investment that can pay off in the long-term by facilitating program and career success, making them a worthwhile investment for employers and funders.

## INSTRUCTION

Strong, relevant, and engaging instruction that helps students attain the skills they need for the workforce, arguably, is at the heart of a successful technology training program. Yet like the workplace, the classroom environment can reflect bias and exclusionary practices that can make it harder for women to thrive in training programs.

Indeed, female students interviewed for this project said that they were all in the minority, that male students often dominated the discussion, and that female students, at least in the beginning, sometimes lacked the confidence of their male counterparts. Illustrative of the “bro culture” some female students experienced, one student reflects, “The men would joke or behave in a way that I would never with my female friends, and [it felt] a little bit uncomfortable just being around so many guys. I was very aware that there were so many more men and how their voices were so overpowering.”

While most programs are co-ed, Per Scholas has experimented with female-only cohorts and LaunchCode has a training and job placement program called CoderGirl, open to women of all ages, which evolved out of informal meetups that female students were organizing. Per Scholas ultimately chose not to continue with female-only classes because of feedback from their female students who preferred co-ed environments that were more reflective of the workplace.

## Supporting Trans and Gender Non-Binary Students

**In recent years, there has been growing social consciousness about the experiences of transgender and gender non-binary individuals. As part of its work with 40 by 22, NPower has worked to understand the unique experiences of these students and put new practices into place to ensure an inclusive and supportive environment.**

**One former student who identifies as gender non-binary, shares their experience, “When I walked in and saw that the bathrooms had an all gender sign on them, just something that small, I was like, ‘Oh, thanks. I’ve been included.’ Also, [the social worker] provided resources for a local LGBTQ+ community center meeting, which I felt was really cool, and put her pronouns at the ends of the emails.”**

**The former student continues, “Acknowledging that we exist, even if we’re quiet in the shadows or just sitting comfortably in our closets to get through the day is really important.”**

The following section offers recommendations for making the classroom more gender-inclusive.

### **Provide a variety of instructional approaches, with an emphasis on hands-on instruction and small group learning opportunities.**

Students come in with a variety of learning styles, so using a range of approaches can create a more inclusive classroom environment. Female and male students alike report that hands-on learning is the most effective approach, above lectures and other forms of instruction. This not only speaks to adult learning styles, but this approach is also more inclusive of students who come from nontraditional educational backgrounds or speak English as a second language.

Breaking up a larger class into small groups and encouraging peer learning opportunities can be an especially effective strategy to get female students to participate more and to build their confidence.

### **Offer examples and entry points that are inclusive and relevant.**

Good instructors have a knack for conveying complex material in accessible ways, yet sometimes they may do so in a way that resonates with some students and not others. Using football metaphors excludes people who don't watch football; classroom posters and materials that solely feature men may be implicitly communicating to women that they don't belong; materials featuring white women may be off-putting to women of color, and so on. Instructors should take care to use a variety of examples to ensure inclusion and be attentive to examples or metaphors that may not resonate.

Karen Peterson, founder and CEO of National Girls Collaborative Project, offers lessons from K-12 research that are relevant to adult learning environments as well, "There's a large body of research around the types of STEM experiences that engage girls. You want it connected to something in their lives, something that has relevance to them, that has context around it, especially something that impacts the world or especially their community. Those things we know absolutely make for an effective program."

### **Consider part-time and/or online course offerings.**

Many programs require a significant commitment within a concentrated period of time by students. Daney Forbes, a former NPower student, says of her experience, "It's a serious time commitment. The classes were nine to one and I worked two to ten every day. Getting through NPower was harder than my work now because my days were just so long."

While some students are able to manage an accelerated curriculum with support from family and friends, for many it is not a realistic option, particularly for female students who have family responsibilities, childcare needs, etc. Staff at LaunchCode attribute their success in attracting women, in part, due to the flexibility their part-time program offers.

While online courses can break down some of the logistical barriers involved in participation, in-person instruction is part of the "secret sauce" that contributes to programmatic success. With that in mind, hybrid approaches that combine online instruction with in-person learning may bear promise.



Student during instruction in NPower New York program.

### **Encourage and foster peer learning opportunities.**

Staff across programs, as well as female students themselves, described the value of study groups and peer learning opportunities. Female students felt study groups helped them learn the material more deeply and build a sense of community among their peers. Women largely felt encouraged and supported by their peers and appreciated the opportunity to support others. Courtney Walker, reflecting on her student experience at NPower, appreciated the group work, because "if one person knew more about one topic, they would help the rest of the group. If another person needed help, we just kind of shared knowledge."

### **Be attentive to female students' confidence levels and proactive about encouraging them.**

While some women come into programs with high levels of confidence, both students and staff across technology training programs observed that women were less likely to speak up in class and when they did, were more likely to feel tentative about their knowledge and expertise.

Nakeitha Severe, a former student at Per Scholas who now teaches there, says she regularly observes the imposter syndrome among her female students and makes it a point to encourage them to be active participants in the classroom, “Whenever I have one-on-ones with my students, especially the women, I always talk about the confidence factor. Even if you don’t know the answer, if you are 50/50, or even 20 percent sure about that answer, still say it as if it’s the right answer. Be loud and wrong or loud and right; either way, have the confidence to speak up.”

Severe also shares another strategy she uses to encourage her female students, “One of the things I like to do with my women students is [that] when I see that they know something but they’re not confident about it is having them explain it to other people or to talk about it in their own words to build up that confidence.” Using strategies such as these, instructors and staff can create a more inclusive classroom environment.

## **JOB PLACEMENT SERVICES**

Strong technology training programs not only provide high quality instruction and wraparound services, they help students with their transition into the workforce.

Pursuit, a Queens-based social impact organization that offers a four-year technology training and career services fellowship, for example, not only helps participants get jobs, but also assigns them a career coach for their first three years of employment to help them retain their jobs and advance in their careers. Similarly, Year Up provides as-needed coaching and support to graduates after they have been placed in jobs to ensure long-term success not just in their first position after the program, but as they seek out opportunities to advance in their careers.

