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Making Youth Apprenticeships Equitable and Effective

Lessons From North Carolina

The Workers' Rights Project of the North Carolina Justice Center

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Executive Summary

EXECUTIVE SUMMARY

The importance of youth apprenticeships

Apprenticeships are increasingly seen as a solution to a broken workforce development pipeline that too often fails to connect working people to the training and the jobs they need to make ends meet. This is especially true for young adults—particularly young adults of color—who continue to suffer from significantly elevated unemployment despite a decade-long economic recovery. The national unemployment rate for youth and young adults (ages 16-24) is 8.6 percent, which is more than double the 3.8 percent jobless rate for all workers across the nation. At the same time, young adults of color face special barriers in connecting with the labor market—experiencing a 10.9 percent unemployment rate, in contrast to the 6.9 percent unemployment rate of their white peers of similar ages.

Youth apprenticeships are paid, structured programs that prepare high school students, recent graduates, and young adults for a technical trade or occupation. They typically involve paid on-the-job training, related classroom-based instruction, a progressive pay scale with wages increasing each year as the apprentices learn, and a national Journeyman certificate. In line with new youth apprenticeship guidelines promoted by the U.S. Department of Labor, North Carolina's youth apprenticeship programs include these components along with an associate degree in a related occupation.

Youth apprenticeships are paid, structured programs that prepare high school students, recent graduates, and young adults for a technical trade or occupation

As states and communities increasingly experiment with youth apprenticeship, the partners involved in these efforts—employers, school systems, community colleges, workforce development boards, community-based organizations, and Chambers of Commerce—are grappling with the question of how to scale these programs and how to make them as effective as possible. **What stands in the way of expanding these programs, and what limits young adults—especially young adults of color—in joining and completing these programs and finding long-term jobs with living wages?**

Job training is often conceptualized as a pipeline that connects employers to potential employees with the technical or business skills they need to "do the job." In the youth apprenticeship context, students enter this pipeline in or immediately after high school, participate in the program, and reach their goal—a permanent, full-time job.

As with traditional pipelines, blockages, barriers, and holes can stop students from reaching this destination. As a result, **it is crucial to design and administer the apprenticeship pipeline in a way that reduces barriers**. This is especially important for supporting students of color, whose historically rooted disadvantages make it more difficult to overcome the barriers that affect all students and present special barriers unique to those communities.

The policy challenge: Identifying and overcoming the barriers to success

There are two different types of barriers that hold back student participation and completion in youth apprenticeship—program design barriers and functional barriers.

Barriers related to program design involve fundamental structural gaps in the apprenticeship pipeline that fail to keep young adults from pursuing and completing apprenticeships. Design-oriented problems tend to render the entire concept of a pipeline moot, as key stages or elements are completely missing. **Properly designed, a youth apprenticeship pipeline includes the following stages:**

- **Stage 1: Student exposure and recruitment**, when students learn about career and technical education (CTE) and apprenticeships in their high schools, usually from career counseling staff. This stage is the entry point when students are recruited to apply (and some are not).

- **Stage 2: Student screening**, where students must meet initial minimum standards, including GPA and attend employer meet-and-greet events.

- **Stage 3: Student selection into pre-apprenticeship**, where employers accept students into the program.

- **Stage 4: Student completion of pre-apprenticeship and full apprenticeship.** The heart of the program experience, this stage involves students first completing a 10-12 week pre-apprenticeship during the summer to explore their interest and fit in a technical field and employer before committing to the full, four-year apprenticeship. In both the pre- and full-apprenticeship, students work and receive on the job training and mentorship.

- **Stage 5: Student completion of community college degree program**, where students attend community college classes to earn their associate degree in the technical field related to their apprenticeship.

Even when the pipeline is well designed, a range of functional barriers can hold back progress for students, especially students of color. Functional barriers occur when students' personal circumstances intersect with key actors in the pipeline in ways that keep them from entering and completing the apprenticeship program. **In particular, a student's interaction with four main actors shape the apprentice's experience and generate barriers:**

- P**arents, families, and social networks**, which shape students' career expectations, behavioral norms on the job, and, critically, financial conditions.
- **High schools**, which serve as the initial recruitment and entry point for the program and determine which students learn about and are recruited into apprenticeship.
- **Employers**, who decide which apprentices are selected and how they are treated on the job.
- **Community colleges**, which provide the post-secondary credential required by the program and whose minimum acceptance standards may screen out otherwise qualified students.

In order for youth apprenticeship to live up to its promise, programs need to overcome design barriers and ensure that students' interactions with these actors help, rather than hinder, their progress through the pipeline. In other words, program partners need to "get the pipeline right"—for everyone. This requires paying particular attention to ensuring the pipeline works for students of color, who are more vulnerable to the barriers that affect everyone while also facing special barriers rooted in their historical experiences of exclusion.

Learning from North Carolina to strengthen youth apprenticeships across the nation

To advance this policy goal, this study seeks to identify the specific barriers that hold back participation and completion in these programs, especially for students of color, and in turn, offer concrete recommendations and learnings for other communities across the United States that seek to improve the equity and effectiveness of their apprenticeship pipelines.

In this study, **we look at one of these leading models**—specifically, the cluster of county-level, locally led apprenticeship programs belonging to **the Eastern Triad Workforce Initiative (ETWI) in central North Carolina—in an effort to identify the design and functional barriers that hold back progress and make a series of recommendations to overcome the barriers**.

This regional collaborative includes individual apprenticeship programs in four counties—Alamance, Guilford, Randolph, and Rockingham—each in a different stage of development and each meeting the U.S. Department of Labor standards for a high-quality, community-led, modern youth apprenticeship program. In these counties, all of the major USDOL-required partners are included—employers, community colleges, school systems—and their collaborative efforts have proven largely successful in recruiting and retaining growing numbers of employers and apprentices in a relatively short amount of time (see Chapter 3 for a more detailed overview of ETWI and the Triad region).

This study provides a composite view of the barriers facing student completion across all of the county-level programs in the entire initiative, along with a collective picture of the strategies these programs are using to address barriers. The result is not a generalization across all the county programs (there are important differences noted in the narrative), but rather a global view of what has worked and what still needs to be addressed to ensure more equitable and successful apprenticeship programs across the region. **In turn, this composite view is intended to benefit anyone in the United States seeking to develop or improve apprenticeship pipelines that are effective and racially equitable.** Appendix A provides a detailed description of our study's methodology.

Policy learnings

Using this composite view, we found three design barriers and 65 unique functional barriers—including 32 barriers specifically hindering students of color—present across the entire ETWI. At the same time, however, we found program partners and employers aggressively adapting their strategies to address many of these barriers as they arose. Charts summarizing these barriers by pipeline stage and interaction with key partners are included in Tables A-F immediately following this Executive Summary, and a detailed discussion of each barrier can be found in Chapters 4-9.

ETWI programs have eliminated many design barriers found in other studies by bringing all of the required partners to the table and aligning their efforts across all five stages of the pipeline. In addition, the individual program across ETWI have demonstrated significant willingness to develop innovative solutions and workarounds to the functional barriers that apprentices encounter. There is constant, ongoing learning and adaptation, to the point where it should be considered a key feature in program design.

Yet several design-related challenges remain, including:

1. Inconsistency in intentionally engaging students of color during the recruitment stage. High schools serve as the entry point to the pipeline, and the program's effectiveness rests entirely on the ability of each school to recruit students to apply—and they are engaging students of color inconsistently.

2. Need for greater representation from people of color who are trusted voices in communities of color during the exposure and recruitment stages. Students and parents of color have a hard time seeing apprenticeship as something for them when they don't see other people of color involved.

3. Need to collect and combine data on student progress and participation. Currently, three different agencies collect data on different aspects of apprentices' progress through the program, but there is no central data collection effort designed to combine these sources into a single picture of progress. As a result, it is challenging to completely assess program performance and outcomes.