While many female students benefit from a supportive, familial environment within their training programs, they may not experience the same as they transition to more traditional workplace environments. In addition, for many graduates, opportunities in the technology workforce may be the first time they have been in a corporate environment, a “first-timer” experience that National Center for Women and Information Technology (NCWIT) describes as distinctive and one that is likely to require adaptation and a learning curve.

The concerns shared by Daney Forbes as she entered the workforce are typical, “[My biggest worry was] looking the part. Looking like I belong in corporate America. Am I talking the right way? Will people be accepting towards me?” Similarly, Asia Slaughter, an NPower graduate from St. Louis, says she had feelings of self-doubt during her transition into the workforce, “I was nervous because I didn’t know if what I had learned at NPower would fully transition over to me actually working in the IT field. I was really nervous about that, just with not really being sure of myself and the things that I have learned and if I would be able to apply it to these new positions.”

To help mitigate these concerns, technology training programs can help ensure a successful transition into the workforce through preparation they provide through the program, as well as the relationships they build with employers.

**[My biggest worry was] looking the part. Looking like I belong in corporate America. Am I talking the right way? Will people be accepting towards me?**

**DANEY FORBES**  
NPower alumna | Citi

### **Educate employers about technology training programs.**

For many companies, the notion of hiring individuals who may not have college degrees comes with a set of assumptions, so giving employers an idea of what to anticipate and how they can set their employees up for success is important.

For employers who accept students as interns and/or employees, placement managers at technology training programs must work with employer partners to ensure that they have clear expectations, namely an understanding that while students coming out of technology training programs have developed strong skills, they may not have had the experience of working in a formal or more corporate work environment and may benefit from extra support and coaching. This includes providing strong onboarding, professional and technical training, and mentorship and career planning. For female students, this can include attention to the supports that women may require, particularly if they are on teams that are male dominated.

### **Create strong partnerships with employers.**

Successful programs have strong partnerships with prospective employers to ensure that students have opportunities following program completion. These partnerships can include internship and full-time employment opportunities, but also other forms of engagement, including mentoring, site visits, and guest lectures.

As part of its partnership with employers, Year Up asks companies to contribute \$26,500 per intern, an arrangement that not only contributes to the financial sustainability of Year Up, but also establishes shared accountability for the intern's success. Through this arrangement, employers signal that they, too, are committed to developing the talent of students coming in from technology training programs.

World Wide Technology's partnership with NPower in St. Louis is another example of a multi-faceted relationship. NPower consulted extensively with World Wide Technology as it launched its St. Louis site. As the site enters its third year, Ann Marr, vice president of global human resources at World Wide Technology,

describes the breadth of their relationship, "Not only do we have individuals who volunteer, but we have hired several groups of interns over the last several years. And in fact, some of those interns we have hired as full-time employees. We look at it as a very strategic, successful model for us that has proven to be very good for us as an organization. It allows us to support the community, but it also allows us to create a pipeline of diverse candidates that can go into technology fields here at World Wide."

Ultimately, employers' partnerships with technology training programs help them meet their talent needs, which, in a changing economy, can shift significantly over time. Strong and regular communication and shared accountability help ensure that training programs are adapting to the needs of the workplace and that employers are, in turn, well-equipped to support graduates from non-traditional backgrounds.

### **Give students an idea of what to expect.**

Diana Albarrán Chicas of Latinas in STEM explains the challenges women of color, especially those from low-income backgrounds, face in navigating the corporate world, "[There are] all these secret layers of rules that exist, rules of engagement or rules to succeed that unless you've had family in the corporate world, you're unaware of. Interviewing tactics, negotiating salaries....these are all things that many of us have learned the cold, long, hard way after years and years and years. And just imagining how much easier it would have been to know some of this. These are things I didn't learn in school, that nobody told me about, that I can't go talk to my parents about."

It is important to give students an idea of what they can expect in the workforce, both the technical requirements of the job as well as the interpersonal skills required to navigate the workplace. For female students, this can include the ways in which women can advocate for themselves in the workplace and seek out mentors and advocates to help them advance in their careers. It can also include what questions to ask and how to assess whether a workplace is supportive of women.

In its professional skills curriculum, Per Scholas includes a section focused on diversity, equity, and inclusion to help students understand how they can enter the workplace and not feel different. The curriculum helps students



“

[There are] all these secret layers of rules that exist, rules of engagement or rules to succeed that unless you've had family in the corporate world, you're unaware of...And just imagining how much easier it would have been to know some of this.

**DIANA ALBARRÁN CHICAS**

Latinas in STEM

”

recognize how bias shows up in the workplace, how they may be impacted by someone's bias, and how their own biases can affect others.

Bridgette Gray explains, “People will treat you as different for multiple reasons. One, they treat you differently if they know you come from an alternative training track like Per Scholas. You're not coming from the traditional space. So how do you enter a space and not be seen as different or an anomaly? We're able to identify when they're being targeted as women, and what to do with a situation like that. It's really important that our female students are able to advocate for themselves, but also know that women need support in helping them advocate for themselves.”

### **Create alumnae networks that can support female graduates.**

Alumni engagement efforts at technology training programs vary but programs believe that such networks may be an untapped resource, particularly in connecting alumnae with new graduates. Tapping into these networks can also potentially help counter the sense of isolation some women may feel in the technology workforce and help improve retention in the longer-term.

NPower has placement managers at each of its sites and is starting to explore ways to engage female graduates more regularly, including connecting interns with alumni who work at the same company as well as engaging them as mentors. NPower is also working with some companies to launch alumni employee resource groups. In addition, alumnae networks present opportunities for multiple technology training programs to join forces and bring together alumnae from their respective programs to expand networks for female students beyond their own programs.