Apprentices encounter a range of functional barriers as they progress through the pipeline, although employers and program partners have developed a range of innovative solutions to address them. The most prominent of these barriers include the following, some of which are beyond the ability of program partners to influence: (see Tables B-F for more detail):

1. Parents, families, and social networks. All students face barriers related to general parental skepticism of occupational careers and preference for four-year college. This Is especially prevalent among families of color, who often view college the only pathway out of poverty. In addition, students of color may lack social networks that include people with backgrounds in manufacturing, trades, or apprenticeships, making it harder to identify these careers as possibilities. Lastly, families may lack sufficient income to afford transportation for themselves and their children to attend open houses, or parents may be unable to attend because they work multiple job.

2. High Schools. Students face barriers during recruitment if they are not exposed early enough or if high schools exclude some students due to implicit bias. Many students of color may never see apprenticeship as something they can do if they never encounter any employers, apprentices, or career counselors who look like them (the Representation-Recruitment Challenge). Additionally, marketing materials may be insufficiently detailed or racially diverse enough to provide students with the information they need to make an informed decision about apprenticeship. Partners have adapted by

engaging more directly with career counselors and improving their marketing materials and outreach, including the use of robocalls to student households.

3. Employers. Participating employers in the region are almost exclusively white, which creates a representation challenge for students of color looking to see that if apprenticeship could be for them. Additionally, employers are more likely to hire as pre-apprentices the students who look and behave like them, which disadvantages students of color who have different behavioral norms. Similarly, employers care deeply about soft skills, which are often subjectively interpreted. Participating employers are seeking to address this challenge by educating new employers about the importance of accepting students of color. Also, many students face financial barriers around transportation and work materials (e.g., safety goggles, steel-toed boots). Employers are seeking to address these financial barriers by paying for these work materials out of their own pockets. Lastly, immigrant students are facing barriers to participation around lack of work authorization, documentation, and fears of family deportation.

There are dozens of barriers involving parents, high schools, employers, and community colleges that can hold back completion for all apprentices in the pipeline. Removing these barriers is critical for ensuring the program succeeds for everyone.

4. Community Colleges. Every apprentice must meet basic community college admission standards, which rely heavily on Grade Point Averages. Given that GPAs often reflect implicit biases, these standards may screen out otherwise qualified students of color. Additionally, apprentices with GPAs lower than 2.8 are required to take remedial classes—adding to apprentices' course loads, forcing them to take detours off their occupational track, and splitting up the apprentice cohorts that have proven so valuable in supporting student progress. Additionally, course scheduling misalignments with high schools have created scheduling issues that hold back students.

Key Takeaways and Recommendations

This report covers a lot of ground, so we have summarized the main takeaways and policy recommendations here (for more detail, see Chapter 10). Although these recommendations are primarily intended for a national audience, Appendix B provides a shorter set of targeted program suggestions specifically for partners in the Triad. We hope this study benefits both audiences.

1. The North Carolina youth apprenticeship model is not just about youth. It is really a training pipeline for young adults that is deeply intertwined with the adult workforce system. Thanks largely to federal funding categories, workforce professionals tend to separate youth training (including apprenticeship) from adult systems. North Carolina's model bridges this divide. Although many of the participants in the ETWI started in high school, a majority did not enter the program until the year after their graduation. And even for those apprentices who entered the program during 11th or 12th grades, the program lasts for four years, carrying these apprentices well into early adulthood. Moreover, the requirement that all apprentices complete an associate degree in their occupational field brings these apprentices directly into the heart of the adult workforce system—the community college—a connection reinforced by a tuition waiver that allows students to graduate debt-free.

2. Improving completion outcomes for apprentices of color involves getting the pipeline right for everyone and removing the special barriers that affect apprentices of color in particular. As we've seen, there are dozens of barriers involving parents, high schools, employers, and community colleges that can hold back completion for all apprentices in the pipeline. Removing these barriers is critical for ensuring the program succeeds for everyone. It is also especially important for students of color, as historical patterns of discrimination and economic disparities make these students even more

vulnerable to these barriers than their white counterparts. Moreover, apprentices of color face many barriers that exist specifically because of their identities as people of color and the institutionalized racism that many of them experience.

3. Getting the pipeline right for apprentices of color means correcting for inequities in access to existing supports and systems. Many potential apprentices of color may never enter the program because of barriers related to unequal access. Without an intentional effort to engage students of color, they may never hear about apprenticeship because they were never informed, they may never apply because they were never recruited, and they may never be recruited because they lacked a personal connection with a mentor or trusted teacher. If accepted, they may not complete the program because they cannot afford tools, transportation, or safety equipment. Without a tuition waiver, the employer's costs would go up, potentially reducing the number of positions available. Apprenticeship pipelines should correct for these access-related barriers.

4. Community validators, including existing apprentices of color, are essential for addressing access issues during the recruitment stage of the apprenticeship pipeline. In order for students and parents of color to see apprenticeship as something that works for them—especially in schools with significant wealth divides—it is essential to provide them with trusted voices from their own communities who can vouch for the program. This can include grass-roots leaders of color—employers, pastors, and community advocates—and current apprentices of color who can speak about the benefits of the program. Taken together, these trusted voices can work with students and their parents to overcome skepticism and see apprenticeship as a viable alternative to a traditional four-year degree.

5. Employer buy-in and adaptability is crucial to success. In North Carolina, ETWI employers have played a key role in creating, sustaining, and adapting to the needs of their apprentices. They have actively recruited apprentices and other employers, sought to increase the diversity of the recruited students, developed cash funds to support low-income students' need for transportation and safety equipment, agreed to pay their apprentices for time spent in the classroom, and worked with individual apprentices when special needs arose. Their support has been critical to aligning the employer end of the pipeline with student recruitment, community college attainment, and the needs of apprentices.

6. Funding is necessary for addressing key barriers, supporting local partners and for expansion. Apprenticeship programs don't start by themselves or run by themselves. Technical assistance provided by statewide apprenticeship agencies and community college systems is critical to any apprenticeship program. Youth apprenticeship programs require additional dedicated staff capacity at the local level in anchor organizations that can convene partners, engage schools and students, and coordinate all of the moving parts required to build a strong local pipeline to employers. Without the $3.2 million state appropriation, it is doubtful that ETWI county programs would have been as successful. State governments and philanthropic partners should provide full financial support to local anchor organizations, including local school systems supporting these programs, rather than relying solely on regional or statewide technical assistance to support programs.

7. The apprenticeship tuition waiver is the linchpin of the program. Tuition costs associated with completion of post-secondary credentials are often a significant barrier for completion, especially for students of color who tend to come from lower income families. North Carolina's tuition waiver allows apprentices to complete their degree for free—a huge boost to low-income students and a significant marketing advantage for student recruitment.

TABLE A: Program Design Barriers

Pipeline Stages	Barriers facing all students	Barriers facing students of color
Stage 1: Exposure & Recruitment	Lack of engagement with high schools effectively cuts off the readiest source for pulling youth apprentices into the pipeline.	Inconsistency in intentionally engaging students of color during the recruitment stage. Lacking representation among employers, apprentices, and grass-roots leaders with trusted voices in communities of color.
STAGE 2: Student screening	Inappropriately stringent standards hold down student participation from otherwise qualified students. Program partners have conflicting minimum standards.	Inappropriately stringent standards hold down student participation from otherwise qualified students, especially students in communities of color.
STAGE 3: Student selection into pre-apprenticeship	Employers require trainees who already have industry-specific experience. Fails to produce good matches between apprentice and employer or generates mistrust and lack of commitment between them	Lacking representation among employers, apprentices, and grass-roots leaders with trusted voices in communities of color.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Failing to connect pre-apprenticeship training to full apprenticeships.	Need more data to monitor progress of students of color.
STAGE 5: Completion of post-secondary degree	Misalignments between employers, high schools, and the colleges that hold back completion of the degree.	