Jessi Wilcox, a staff member at LaunchCode shares details of a new program it is hoping to launch, partly in response to the rates that women leave the technology industry, “Hopefully, our Women in Tech Leadership Fellowship program can be one where we take our candidates from that 4, 5, to 10 year range to come back and remain engaged in some way to feel like they have community and continue supporting them in a deeper and more meaningful way not only while in class but also the workplace.”



Latifah, now an IT instructor at NPower, participating in a speed mentoring event at Citi.



# 04

## Surviving and Thriving in the Workplace

What happens to women after they graduate from technology training programs? What are their experiences in the workplace and what are the factors that contribute to their ultimate success? Drawing upon a survey of 436 NPower alumni, we were able to get a snapshot of the career pathways alumni take and their experience in the workplace.

In this section, we also examine, through interviews with employers and alumnae, how companies can create an inclusive culture that supports women of color to succeed and thrive in the workplace.

# Experiences in the Workplace

NPower alumni, both male and female, report generally positive experiences as they transition into the workplace, reporting high levels of belonging, strong support from managers, and ample access to role models and mentors. In many ways, these findings are a testament to the preparation provided through technology training programs as well as employers who are thoughtful and forward-thinking about creating an inclusive workplace. At the same time, these positive experiences are coupled with data that show that women of color alumnae of NPower’s program report significantly higher levels of bias and that concerns about gender bias are top of mind as they advance in the industry.

An important note of context for the alumni survey: Of survey respondents who were in technology roles, 67 percent of males and 60 percent of females had been in their positions for less than a year. Thus, the data shared here primarily reflect the experiences of those who are new to their roles, rather than those who have had the experience of advancing and growing in their careers.

## TECHNOLOGY POSITIONS AFTER GRADUATION AND AVERAGE SALARY

- Among NPower alumni who responded to the survey, 53 percent of female alumnae were working in IT positions compared to 57 percent of male alumni. Of the female students who were not in IT positions, 29 percent were still searching for employment in the IT field, which is to be expected given that respondents skewed toward recent alumni. Twenty-five percent were employed full-time in non-IT positions, though many of these jobs were tech-adjacent roles, for example, tech sales and drone operating. These patterns were similar to that of male students.
- Of female graduates who were in IT positions, the largest percentage (38 percent) were in IT support roles, though at a considerably lower rate than that

of male graduates (54 percent). Alumnae worked in a variety of industries, including technology, finance, healthcare, and nonprofit, just to name a few.

- Average salary for NPower alumni was \$55,600, with no significant differences between male and female graduates. Alumnae reported a wide range of salaries, with some alumnae reporting salaries as high as \$135,000 as they advanced in their careers.

IT Positions Held by NPower Alumni	Female	Male
IT Support	38%	54%
Other *	18%	19%
Coding/Development	12%	2%
Cybersecurity	12%	14%
IT Networking	9%	5%
Project Management	7%	3%
Infrastructure/Cloud	4%	4%

Based on responses from 117 male alumni and 76 female alumni.  
\* Responses included IT instruction, data analyst, and user experience.

## BELONGING AND INCLUSION

- On a scale of 1 to 5 (with 5 representing “strong agreement”), both male and female alumni of color had average ratings of 4 or higher on many of the items related to dimensions of belonging and inclusion. Alumni felt valued and respected at their companies, felt comfortable sharing opinions and ideas, and believed their organizations had a strong commitment to diversity and equity.

- Both male and female alumni gave slightly lower ratings (in the 3.5 range) when asked about fairness related to performance evaluation, promotion decisions, and compensation.
- While there were no statistically significant differences between male and female alumni on dimensions of belonging and inclusion, one item did approach statistical significance—female alumnae (35 percent) were more likely than male alumni (29 percent) to report that administrative tasks without a specific owner (taking notes at a meeting, for example) were delegated to them.

## ROLE MODELS, MENTORS, & PROFESSIONAL DEVELOPMENT OPPORTUNITIES

- Female alumnae of color reported they had ample networking opportunities (68 percent), role models in the industry (78 percent), and mentors in the industry (74 percent). A vast majority (77 percent) also indicated they were offered the necessary training and support needed to advance in their careers. These rates were similar to their male counterparts.
- Both female and male alumni reported moderate to high levels of manager support, including advocating for them within the organization, providing regular feedback, giving advice on navigating organizational politics, and being responsive to suggestions.
- At the same time, when asked about barriers to future advancement, 28 percent of women were concerned about the lack of role models similar to them at their company (26 percent of men also reported this concern).

**Women who graduate from technology training programs are 3x more likely to report experiences with bias and discrimination in the workplace than male graduates.**

## EXPERIENCES WITH BIAS

- When asked about eight distinct forms of bias, women of color were three times more likely to report experiencing incidents of stereotyping or discrimination than men (28 percent vs 9 percent). In a follow-up open-ended question about experiences with bias, women shared examples such as “feeling the need to prove that I was more capable than perceived,” and “insensitive comments about Black women implying stereotypical behaviors.”
- When asked about barriers to future success, 24 percent of women of color worried about facing stereotypes about their commitment or ability based on their gender compared to only 1 percent of men who worried about gender bias.

**While this survey data underscores the promise of technology training programs and strong partnerships with employers, it also highlights the stark societal realities around bias and discrimination that continue to play out in the workplace and the importance of concerted efforts by employers to address and mitigate these dynamics in the workplace by building a culture of inclusion.**

## Building a Culture of Inclusion in the Workplace

Technology training programs help prepare women of color coming from nontraditional backgrounds develop the skills and strategies to navigate not only a male-dominated field, but also a corporate or white-collar culture that may be new to them.

Even as women develop strategies to succeed in the workplace, it is equally if not more important for employers to foster a culture that is inclusive of gender, racial/ethnic, and socioeconomic diversity. Study after study underscores the importance of diversity of experience and thought in the workplace and the ways



in which such diversity contributes to innovation and long-term success in a rapidly changing economy (Barker, Mancha, & Ashcraft, 2014).