Note: Barriers found in other studies but not in the Triad are listed in red.
Barriers found in our study are listed in black.

TABLE B: Functional Barriers—Parents, Families & Social Networks

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Students and families are unfamiliar with technical careers generally and apprenticeship in particular. Parental preference for four-year degrees and skepticism of alternative career options. Students are not exposed early enough in high school to overcome parental skepticism or envision a CTE career.	Family and social networks in communities of color almost never overlap with employers or apprentices who can expose them to technical careers broadly and apprenticeship specifically Parents and social networks see four-year college or joining the military as the only pathway out of poverty because it was the only path available to them. Parental fears that apprenticeship-based career pathways resemble tracking.
STAGE 2: Student screening	Some parents cannot attend required open house sessions. They lack transportation to the session.	Families of color are more likely to face challenges with attending the open houses because they have disproportionately lower income.
STAGE 3: Student selection into pre-apprenticeship	Students with soft skill deficits will be at a disadvantage in the selection and matching process.	The interpretation of behavior and soft skills is very subjective
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Apprentices and their families may lack sufficient income to buy job materials. Apprentices and their families may lack sufficient income to maintain a dedicated vehicle for travel to and from work Unexpected pregnancy.	Financial hardship affects families of color disproportionately. Parental skepticism and emphasis on family responsibilities.
STAGE 5: Completion of post-secondary degree	Course-related costs other than tuition are too high.	Course-related costs other than tuition are too high.

TABLE C: Functional Barriers—High Schools

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Failure of high schools to expose and recruit enough students. High schools do not engage students in a way that lets them see that apprenticeship is an option for them in particular. Marketing materials are insufficiently detailed.	Missing the mark on intentionally engaging students of color. Implicit bias and tracking. Students of color not specifically recruited to CTE or invited to apply to an apprenticeship program (only white students are recruited). No representatives of color involved in recruitment, including career counselors. Lack access to career counseling services. Wealth disparities silence low-income students Marketing materials lack racial diversity.
STAGE 2: Student screening	Low GPAs and poor attendance records screen out students. CDC preferences for four-year degrees.	GPAs often reflect deeper socioeconomic disparities and implicit biases that disproportionately disqualify people of color. Lack of access to staff support for applications.
STAGE 3: Student selection into pre-apprenticeship	Absence of earlier-stage supports for students can act as barriers when employers look for fit—especially around soft skills.	Students of color may have a different set of soft skills and signaling behaviors than employers expect.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Conflicting scheduling needs. Multiple campus locations. Apprentices lack adequate financial literacy.	
STAGE 5: Completion of post-secondary degree	Misalignment between high school and community college for occupational training.	Unequal high school education provides unequal preparation for associate degree.

TABLE D: Functional Barriers—Employers

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	No encounter with employers who show them that CTE or apprenticeship is a possibility. Employers go to some classes and not others.	Implicit bias and lack of intentionality when selecting students for employer visits. Students of color never see employers, alumni, or apprentices like them.
STAGE 2: Student screening	Attendance barriers to open houses hinder employers from meeting students.	Employers are majority white and have implicit biases about minority students. Students of color may need additional recommendations.
STAGE 3: Student selection into pre-apprenticeship		Implicit bias. Employers hire apprentices who look and act like them. Newer employers in the program may rely more on preconceived notions of fit. Applicants of color are unable to find slots because too few employers of color are recruited to the program. Lack of immigration documentation.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Soft skills, including self-awareness and behavior control, become critical. Employers show no tolerance for unexcused absences and current drug use.	Behavioral differences in white workplaces.
STAGE 5: Completion of post-secondary degree	No barriers.	No barriers.

TABLE E: Functional Barriers—Community Colleges

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Lack of exposure to free associate degree. Scheduling alignment issues if taking CTE classes at a community college during high school.	Lack of exposure to free associate degree. Discomfort engaging white faculty and staff at community college.
STAGE 2: Student screening	Community colleges' minimum acceptance standards conflict with minimum program standards, leading to remedial classes that damage the cohort approach. Higher standards screen out students.	Higher standards screen out students of color disproportionately because of flawed measures like GPA.
STAGE 3: Student selection into pre-apprenticeship	Community colleges' minimum acceptance standards conflict with minimum program standards, leading to remedial classes that damage the cohort approach.	
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Community colleges value apprenticeship less than pathway of a traditional associate degree to a bachelor's degree.	
STAGE 5: Completion of post-secondary degree	CTE misaligned with career pathways at community college.	

Introduction & Background

INTRODUCTION

CHAPTER 1

The importance of youth apprenticeships

Apprenticeships are increasingly seen as a solution to a broken workforce development pipeline that too often fails to connect working people to the training and jobs they need to make ends meet. This is especially true for young adults—particularly young adults of color—who continue to suffer from significantly elevated unemployment despite a decade-long economic recovery.

At their core, apprenticeships are paid, structured programs that prepare an individual for a technical trade.[1] They typically involve paid on-the-job training, related classroom-based instruction, a progressive pay scale with wages increasing each year as the apprentices learn, and a national Journeyman certificate. Although adult apprenticeships have a long history in the United States starting 1937 through the U.S. Apprenticeship Act, connecting youth and young adults to apprenticeships is an exciting new opportunity for strengthening the training pipeline between high school, jobs in technical occupations, and higher education.

At the leading edge of this exploration, the U.S. Department of Labor under the Obama administration launched a new effort in 2014 to promote youth apprenticeships, backed up by new funding streams and program guidelines for starting apprenticeship efforts for young adults. This call-to-action has spurred significant local investment and experimentation, with continued support from the current administration.

As states and communities increasingly experiment with youth apprenticeship, the partners involved in these efforts—employers, school systems, community colleges, workforce development boards, community-based organizations, and Chambers of Commerce—are grappling with the question of how to scale these programs and how to make them as effective as possible. What stands in the way of expanding these programs, and what limits young adults—especially young adults of color—in joining and completing these programs and finding long-term jobs with living wages?

Job training is often conceptualized as a pipeline that connects employers to potential employees with the technical or business skills they need to "do the job." In the youth apprenticeship context, students enter this pipeline in or immediately after high school, receive paid on-the-job training with an employer and classroom instruction as part of a recognized occupational credential, and (ideally) reach their end-goal—a permanent, full-time job with the same employer.

As with traditional oil pipelines, blockages, barriers, and holes can stop students from entering and reaching this destination. As a result, it is crucial to design and administer the apprenticeship pipeline in a way that reduces barriers and ensures that interested students can access the program, finish it, and secure permanent employment at its end. This is especially important for supporting students of color, whose historically rooted disadvantages make it more difficult to overcome the barriers that affect all students and present special barriers unique to those communities.

The policy challenge: Identifying and overcoming the barriers to success

There are two different types of barriers that hold back student participation and completion in youth apprenticeship—program design barriers and functional barriers.

Barriers related to program design involve fundamental structural gaps in the apprenticeship pipeline that fail to keep young adults from pursuing and completing apprenticeships. Previous studies have revealed a range of such challenges, including limited employer buy-in and participation,[2]

lack of guaranteed apprenticeship placement after successful completion of a pre-apprenticeship,[3] misalignment between high schools and community colleges around Career and Technical Education pathways,[4] and lack of connection between high school instruction and ongoing education.[5] These design-oriented problems tend to render the entire concept of a pipeline moot, as key stages or elements are completely missing.