But research also shows that diversity alone is not enough. Researchers at Accenture have found that a culture of equality in the workplace has a multiplier effect on innovation. Moreover, a culture of equality is a better predictor of innovation than credentials such as a college degree. And while a culture of equality has profound effects for ensuring that women advance and thrive in their careers, a culture of equality benefits all genders, including higher rates of advancement by men as well (Shook & Sweet, 2019).

In other words, diversity is about access, inclusion is ultimately about opportunity. Ripa Rashid, managing director at Culture@Work puts it simply, “Opportunity isn’t just coming into the door, but the opportunity to grow, to advance, to be retained, to be engaged and contribute fully as your authentic self. If you don’t create the cultures where everyone can flourish to their full potential and feels included at some level, you’re never going to achieve the results that you want to. Diversity without inclusion is meaningless.”

To that end, we focus here on how employers can foster a culture that is inclusive of women, particularly those from nontraditional educational backgrounds. Research conducted by Rashid and her colleagues identify four core dimensions of business culture that are critical to fostering an inclusive environment—inclusive leadership; authenticity; networking; and career pathways (Sherbin & Rashid, 2017). We examine each of these with an eye toward the specific experience of women of color who have graduated from technology training programs and also consider a fifth element emerging from our research—shifting mindsets about the talent pipeline.

**1) Shift the mindset to include individuals from nontraditional educational backgrounds as part of the talent pipeline. Invest in the supports needed to recruit and retain this talent.**

A college degree remains the default credential for entry into the white-collar workforce. Yet relying solely on individuals with college degrees will not address the demand to fill technology positions or the imperative

to diversify the sector. Companies like World Wide Technology, Bank of America, and Accenture that partner with technology training programs encourage their peers to shift their mindset—to focus on skills and competencies, rather than credentials, when recruiting and hiring and to prioritize characteristics, such as determination and the ability to learn, that contribute to long-term success in the workplace.

Opportunity isn’t just coming into the door, but the opportunity to grow, to advance, to be retained, to be engaged and contribute fully as your authentic self...Diversity without inclusion is meaningless.

**RIPA RASHID**  
Culture@Work

Nellie Borrero of Accenture asserts, “[Companies] need to be open to creating a more inclusive future of work through partnerships [with technology training programs]. These partnerships provide talent that can continue to rise throughout the organization, with an opportunity to grow the talent beyond the entry point. It’s about valuing this talent and alternative partnerships as a source to attract much needed skills.”

Recognizing the sometimes daunting experience for low-income women of color as “first timers” in technology or corporate America, Borrero continues, “I would imagine that the transition to corporate life is not a full seamless transition. There’s got to be some challenges there. I know there were some for me.” Indeed, women over and over told us that they were charting new ground among their peers and did not necessarily have parents, siblings, or friends that could provide the necessary guidance.

With this in mind, companies may need to invest additional resources up front to support talent. Just as first-generation college students benefit from bridge

## What Does a Culture of Equality Look Like?

**In *Getting to Equal 2019: Creating a Culture that Drives Innovation*, researchers from Accenture conducted a global survey of 18,200 professionals globally and identified 40 factors that contribute to a culture of equality, and in turn, innovation (Shook & Sweet, 2019).**

Among them:

- Gender diversity is a target for management.
- A diversity target or goal is shared outside of the organization.
- The leadership team is diverse.
- The company has a women's network open to women.
- The company has a women's network open to women and men.
- There are clear parental leave policies in place; men are encouraged to take parental leave.
- Employees have never been asked to change their appearance to conform to company culture.
- Virtual/remote working is widely available and is common practice.
- The organization provides training to keep its employees' skills relevant.



supports, relatively small investments in intentional supports by companies can reap major dividends over the long-term.

Gail Fierstein, currently chief people officer at CaaSTle, previously spent 25 years at Goldman Sachs where she was a managing director of human capital management. Based on her experience in working with employees from non-traditional backgrounds, she reflects, "What we learned was that most of the big companies were used to running traditional internship programs for college students. You have to realize that people that come from different sources are going to need different support and different programming to onboard them."

Tracey Patterson, managing director at Accenture elaborates on this point, "This whole idea of one program fits all is something that we've had to take a second look at. In particular, for [women of color], there are other layers of attention that are needed—democratized access to information and the ability to handle unconscious bias within the system."

Patterson continues, "We've had to layer in additional coaching and guidance to help with some of those specific aspects that may not have been challenges for the majority population of women. Not having a one-size-fits-all approach, but a more fit-for-purpose approach in designing programs is important."

World Wide Technology has a staff member whose role it is to make sure graduates of technology training programs have support as they fill internship and staff roles at the company. As Ann Marr explains, "We do try to make sure that there's someone that helps guide them along the way instead of, 'Hey, you're on your own.' We want to educate them and give them as much information to ensure their success. We see that as integral in their ability to assimilate to the culture, not only at World Wide, to be successful in any company. Because sometimes you don't know what you don't know."

## **2) Foster inclusive leadership and establish organizational accountability metrics.**

To the extent that companies have a solid reputation for gender inclusion, often there is a senior champion in the organization advocating for shifts in policies and practices. While this is important, for sustainable and long-lasting shifts in culture to occur, a company's senior leadership team should model inclusion, along with steps to ensure accountability.

The rates of women of color in c-suite leadership positions are minuscule. Research shows that while white women hit a glass ceiling, women of color hit a concrete ceiling. Companies with women and people of color in leadership positions signal to their junior staff that diversity is valued and that the same path is possible for them too. Again, though, diversity alone is not enough. Inclusive leadership includes a set of behaviors, such as: ensuring that team members speak up and are heard; making it safe to propose novel ideas; empowering team members to make decisions; taking advice and implementing feedback; giving actionable feedback; and sharing credit for team success. These leadership styles correlate with higher levels of feelings of inclusion and are an important factor in cultivating the leadership of women of color and retaining them (Sherbin & Rashid, 2017).