Properly designed, a youth apprenticeship pipeline includes the following stages:

- **Stage 1:** Student exposure and recruitment, when students learn about career and technical education (CTE) and apprenticeships in their high schools, usually from career counseling staff. This stage is the entry point for apprenticeship, when students are recruited to apply (and some are not).
- **Stage 2:** Student screening, where students must meet initial minimum standards, including GPA and attend employer meet-and-greets.
- **Stage 3:** Student selection into pre-apprenticeship, where employers accept students into the program.
- **Stage 4:** Student completion of pre-apprenticeship and full apprenticeship. The heart of the program experience, this stage involves students first completing a 10-12 week pre-apprenticeship during the summer to explore fits and interest in a technical field and employer before committing to the full, four-year apprenticeship. In both the pre- and full-apprenticeship, students work and receive on the job training and mentorship.
- **Stage 5:** Student completion of community college degree program, where students attend community college classes to earn their associate degree in the technical field related to their apprenticeship.

Yet even when the pipeline is well designed, a range of functional barriers can hold back progress for students, and especially students of color. In contrast to design barriers, functional barriers occur when students' personal circumstances intersect with key actors in the pipeline in ways that keep them from entering and completing the apprenticeship program. In particular, a student's interaction with four main "actors shape the apprentice's experience and can generate barriers:

- **Parents, families, and social networks**, which shape students' career expectations, behavioral norms on the job, and, critically, financial conditions.
- **High schools**, which serve as the initial recruitment and entry point for the program and determine which students learn about and are recruited into apprenticeship.
- **Employers**, who decide which apprentices are selected and how they are treated on the job.
- **Community colleges**, which provide the post-secondary credential required by the program and whose minimum acceptance standards may screen out otherwise qualified students.

In order for youth apprenticeship to live up to its promise, programs need to overcome design barriers and ensure students' interactions with these actors help, rather than hinder their progress through the pipeline. In other words, program partners need to "get the pipeline right"—for everyone. This requires paying particular attention to ensuring the pipeline works for students of color, who, due to their historical experiences of exclusion, are more vulnerable to the barriers that affect everyone while also facing special barriers rooted in their history.

Learning from North Carolina to strengthen youth apprenticeships across the nation

To advance this policy goal, this study seeks to identify the specific barriers that hold back participation and completion in these programs, especially for students of color, and in turn, offer concrete recommendations and learnings for other communities across the United States seeking to improve the equity and effectiveness of their apprenticeship pipelines.

Since 2014, several high-quality high-school-start apprenticeship programs have emerged nationwide

with strong employer leadership, direct connections to full-time employment, and on-ramps to community college degree programs and further education. In this study, we look at one of these leading models in an effort to identify the design and functional barriers that hold back progress and make a series of recommendations to overcome them—specifically, the cluster of county-level, locally led apprenticeship programs belonging to the Eastern Triad Workforce Initiative in central North Carolina (ETWI).

This regional collaborative includes individual apprenticeship programs in four counties—Alamance, Guilford, Randolph, and Rockingham—each in a different stage of development and each meeting the U.S. Department of Labor standards for a high-quality, community-led, modern youth apprenticeship program. In these counties, all of the major USDOL-required partners are included—employers, community colleges, school systems—and their collaborative efforts have proven largely successful in recruiting and retaining growing numbers of employers and apprentices in a relatively short amount of time (see Chapter 3 for a more detailed overview of ETWI and the Triad region).

As part of this study, we conducted almost 30 interviews with adult stakeholders across all four counties—including employers, high school career-development coordinators, career and technical education directors, local Chambers of Commerce, representatives of local foundations, the community college and state apprenticeship agency. Given the importance of the high school end of the pipeline, we also engaged more than 20 high school students and current apprentices through focus groups and interviews to hear their challenges and successes in entering and completing apprenticeship programs. We also reviewed dozens of marketing materials, planning documents, and other program materials. (See Appendix A for our full methodology.)

This study provides a composite view of the barriers facing student completion across all of the county-level programs in the entire initiative, along with a collective picture of the strategies these programs are using to address these barriers. The result is not a generalization across all the county programs (there are important differences noted in the narrative), but rather a global view of what has worked and what still needs to be addressed to ensure more equitable and successful apprenticeship programs across the region. In turn, this composite view is intended to benefit anyone in the United States seeking to develop or improve apprenticeship pipelines that are effective and racially equitable.

Policy learnings

In terms of specific policy learnings, we found three design barriers and 65 unique functional barriers present collectively across the entire ETWI. At the same time, however, we found program partners and employers aggressively adapting their strategies to address many of these barriers as they arose. Going stage by stage through the apprenticeship pipeline, Chapter 4 provides a detailed analysis of the ways in which ETWI partners and local county program leaders used strong program architecture and partner engagement to eliminate many of the design challenges found in other places. With a special focus on students of color, Chapters 5-8 identify the functional barriers that result from apprentice interaction with each of the four actors they encounter on their journey through the apprenticeship pipeline—parents/social networks, high schools, employers, and community colleges.

Chapter 9 explores the implications for the adult workforce training system, while Chapter 10 provides specific policy and program recommendations for partners across the nation who are launching new apprenticeship programs or want to address issues of equity in their existing pipelines. Although these recommendations are primarily intended for a national audience, Appendix B provides a shorter set of targeted program suggestions specifically for partners in the Triad. We hope this study benefits both audiences.

CHAPTER

2

THE IMPORTANCE OF APPRENTICESHIPS FOR POLICY AND EQUITY

The unequal economic recovery and the need for equitable training pipelines

Despite a robust decade-long economic expansion, all is not well with America's workforce. Nationally and in the states, the country has experienced a deeply unequal recovery in the years since the Great Recession.[6] Middle class wage stagnation has accelerated rising income inequality,[7] amid a long-term shift from manufacturing jobs that pay good wages to service sector jobs that often pay much worse.[8]

Most glaringly of all, however, is the lack of inclusive economic growth and broadly shared prosperity across racial and generational lines. Unemployment among people of color is fully two percentage points higher than it is for white workers in North Carolina and the United States as a whole (see Table 1)—despite the robust recovery.[9] This disparity suggests that people of color experience greater barriers in accessing the labor market than their white counterparts.

Of even greater concern is the unemployment rate for youth and young adults (ages 16-24), which is more than double the jobless rate for all workers in both the state and nation. Although the national rate of 8.6 percent is the lowest in several decades, this is likely because young adult participation in the labor force is also at lowest point in decades—down to just 61 percent.[10] This suggests that many young adults are simply dropping out of the job market either because they feel like other activities (summer school or volunteer work) may enhance their prospects of entering college (for those ages 16-19) or because of inadequate opportunities for employment (for all youth and young adults). Both have major implications for job training and apprenticeships. The former reinforces preferences for more expensive and uncertain four-year colleges (a barrier to apprenticeship participation) and the latter reflects the much deeper challenge of a broken pipeline connecting young workers to employers.

If the pipeline is challenging for young adults in general, it appears especially broken for youth and young adults of color. As seen in Table 1, the unemployment rate for these workers is 2-4 points higher than for whites in North Carolina and the United States. This reinforces the message of overall unemployment—people of color and youth of color face special barriers to finding jobs.

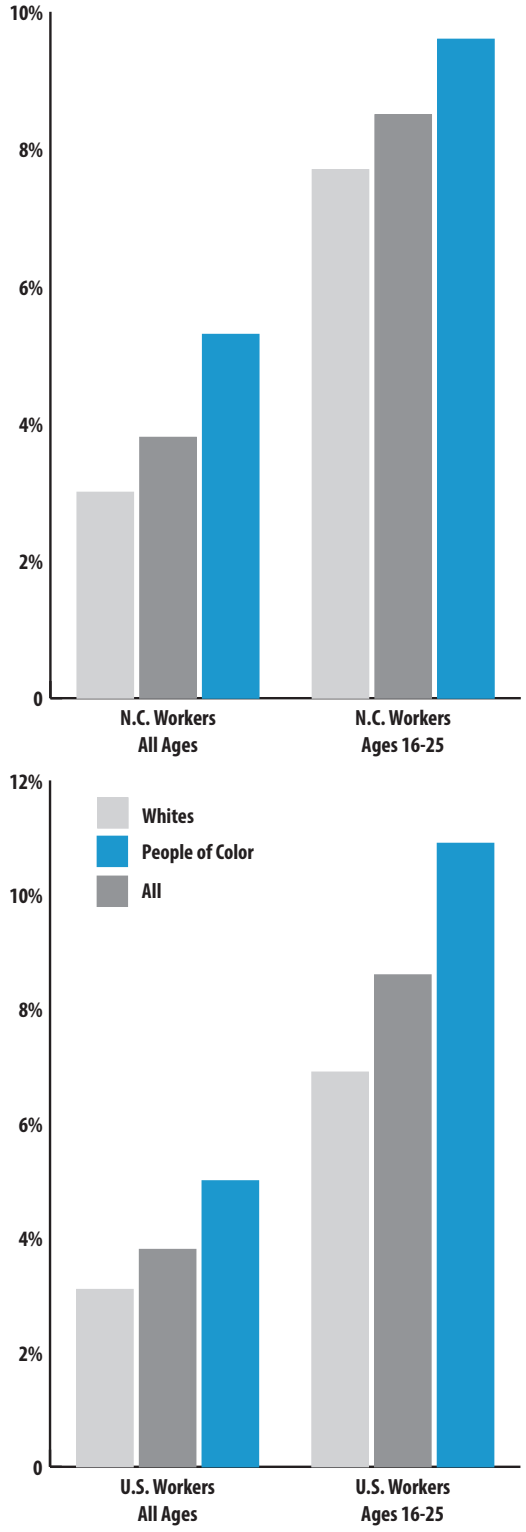
In this vein, the education and training pipeline is struggling to meet the needs of both employers and students. Higher education, including the well-worn pathway to four-year colleges, remains too costly, especially for low-income families. Additionally, too many students, especially people of color, are not finishing their programs, magnifying the financial strains on students and their families. Witness the 58.3 graduation rate from higher education institutions in 2018,[11] which includes a dismal 28 percent graduation rate from community colleges.[12]

At the same time, employers are reporting that they are struggling to find workers with the skills needed to perform the jobs.[13] While some of this may be overblown,[14] employers are increasingly aware that they can play a proactive role in developing the skills of their own workforce and in building an effective training pipeline through partnership with local training systems.

A role for equitable apprenticeships

Apprenticeship is a re-emerging practice with deep roots in America's manufacturing past. Traditional apprenticeships are paid, structured, on-the-job learning programs with related classroom-based

TABLE 1: Unemployment among youth and young adults of color higher than average, 2018-2019



SOURCE: EPI analysis of Current Population Survey microdata, rolling 12-month average,

instruction. These programs incorporate many of the best practices in workforce development—they are sector-specific, employer-designed and employer-sponsored, and they enable access to good-paying jobs through applied, project-based learning.[15] In the United States, adult apprenticeship programs higher completion rates than community college programs and are shown to increase earnings above earnings gained from associate degree completion.[16] Apprentices also are more likely to gain employment and higher earnings in the years following program completion in comparison with other control groups of peers.[17] [18]

Youth apprenticeships are now increasingly seen as a potential solution to the challenges of youth unemployment, stagnating wages, perceived local skills mismatches, and the broken high school-to-employer pipeline.[19] [20] Although less common in the United States, other countries—notably, Germany, Austria, Switzerland, Australia) [21] [22] [23]—have a long and successful history with these programs. Employers have reported a high degree of satisfaction in their return on investment with apprenticeship, including youth apprenticeship, as apprentices are often operating at full productivity before completing their programs.[24]

Despite their effectiveness in other places, apprenticeships in the United States are not yet broadly accessible to young people in high school but the model has enormous possibilities for helping students transition to work, continue their education, and attain a recognized post-secondary credential. As a result, they are growing in popularity across the country. Recent reports by the Center for American Progress,[25] the US Department of Commerce,[26] and the New American Foundation have found these programs gaining traction across the country, but low public awareness and a fragmented policy landscape had limited the effective expansion of the programs.[27] States and local governments have a leading role to play in testing and advancing new programs. Bipartisan support through several rounds of federal funding, support from governor's offices and state legislatures and support from philanthropic foundations are driving

experimentation and expansion.

Emerging practice suggests that the most effective models of youth apprenticeship include several key elements: [28]

> • **Pre-apprenticeship.** Paid on-the-job training with a sponsoring employer under the supervision and mentorship of an experienced and skilled co-worker. A pre-apprenticeship program should test students' interest and prepare them for a multi-year apprenticeship program with the sponsoring employer. It should also test their match or fit with the sponsoring employer and, assuming a successful experience, should end with a formal apprenticeship offer.

• **Paid on-the-job training** with an employer under the supervision and mentorship of an experienced and skilled employee for the same company at which the student completed a pre-apprenticeship. This lasts for between one and four years.

• **Post-secondary credential.** During the apprenticeship, the student must complete classroom training that culminates in an industry-recognized credential, usually an associate degree in a related occupation

• **Journeyman certificate.** The apprentice gains the competencies and/or completes the hours to earn a journeyman certificate in the chosen occupation.

Yet, as the U.S. rediscovers apprenticeship, it is clear that a number of barriers stand in the way of ensuring students can access, enter, and complete these programs—barriers that present special challenges to people of color given their history of exclusion and discrimination.[29] Overcoming barriers will remain a central challenge in ensuring that youth apprenticeships play the role their fervent supporters believe they can in connecting young adults to the adult training pipeline and lifelong careers in a technical occupation that pays a living wage.

Existing studies have identified a range of these barriers, particularly for adult apprenticeships, but they largely refer to program design problems. For example, where apprenticeship programs lack a crucial component (e.g., pre-apprenticeships that are not sponsored by employers or do not lead directly to an apprenticeship). Even when programs eliminate design challenges, students still face a range of functional barriers related to the ways their personal circumstances intersect with various aspects of the apprenticeship program. A range of studies have found students of color facing these kinds of barriers in K-12 education,[30] post-secondary education,[31] and workforce training,[32] and it is important to understand the extent to which these barriers also play out in the context of apprenticeship. Our study seeks to explore these barriers in the context of a national model for youth apprenticeship in the Eastern Triad Workforce Initiative.

BACKGROUND

CHAPTER 3

Overview of study site

We selected the Eastern Triad Workforce Initiative (ETWI) in the Piedmont Triad region of North Carolina for our study location. This regional collaborative includes individual apprenticeship programs in Alamance, Guilford, Randolph, and Rockingham counties, each in a different stage of development.

Taken together, the multi-county collaborative provides researchers and policymakers with an excellent test case for modern community-led, USDOL-registered youth apprenticeship programs in the post-Obama era. The program includes all of the major partners USDOL requires—employers, community colleges, school systems—and has taken steps to proactively address many of the barriers facing apprenticeship completion, especially among students of color. Moreover, the region has stark divides over poverty, wages, and unemployment that shape the experiences of these apprentices. As a result, ETWI allows us to see what has worked and what still needs addressing to ensure more equitable and successful apprenticeship programs, especially for apprentices of color.

In terms of geography, these four counties range from heavily urbanized Guilford County, which includes the cities of Greensboro and High Point, to highly rural Rockingham County with Alamance and Randolph counties roughly in between (see Table 1). They all rest within the broader Greensboro-Winston-Salem-High Point Combined Statistical Area (as defined by the U.S. Census Bureau) known popularly known as the Piedmont Triad.