Inclusive leadership also includes the willingness to establish and report on accountability metrics. What are a company's goals around a diverse workforce and inclusive climate? What are the steps it will take to achieve those goals? What is the budget and what are the resources committed to getting there? Accountability metrics help ensure that there is a commitment to systematically shifting the culture, rather than one-off or inconsistent attempts to foster inclusion.

Rita Kakati-Shah, founder and CEO of Uma, notes that while many companies conduct trainings related to diversity and inclusion, the real question is what happens afterwards, "How are they being held accountable? How is that changing retention numbers and women getting into senior leadership positions? Nobody's really measuring that. And unless they do, you can't ascertain what difference it is making. There are no discussion forums afterwards; there are no quarterly check-ins. And there needs to be in order to shift the needle."

## **3) Encourage authenticity and bringing one's whole self to the workplace.**

As women who are new to the corporate environment and/or working on predominately male teams, it's no wonder that women in our interviews regularly referenced feelings of inadequacy or uncertainty about fitting into the work environment—the imposter syndrome. Research shows that a third to nearly a half of people of color compromise their authenticity to fit into the work environment (Hewlett, Jackson, & Cose, 2012).

Caryn McCarthy, experience manager at Google Code Next and a woman of color who entered technology through a boot camp program says, "When I stepped into my first software developer role, my imposter syndrome was strong." But she says the company's culture was supportive and she was reminded by peers and mentors that she would learn everything over time as she gained exposure and experience.

Regardless of race, ethnicity, gender, or sexuality, everyone enters the workplace with their own sets of biases and assumptions. Companies can foster a more inclusive culture by creating opportunities for their employees to understand their bias and how they can work to reduce their biases. While companies often provide one-off trainings, ongoing opportunities to bring awareness to these issues can often be more impactful.

## **4) Ensure opportunities for women of color to tap into company networks and get exposure for their work.**

A major component of inclusion is having the support needed to navigate the workplace. This is especially critical for women of color who come from nontraditional backgrounds. Creating opportunities for women of color to network can take multiple forms and be formal or informal.

Damaris Schneider, managing director at Deloitte, believes that companies must be intentional about creating supports for women of color, "We bring people in, we recruit them, and then we don't continue mentoring and following up. How do you position that person for success? How do you make sure that you follow up? How do you ensure that you can get the mentors that will help them navigate through some of the unconscious biases that exist, and really helping

individuals not just start the journey but help coach them and follow them through the journey...that accountability to ensure that somebody actually makes it needs to be there.”

Formal supports include employee resource groups or other affinity groups. Role models, mentors, and sponsors can also be especially critical levers of success for women. Senior women in tech encourage those starting out to have multiple mentors who can provide advice and support on different aspects of work, as it is unrealistic to expect a single mentor to be able to address all the needs and questions that might surface.

John R. Miller, Citi’s global head of cyber security services and NPower alumni advancement committee member, shares, “A mentor or sponsor can change the trajectory of any one person. Relationships built can be the difference between beginning on a career path or falling into a low paying job, receiving support during difficult times, or facing enormous obstacles alone.”

Importantly, mentorship and sponsorship are two different things, and while it’s important for women to have mentors in the workplace, some caution that women are overly mentored and under sponsored. Sponsors are those that are senior and not only provide support and guidance but actively advocate for opportunities for growth and advancement. Sponsorship plays an especially powerful role in creating an inclusive culture. At the same time, managers can be reluctant to take on this role—companies may need to actively cultivate managers to be sponsors.

Although the emphasis is sometimes on female mentors, women can benefit just as much from male mentors and sponsors as they can from female ones. Companies can do their part by helping raise awareness among men about what they can do to be effective allies and how they can help support and advance the careers of their female colleagues (Ashcraft, DuBow, Eger, Blithe, & Sevier, 2013). Ultimately, it is about connecting with mentors and sponsors whose core values, regardless of gender, are in alignment.

Although larger companies may have the resources and capacity to create formal supports, smaller or mid-sized companies may not. These companies can still

foster networking by connecting women of color to informal resources within the company or industry wide networking opportunities outside of the organization to ensure that there are supports in place. For example, Information Technology Senior Management Forum (ITSMF) runs a nine-month leadership development program for women of color in technology from large and mid-size companies called [EMERGE Academy](#). According to Viola Maxwell-Thompson, president and CEO of ITSMF, the Academy supports both women’s personal and professional development and gives them the tools to navigate corporate America as well as a cohort of women who become their life/career accountability partners.

## **5) Promote career advancement and training and build a learning culture.**

Women of color are more likely to leave the technology career path than other demographic groups—for a host of reasons, including job dissatisfaction, lack of advancement opportunities, and caregiving responsibilities. For women of color coming from technology training programs, these dynamics can be exacerbated by the fact that many are offered contract or part-time entry-level positions that do not come with benefits. To mitigate this dynamic, Year Up has conversations up front with employers about what will be required to convert internships into full-time hires, while also providing graduates with guidance and support to advance in their careers.

Creating a pathway for advancement contributes to an inclusive culture. A possible trajectory for graduates of technology training programs, described by several employers, consists of a class internship that extends to a paid 12 to 18 month internship. The paid internship gives students an opportunity to develop skills and learn about the workplace, ultimately serving as bridge to a full-time, salaried position.



## ESSENTIAL RESOURCES

# Supporting Women of Color in Technology

## The Reboot Representation Tech Coalition

The Reboot Representation Tech Coalition, seeded by Pivotal Ventures, is a coalition of companies committed to doubling the number of Black, Latina, and Native American women graduating with computing degrees by 2025.

## National Center for Women and Information Technology

National Center for Women and Information Technology (NCWIT) is a nonprofit community that convenes, equips, and unites change leader organizations to increase the influence and meaningful participation of girls and women—at the intersections of race, ethnicity, class, age, sexual orientation, and disability status—in the field of computing, particularly in terms of innovation and development.