TABLE 2: Population By County, July 2018

County	Population
Alamance	166,436
Guilford	533,670
Randolph	143,351
Rockingham	90,690

SOURCE: U.S. Census Bureau

Historically, manufacturing has played a central role in the region's identity, focused largely around textiles and furniture assembly. As these legacy manufacturing industries have faded over time, the region has succeeded in building new industrial centers around aerospace, biotechnology, healthcare, and other forms of advanced manufacturing, including technologically advanced types of furniture assembly. Indeed, the city of High Point in Guilford County still considers itself the furniture capital of the world.[33] As a result, there is a cultural familiarity with manufacturing and apprenticeship among certain segments of the white community, where family and social networks typically have included employers and workers in these industries. Because both legal and informal discrimination often excluded people of color from these jobs until the 1970s and 1980s, people of color may have less familiarity with and greater skepticism of these options.

In terms of demographics, all four counties are majority white, although they differ widely in terms of the percentage of residents of color (see Table 2). In Guilford County, people of color make up nearly half of the overall population, thanks largely to the heavily African American city of Greensboro

TABLE 3: Racial Demographics By County, July 2018

Race	Alamance	Guilford	Randolph	Rockingham
White	64%	51%	79%	73%
African American	20%	35%	7%	19%
Latinx	13%	8%	12%	6%
Asian	2%	5%	2%	0.6%
Native American	1%	0.7%	0.1%	0.1%
All Others	0%	0.7%	1%	2%

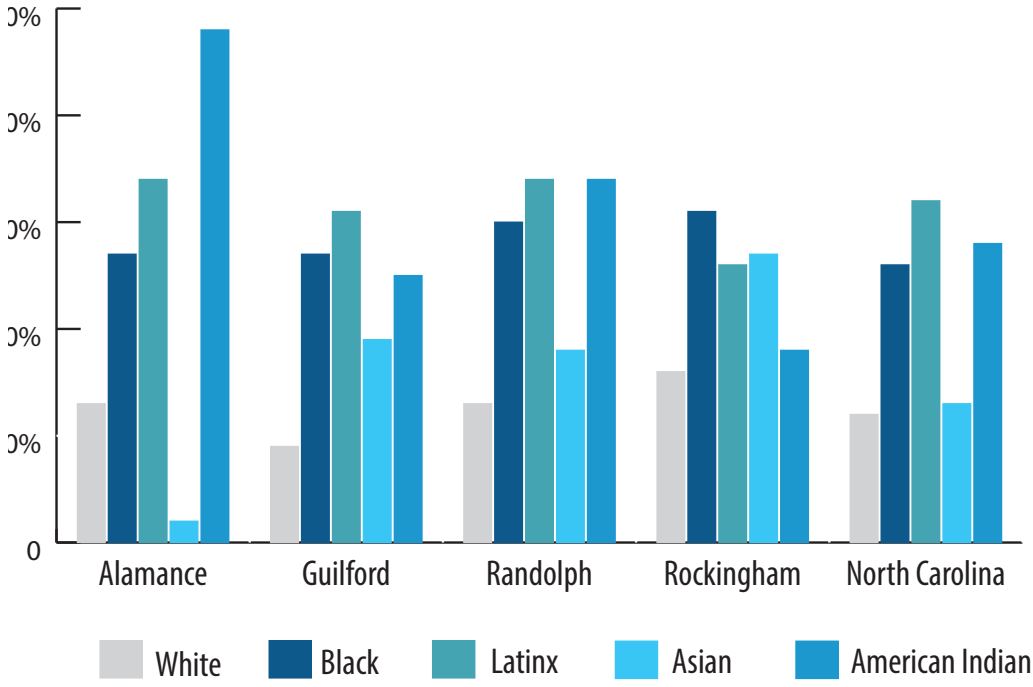
SOURCE: U.S. Census Bureau

TABLE 4: Triad Counties Have Higher Poverty, Mostly Lower Wages Than North Carolina

	Poverty Rate*	Hourly Median Wage**
North Carolina	15.4	$17.19
Alamance	16.1	$14.83
Guilford	18.3	$17.45
Randolph	14.4	$14.35
Rockingham	18.1	$15.40

* SOURCE: BTC Analysis of ACS 2012-2017
** SOURCE: Occupational Employment Statistics

TABLE 5: People of Color Have Higher Poverty Rates in Triad Counties



SOURCE: BTC County Fact Sheets, ACS 2012-2016

and a strong presence from Latinx families (often involved in the construction industry) in rural areas. Alamance County has a slightly lower population of people of color (about 36 percent), while Randolph and Rockingham counties are much more heavily white. Randolph is the only county in the collaborative to have a larger Latinx population than African American. This has profound implications for the ways that students of color experience the world and encounter apprenticeship. Apprentices in highly white counties may experience a greater sense of exclusion and greater barriers in the absence of intentional engagement to address these problems.

At first glance, the Piedmont Triad regional economy appears to be doing very well—the Greensboro-Winston-Salem-High Point Combined Metropolitan Statistical Area has replaced all of the jobs lost during the Great Recession, and local job growth remains very strong. The region's overall unemployment rate from 2017 to 2019 averaged 3.5 percent, several ticks lower than the 3.8 percent statewide jobless rate over the same period.[34]

But there remains significant inequality within the region—between counties and between residents. As seen in Table 4, three of the four counties in the Triad collaborative have poverty rates well above the statewide average and hourly median wages below the state average. In urban Guilford County, the inequality appears especially stark—despite a median wage of $17.45 an hour (26 cents above the state's median wage), the poverty rate has averaged 18.3 percent over the past four years. In other words, wages are high for some people, and poverty is high for others.

Economic disparities also exist within counties: People of color face significantly higher poverty rates in every single county in the collaborative than the topline county average and their white counterparts (see Table 5). For example, Latinx poverty is almost triple the white rate and African American unemployment ranges from 27 percent in Guilford and Alamance respectively to 30 percent in Randolph and 31 percent in Rockingham. It is striking that the two counties with the smallest African American populations also have the highest

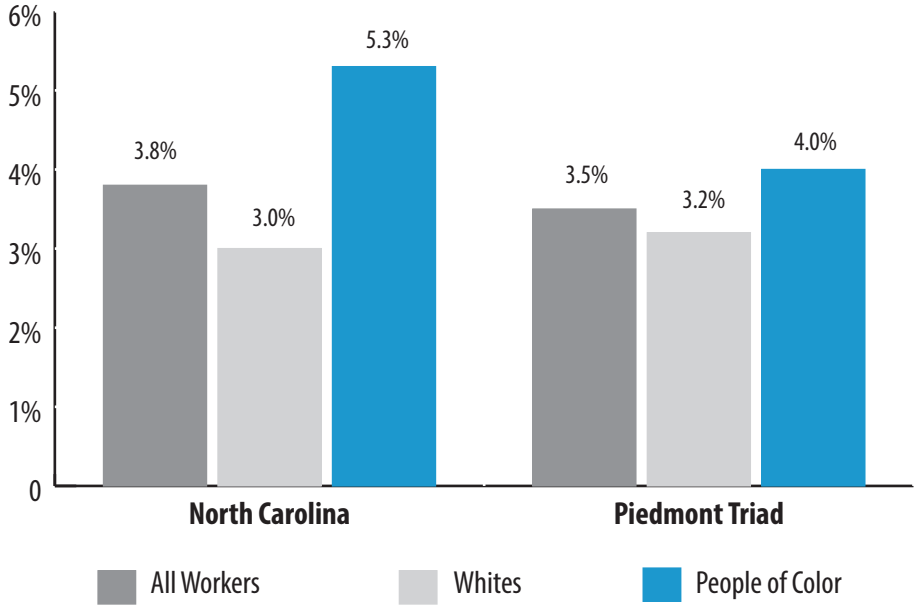
poverty rates for that demographic. This likely reinforces barriers to inclusion and access to programs like apprenticeship in those counties.

In this broader context, youth apprenticeship is increasingly urgent, especially for people of color. While unemployment for people of color is lower in the Triad (4 percent) than for people of color in the rest of North Carolina 5.3 percent), it remains significantly elevated compared to the average jobless rate in the region (3.5 percent) and almost a full point higher than that of white workers (3.2 percent). This reinforces the story from the region's poverty numbers— people of color across the region clearly face significant barriers to employment.

Magnifying the barriers to employment along racial lines, young people are also struggling to find jobs in the region—raising the stakes for apprenticeship programs as a potential solution. At 6.5 percent, the unemployment rate for youth and young adults (ages 16-24) in the Triad is almost double the overall unemployment rate of 3.6 percent (see Table 7) for all workers in the region. Although young adults in the region have a lower jobless rate than their counterparts at the state level, the gap between these young workers and everyone else is still a significant cause for concern, as it suggests that even a strong local labor market is struggling to connect young workers to a steady employment pipeline.

This is the context in which the four counties in our study launched the Eastern Triad Workforce Initiative to provide apprenticeship pipelines for students and employers. Fortunately, these programs have a strong foundation to build upon from the state's manufacturing past and a nationally recognized program called Apprenticeship 2000 (see Box on next page).

TABLE 6: Unemployment Among People of Color Is Higher Than Average



SOURCE: EPI analysis of Current Population Survey microdata for the Greensboro-Winston-Salem-High Point CMSA, rolling 12-month average

HISTORY OF APPRENTICESHIPS IN NORTH CAROLINA

North Carolina has been a pioneer in apprenticeship development despite having one of the lowest union density rates in the nation. In the 1960s, prominent construction firms worked together through an industry association to create the Carolina's Construction Training Council (CCTC). The CCTC provided extensive training through apprenticeships in a dozen construction trades, including bricklaying, carpentry, electrical, plumbing and sheet metal. At its peak in the mid-1970s, the CCTC apprenticeship trained over 1,000 apprentices annually. At that time, it represented the largest non-union construction apprenticeship program in the nation, with over 300 firms participating. By the mid-1980s, however, industry support for the CCTC apprenticeship and related technical training programs waned, reflecting the reduced labor market role of North Carolina's general contractors. Specialized subcontractors—particularly those outside of licensed trades—showed little interest in supporting the continuation of formal programs like the CCTC.[35]

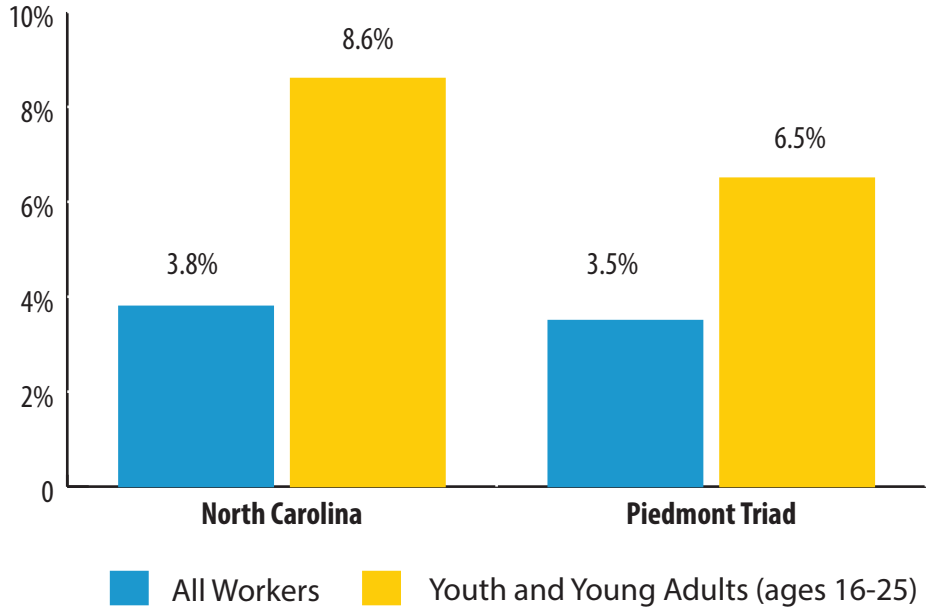
In advanced manufacturing, North Carolina again benefited from businesses stepping up to initiate and lead apprenticeship development. In the mid-1990s, two foreign-owned manufacturers—one from Switzerland and one from Austria—formed a novel apprenticeship consortium. That program, Apprenticeship 2000, quickly expanded to include four other small and medium-size firms, including the global manufacturing giant Siemens, though eventually they spun out their own dedicated apprenticeship program. At last count, approximately 175 apprentices have completed the Apprenticeship 2000 program.[36]

North Carolina community colleges have been involved in both of these pioneering programs. In construction, community colleges supported technical training when CCTC was disbanded in the mid-1990s. But with Apprenticeship 2000, community college involvement remained critical from the program's inception. Central Piedmont Community College joined Apprenticeship 2000 in 1995—recruiting from a wide applicant pool, including military veterans and public high school students. The college also coordinates class scheduling—ensuring apprentices can spend the largest portion of their workweek at a company, earning wages as they learn.

Based on their positive experience with Apprenticeship 2000, Central Piedmont scaled the model in the mid-2000s to support other firms through a new program called Apprenticeship Charlotte. Other community colleges in North Carolina have been inspired by Apprenticeship 2000's success to launch their own apprenticeship initiatives. Admittedly, many programs have struggled with racial and gender inclusion and diversity—an ongoing challenge that speaks to the need for further apprenticeship improvement in North Carolina.

—Nichola Lowe, Professor of City & Regional Planning at the University of North Carolina, Chapel Hill

TABLE 7: Unemployment among youth and young adults higher than average, 2017-2019



SOURCE: EPI analysis of Current Population Survey microdata for the Greensboro-Winston-Salem-High Point CMSA, rolling 12-month average

Description & History of the Eastern Triad Workforce Initiative

The Eastern Triad Workforce Initiative provides an excellent composite example of locally-led modern American youth apprenticeship programs with strong employer engagement, smart program design, and a high level of adaptability to meet student needs. Each county has its own local leadership and administers its own program, but they all follow the same basic model, involve the same kinds of partners, face similar (though not identical) challenges, and benefit from the information-sharing and coordination offered through the ETWI collaborative.

Although each county program has its own origin story, the shared journey of ETWI apprenticeships began in 2012, with a survey of employers about workforce development challenges.[37] The survey results highlighted difficult-to-find skills and difficult-to-fill jobs from the employer's perspective and helped to inform the work of a regional task force co-led by the Community Foundation of Greater Greensboro that focused on supporting locally-led workforce training initiatives in counties across the Triad.

The task force initially aimed to connect business and civic leaders to identify programs that would bolster the long-term economic success of residents in the region. This work inspired the ETWI, which now focuses on workforce programming to support the dual goals of "career advancement for workers and developing a more skilled and stable workforce for employers."

As part of these conversations, Donna Newton, with the Community Foundation of Greater Greensboro, learned about the youth apprenticeship model, but she couldn't find many other interested parties in Guilford County. But, she said, "I just need one employer to catch onto this." Tammy Simmons, Vice President of Human Resources for Machine Specialties, Inc, attended an early meeting and became that "one employer"—a crucial early (and continuing) champion for youth apprenticeship.

Working together with other employers, Guilford Technical Community College, and the Guilford County School System, these champions helped launch Guilford Apprenticeship Partners (GAP) in August 2015.

Over the next few years, leaders in three other Triad counties launched their own local apprenticeship programs while learning from each other and adopting best practices. In nearby Alamance County, Barbara Gorman of GKN Driveline helped to launch the Career Accelerator Program in September 2015 on essentially the same timetable as GAP. Nearby Randolph and Rockingham counties launched their own youth apprenticeship programs in 2016 and 2017—Apprenticeship Randolph and RockATOP. Each program has strong local leadership, and operates largely autonomously, with some administrative and financial support from the Community Foundation of Greater Greensboro, which operates as convener and fiscal sponsor for the programs.