Employers, practitioners, and women of color technologists can access a wealth of resources on best practices on NCWIT's website.

## AnitaB.org

AnitaB.org supports women in technical fields, as well as the organizations that employ them and the academic institutions training the next generation. A range of programs help women grow, learn, and develop their highest potential. Its annual Grace Hopper Celebration is the world's largest gathering of women technologists.

## Women of Color in Computing Research Collaborative

The Women of Color in Computing Research Collaborative, funded by the Kapor Center and Pivotal Ventures, aims to increase the number of women and girls of color pursuing and completing computer science degrees, and participating in the tech workforce, entrepreneurship and venture capital. The Collaborative conducts research on: data trends on women of color in computing education and career pathways; barriers to participation in computing among women of color; and innovative and effective interventions and strategies to increase participation in computing among women of color.



Recent graduates of NPower's training program, Brooklyn.

05

# **Policy Levers for Increasing Opportunities for Women of Color in Technology**

**T**o unleash the full potential of women of color in the technology talent pipeline, more systemic reforms are needed in both educational and career pathways. This section highlights some of the ways in which local, state, and federal policies can better support the pursuit of technology careers for women of color coming from low-to-middle income backgrounds.

## EDUCATIONAL PATHWAYS

### **Increase funding for apprenticeship programs.**

There is a long history of apprenticeship programs in the building trades and manufacturing industries, supported through federal, state, and local government funding, but apprenticeship programs for the digital economy are lagging despite their potential to meet unmet workforce demands in the new economy (Craig & Bewick, 2018).

In New York, for example, a recent research study found that apprenticeships are an under-utilized model and that only a handful of apprenticeships exist in the tech sector (Sharp & Dvorkin, 2018). To address this gap, NPower has pioneered an IT Generalist Apprenticeship program with the U.S. Department of Labor, which enables employers, with recruitment and administrative support from NPower, to provide a 6-8 month apprenticeship for NPower graduates, allowing the graduate to earn an industry-registered apprentice credential from the Department of Labor.

### **Expand eligibility for Pell Grants and allocate new sources of funding for training programs.**

The federal government provides need-based funding for college degrees, as well as some certification programs through Pell Grants. Currently, Congress is considering legislation to expand Pell Grants to shorter-term training programs, including those that support the growth and sustainability of nonprofit programs that do not charge tuition but incur costs for programming. This legislation would open up opportunities for students who may not be able to commit the time and money for a four-year degree, but who wish to learn trades and skills that can help fill gaps in the workforce (Kreighbaum, 2019). In addition, Congress needs to explore ways to allocate new sources of funding for training programs, recognizing that they fill critical workforce needs.

### **Increase funding for childcare subsidies for those in training programs.**

Our research shows that women participating in NPower report greater challenges with childcare than male students. It is unclear to what extent childcare needs discourage women from pursuing the program in the first place.

Research from the Urban Institute shows that parents pursuing education and training, particularly those who are also working, have complex childcare needs. Specifically, they typically need childcare during nontraditional hours and spend a greater proportion of their income on childcare than is recommended by the federal government (Spaulding, Sandstrom, & Sick, 2019). Shayne Spaulding, a senior fellow at the Urban Institute, notes that while public subsidies for childcare are available, the subsidies are “severely under resourced” with only one in seven people who are eligible having access. Research also shows that women who combine work and training improve their economic prospects significantly, which not only benefits women themselves, but also their children.

Jor'Danna Davis of NPower's Baltimore site describes the challenge of navigating the policy environment to get support for childcare, “Childcare is one of those very difficult areas to navigate, because to make it affordable, an individual must apply for state vouchers. Once a person applies for state vouchers, it can take several weeks to get a response, and if you don't qualify for it, you have to pay out-of-pocket. I haven't found a place that provides consistent childcare at a discounted rate or for free without an individual having to go through the state voucher application process.”

### **Increase support for public education STEM funding, especially in middle school.**

Research shows that middle school is an inflection point for girls' interest in science, engineering, and computer science. Middle school is an opportune time to engage girls in STEM fields, yet girls of color in particular, are being left behind. Schools attended by Black and Latinx students have fewer STEM coursework available, fewer qualified instructors, and often lack the basic equipment needed to engage students. Public school funding that closes the opportunity gap is a crucial step towards creating opportunities earlier in the pipeline.



## WORKPLACE PROTECTIONS

### Expand family leave laws.

The United States is the only industrialized country in the world that does not guarantee paid family leave, though some states and municipalities have ushered in their own family leave legislation. In companies and places where there are more generous family leave laws and policies, there are greater opportunities for women to stay in their careers, as well as advance in them. Family leave laws, such as the one in California, allow men to take parental leave as well. In California, requests from men jumped from 25 percent before the law to 40 percent, helping to expand, though not equalize, child-rearing responsibilities.

### Strengthen pay parity laws.

In the technology sector, as well as the workforce at large, women still earn less than men and these gaps are even more pronounced for Black and Latina women. While the U.S. has had equal pay protections in place since the 1960s, gaps persist. There are opportunities to strengthen laws, particularly at the local and state level including pay transparency laws and making it unlawful to collect salary history information. For example, Massachusetts has passed a law that makes it illegal to ask candidates' salary history. The law also allows employees to share wage information without retribution from their employers (CloudPay, 2019).



Students gather before class at NPower Maryland.



Abstract geometric lines in the top right corner, consisting of several parallel lines that create a sense of depth and movement, ending in small circles.

# 06

## Call to Action

The career paths that are available to women of color from low to moderate income backgrounds in technology are not always linear, clear, or evident. This research brings to light the stories and experiences of women of color who have traversed this journey, the challenges they have faced, and in many cases, the success they have ultimately achieved. As women of color enter and flourish in technology careers, their work not only buoys their own life prospects, but also contributes to innovation and prosperity for companies and for society at large.

At the same time, this research highlights the ways in which the talent pipeline of women of color remains largely untapped and under-resourced. What will it take to engage women as full participants and leaders in technology? Here's our call to action.

# What will it take to engage women as full participants and leaders in technology?

## Here's our call to action.

**Creating economic opportunities for those who have the least access to them and shifting mindsets about the potential of women of color in technology is not an easy endeavor. It will take collective and intentional efforts by funders, practitioners, and employers to invest in what we know works, as well as the courage to test new ideas and approaches to expand our toolbox of strategies and solutions—giving women of color greater access to jobs in the new economy and creating new narratives about the value women of color bring to the technology sector.**

### For Practitioners

**Commit to ongoing professional development opportunities** to ensure that staff are aware of how gender bias may be affecting the classroom culture and program environment and that they have the know-how to interrupt and mitigate bias when it appears.

**Consider flexible training options**, including online or evening/weekend courses, that can better accommodate caregiving or employment responsibilities.

**Partner strategically with other technology training programs** to create a more holistic set of services and opportunities for students and alumnae. For example, programs that offer intro classes can partner with those who offer advanced classes or alumnae across different programs can connect at joint networking events.

**Conduct regular surveys of program participants and alumni to understand their challenges, motivations, experiences, and the longer-term return on investment.**

In particular, longitudinal data can help us better understand women's experience in the workforce so that technology training programs can give them a better idea of what to expect. As sample sizes grow, analyses by industry and geography can offer more nuanced insights about the experiences of women of color in technology roles. Likewise, regular data and information-sharing across programs can help spark new ideas and improve practice around how to support women of color more effectively.





## For Employers

**Consider skills-based hiring and embrace individuals from nontraditional backgrounds**, recognizing that while there may be some challenges, it is a necessary and fruitful endeavor in building the 21st century workforce. Companies that are best able to engage individuals from nontraditional educational backgrounds recognize that apprenticeships or bridge programs that provide additional support may be required in the short-term, but that such investments have longer-term benefits in increased talent retention and workplace innovation.

**Be intentional about mentorship and sponsorship opportunities for women of color** to ensure that they have an opportunity to advance in their careers. Both senior leadership and front-line managers need to ensure that women receive “stretch” assignments that increase their visibility within a company and increase their exposure to new areas of work.

**Commit to ongoing professional development related to equity and inclusion and develop benchmarks** for equity and inclusion goals to demonstrate accountability. Recognize that such efforts are successful when they are not one-off exercises, but rather long-term processes that require leadership, commitment, and engagement from all levels of the organization.

## For Funders

**Increase investments in nonprofit technology training specifically to engage and support women of color.**

To address the fact that women, especially women of color, are systematically being left behind in technology careers, investments need to be equally systematic and targeted in creating opportunities and supports that give women of color entrée into technology careers throughout the educational pipeline, from primary through post-secondary education, as well as through technology training programs that provide later on-ramps to tech careers.

**Invest not only in classroom training, but also in wrap-around services**, including childcare, transportation, and mental health resources, that address the full set of supports needed to succeed. Although not yet regular practice, providing resources for modest weekly stipends and/or emergency funding can make a significant difference in program participation and completion rates.

**Serve as advocates within the funding community** to convey the importance of targeted support for engaging women of color in technology and share what we’re learning from promising and innovative efforts in the field.

# Bibliography

- Alfonseca, K. (2019, December 13). Why We Need More Women of Color in Tech. *Huffington Post*. Retrieved from [https://www.huffpost.com/entry/need-more-women-of-color-tech\\_n\\_5c92a3c7e4b08c4fec33cec5](https://www.huffpost.com/entry/need-more-women-of-color-tech_n_5c92a3c7e4b08c4fec33cec5)
- Ashcraft, C., DuBow, W., Eger, E., Blithe, S., & Sevier, B. (2013). *Male Advocates and Allies: Promoting Gender Diversity in Technology*. National Center for Women & Information Technology.
- Barker, L., Mancha, C., & Ashcraft, C. (2014). *What is the Impact of Gender Diversity on Technology Business Performance: Research Summary*. National Center for Women and Information Technology.
- Bureau of Labor Statistics. (2017). Employment by major occupational group. Retrieved from <https://www.bls.gov/emp/tables/emp-by-major-occupational-group.htm>
- CloudPay. (2019, April 18). A Guide to Pay Parity Laws Around the World. Retrieved from <https://www.cloudpay.net/resources/a-guide-to-pay-parity-laws-around-the-world>
- Hewlett, S. A., Jackson, M., & Cose, E. (2012). *Vaulting the Color Bar: How Sponsorship Levers Multicultural Professionals into Leadership*. New York: Center for Talent Innovation.
- Kreighbaum, A. (2019, July 8). Brewing Battle Over Pell Grants. *Inside Higher Ed*.
- McAlear, F., Scott, A., Scott, K., & Weiss, S. (2018). *Data Brief: Women of Color in Computing*.
- Pivotal Ventures; McKinsey & Company. (2019). *Rebooting Representation: Using CSR and Philanthropy to Close the Gender Gap in Tech*.
- Scott, A., Klein, F. K., McAlear, F., Martin, A., & Koshy, S. (2018). *The Leaky Tech Pipeline: A Comprehensive Framework for Understanding and Addressing the Lack of Diversity across the Tech Ecosystem*. Oakland, CA: Kapor Center for Social Impact.
- Sharp, N., & Dvorkin, E. (2018). *The Promise of Apprenticeships in New York*. New York: Center for an Urban Future.
- Sherbin, L., & Rashid, R. (2017, February 1). Diversity Doesn't Stick Without Inclusion. *Harvard Business Review*.
- Shook, E., & Sweet, J. (2019). *Getting to Equal 2019: Creating a Culture that Drives Innovation*. Accenture.
- Spaulding, S., Sandstrom, H., & Sick, N. (2019). *Supporting Young Parents at They Advance Their Education and Careers*. Washington, D.C.: Urban Institute.



# Appendix A: Methodology

## RESEARCH QUESTIONS AND APPROACH

This research project began in September 2018 and continued through December 2019 with the goal of advancing the conversation about how to address current barriers for women of color in technology, how to improve training models that prepare women of color for tech careers, and how to support placement and advancement of women of color in tech positions.

### Research questions guiding the project included the following:

- What does the current research say about barriers to women of color pursuing tech careers and lack of retention and advancement once they are there? What gaps exist in the current research base?
- What experience do current students have with NPower? Do experiences differ between men and women?
- What experience do alumni have with NPower? Do experiences differ between men and women?
- What recruitment strategies do technology training programs use? What challenges do they face in recruiting women of color? Are there particular strategies that are especially effective with women of color?
- Are there particular issues/challenges that surface consistently among women of color as they participate in technology training programs? How are these addressed?
- Based on alumni and stakeholder insights, what lessons can be gleaned about working with women of color in culturally competent ways within the training?
- What experiences do women of color students have with their internships and job placements? What kind of formal and informal supports do they receive? What is their experience with these supports? What kind of experience do they have with their supervisors? What barriers have they faced? What has facilitated their advancement? How have their racial, ethnic, and/or gender identities (including experiences with discrimination) influenced their experience in their current organizations?
- What experience have employers had with alumni from technology training programs? What type of supports do employers provide to promote strong onboarding, retention, and advancement? To what extent do these efforts account for unique experiences based on racial, ethnic, and/or gender identities?

## DATA SOURCES

Both qualitative and quantitative data were collected through surveys, focus groups with NPower staff, and in-depth stakeholder interviews.

### Current Student Survey

Two cohorts of NPower students (Fall 2018 and Spring 2019) participated in the student survey. Surveys were taken online during the final week of class. 566 NPower students (out of 732 enrolled students) took the survey, resulting in an overall response rate of 77 percent. Seventy-one percent of survey respondents were male, while 22 percent were female. An additional 2 percent specified another gender and 6 percent did not provide a response.

The 130-item survey included questions about students' experiences with NPower, including the challenges they faced while in the program, their motivations for entering the program, their experiences with discrimination within the program, their future

aspirations, and their satisfaction with classroom instruction and supports. The survey also asked about student experiences with their internship placements and demographic characteristics.

### **Alumni Survey**

1,395 NPower alumni (74 percent male; 26 percent female) who had graduated within the past five years received a link to complete the online 51-item survey. 436 alumni (57 percent male; 43 percent female) completed the survey, resulting in an overall response rate of 31 percent.

The survey included questions about alumni experiences with including the challenges they faced while in the program, their motivations for entering the program, their experiences with discrimination within the program, and their satisfaction with classroom instruction and supports. The survey also asked alumni about their current employment situation. For those who indicated they were in IT roles, alumni were asked questions about belonging and inclusion in the workplace, manager support, company benefits, experiences with discrimination in the workplace, future career aspirations, and perceived barriers to advancement.

### **Stakeholder Interviews**

Fifty-seven interviews were conducted with a variety of stakeholders between June 2019 and December 2019. An initial set of interviewees and organizations were identified by NPower; additional interviewees were selected based on interviewee referrals. Interviews were conducted with select NPower staff representing a variety of roles, female NPower students, female alumnae, and women who withdrew from the program after six weeks. Additional interviews were conducted with staff from other technology training programs, employers, policymakers, and other thought leaders and experts. Semi-structured interview protocols were developed based on these different roles and customized as needed.

### **Staff Focus Groups**

Five focus groups with staff from select NPower sites—Jersey City, Brooklyn, Harlem, St. Louis, and Baltimore were conducted. Focus group questions probed for staff insights related to recruitment and selection processes, classroom dynamics, challenges related to completing the program, and supports provided to students in the internship and job placement process.

### **Convenings**

The lead researcher attended three NPower convenings held in New York City, St. Louis, and San Francisco featuring insights from senior women of color leaders in technology. Transcripts from these events were reviewed and incorporated into the analysis.

## **LIMITATIONS AND FUTURE RESEARCH**

The relatively small sample size for some items on the alumni survey, especially when skip patterns were taken into account, may mean that some differences between male and female alumni may not have been captured. As this survey is administered over time and the number of respondents grows, follow-up analyses will reveal more nuanced information about the experiences of female alumni.

The alumni survey skewed toward more recent graduates, as it is challenging to reach alumni the further removed they are from the program. More concerted follow-up with alumni over the long-term is likely to yield better information about the experiences of alumni in the workplace as they advance through their careers.

Future opportunities for research include conducting longitudinal studies to track students and alumni over time to get a better sense of the return on investment. In addition, research efforts that include participants from multiple technology training programs can help yield more generalizable results while illuminating unique program effects.

## About NPower

NPower is a national nonprofit on a mission to move people from poverty to the middle class by training youth from underserved communities and veterans in a range of tech skills and placing them in quality jobs. Students who enter their free, six-month program, earn industry-recognized certifications and graduate with the competencies of an IT professional with one to two years of experience. NPower also places students in paid internships with corporate and nonprofit organizations. Eighty percent of NPower graduates get a full-time job or continue their education. Not only is NPower changing life trajectories for individuals from vulnerable communities but they are also strengthening the overall competitiveness of U.S. businesses hamstrung by today's limited pool of IT talent. To learn more about NPower, visit [www.npower.org](http://www.npower.org).

## About Citi Foundation

The Citi Foundation works to promote economic progress and improve the lives of people in low-income communities around the world. We invest in efforts that increase financial inclusion, catalyze job opportunities for youth, and reimagine approaches to building economically vibrant cities. The Citi Foundation's "More than Philanthropy" approach leverages the enormous expertise of Citi and its people to fulfill our mission and drive thought leadership and innovation. For more information, visit [citifoundation.com](http://citifoundation.com).

## About the Author

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