In 2014, the emerging collaborative received national philanthropic support as a National Fund for Workforce Solutions technical assistance site and in 2017 a $3.2 million state appropriation form the General Assembly. (Additional support, including administrative, in-kind and philanthropic contributions, come from the local Chambers of Commerce in Greensboro, High Point, and Alamance, and the Career and Technical Education offices of the Randolph County School System and the Rockingham County School System.). The Eastern Triad Workforce Initiative was created as the platform to receive and administer this funding, support marketing across all four counties, and promote information-sharing about best practices. [38]

The program is becoming increasingly popular across all four counties. Employer engagement and student participation has steadily increased every year each county first launched.

Triad High Schools

High schools play a crucial role in the youth apprenticeship pipeline developed by the Eastern Triad Workforce Initiative. They are the primary entry point through which students are recruited to become apprentices. Accordingly, barriers in place at the high schools have enormous influence on who enters this pipeline and who does not.

In order to identify these barriers, it is critical to understand how recruitment numbers for students of color can differ depending on the strategies used for promoting apprenticeship from school to school. Moreover, potential racial disparities in apprenticeship recruitment strategies likely reflect deeper racial disparities within the schools.

To explore the link between these disparities and school-level barriers, we selected two high schools to

study based on how the racial composition of their apprenticeship cohorts compared with the racial composition of their respective school population. A school with a lower participation rate among students of color than their overall presence in the school population might have more barriers to recruiting students of color than a school that has a higher rate of participation among these students compared with their presence in the school at large. This contrast is even more explicit when looking only at schools where students of color are in the minority, and thus experience the same challenges around minority inclusion as they do outside the school. (For more details, please see Appendix A: Research Design & Methodology.)

From this, we focused specifically on two high schools—Triad High School A and Triad High School B (the names of the high schools have been suppressed to protect the privacy of students, faculty, and staff). Both have similarly sized enrollments of more than a thousand students and have contributed a similar number of apprentices to the program. Both have majority-white populations with similar percentages of students of color, ranging from 30 percent at High School A to 40 percent at High School B. Additionally, both schools have highly committed Career Development Counselors and staff who have aggressively sought to recruit students into the apprenticeship program. These basic similarities allow a clean contrast between the strategies and barriers in place at both schools that explain why one school has over-represented people of the color and the other has under-represented people of color.

Triad High School A is a higher-resource school with a 30 percent population of students of color. Physically, the school is relatively new, and it has a range of highly modern amenities and resources.

Triad High School A is a higher-resource school with a 30 percent population of students of color. Prior to its 2019 cohort, the school had not successfully recruited a student of color into the apprenticeship program. The school is located in a relatively high-income exurban district that also pulls from several urban and rural neighborhoods. Physically, the school is relatively new, having been constructed within the last decade, and it has a range of highly modern amenities and resources.

Triad High School B is a lower-resource school with a 40 percent population of students of color. Physically, the school was built many decades ago and has deteriorating facilities.

Triad High School B is a lower-resource school with 40 percent of the total population counting as students of color. Prior to 2019, half of the successful apprenticeship recruits were students of color—a significant overrepresentation compared to the percentage of students of color in the school population at large. The school pulls from a lower- to middle-income district with a mix of urban and rural neighborhoods. In contrast to High School A, High School B was built many decades ago, has deteriorating facilities, and a greater number of students of lower socioeconomic status.

Policy Learnings

"Higher education is not for us. It's a rigged game. But GAP is different. It works *for* us."

J, an African American apprentice

CHAPTER

4

PROGRAM DESIGN BARRIERS

Barriers related to program design involve fundamental structural gaps in the apprenticeship pipeline that fail to keep young adults from pursuing and completing apprenticeships. Examples could include no post-secondary credential requirement, or the lack of employer participation, or the absence of high school recruitment efforts. This chapter examines potential design barriers across all stages of the Triad's pipeline, while the following four chapters look at the functional barriers that apprentices experience in their interactions with parents, high schools, employers, and community colleges at each stage. (Throughout the following chapters, specifically identified barriers are highlighted in bold and included in summary charts at the end of each chapter).

In terms of program design, ETWI has constructed an effective apprenticeship pipeline that has eliminated many of the design-related barriers that have obstructed student completion in other apprenticeship programs. While some design barriers have remained, apprenticeship partners—especially employers—have adapted quickly to address many of them as the program has evolved. In turn, this has made the student's journey from stage to stage in the pipeline significantly easier.

STAGE 1: Student exposure and recruitment

This stage is the entrance to the apprenticeship pipeline, where high school students learn about apprenticeship and are given the opportunity to apply. In some cases, former students within 120 days of graduating high school are also allowed to apply, and this usually occurs within the context of a continuing relationship with high school guidance counselors or CTE faculty.

Prior to application, most students are exposed to apprenticeship in the context of CTE classes, highlighting the importance of the CTE track for program recruitment. During recruitment, the high school essentially acts as both a funnel that pulls (some) interested students into the apprenticeship pipeline by inviting them to apply, and as a gatekeeper that keeps other students out by implicitly or explicitly discouraging them from applying. As a result, this gatekeeper role directly affects the pipeline as a whole by influencing the number of students who apply (and apply successfully), but it has an outsized impact on the demographic composition of those students who end up applying.

Other studies have discussed how the **lack of engagement with high schools effectively cuts off the readiest source for pulling youth apprentices into the pipeline**.[39] Fortunately, the Triad Collaborative has avoided this problem through strong early engagement with the school system. Across the ETWI programs, not every high school in every county participates equally in exposure and recruitment, but the apprenticeship programs have attracted enough support in enough schools to support significant student participation. Involving the school system from the beginning ensured that high schools were included in the program as the primary access point for student recruitment.

STAGE 2: Student screening

Following their recruitment in high school, students' journeys through the apprenticeship pipeline begins with screening. This starts with Open House events, where students learn more details about the program, connect with employers, and make the final decision about applying. Employers begin to evaluate individual students during this stage and through the application review. In order to get through this stage of the pipeline, students must meet or exceed the eligibility criteria, which includes fewer than four absences a year and a minimum grade point average (GPA) that varies from 2.8 in

Alamance and 2.5 in the other counties. Additionally, students must meet basic admissions standards for community college.

It may help to make a good in-person impression at the open house events, where students meet the employers participating in the program and other partners. Parents are required to attend an Open House before applications are submitted to ensure they support their child's career pathway. In essence, the student's encounter with the screening stage revolves around the minimum eligibility standards required by the program.

There is an obvious tension in the screening process. Employers need to have standards stringent enough to ensure their apprentices are adequately prepared for the rigors of the program, while the best practices literature suggests that ***inappropriately*** **stringent standards hold down student participation from otherwise qualified students, especially students in communities of color**. Inappropriate standards may not fully capture the full range of a student's abilities and preparation or may reflect past discriminatory practices carried forward. This is especially true with using minimum GPAs and absences as standards, which tend to reflect implicit biases, family instability, rather than assessing whether a student is fully qualified.[40]

In the Triad, county-level partners have developed different workarounds for these problems by providing students who are close but not quite up to the minimum standards to find other ways of showing their qualifications for the program. This includes letters of recommendation from career counselors, faculty, and principals, and employer flexibility around past legal problems and even drug tests (although there us a zero-tolerance for drug use once the student is accepted as a pre-apprentice).

An additional design-related screening barrier occurs when **program partners have conflicting minimum standards**—for example, when the community college requires a higher GPA for admission than employers require for the apprenticeship program. Partners across ETWI have addressed this issue by defaulting to community college admissions standards for their own program screening requirements.

STAGE 3: Student's selection into pre-apprenticeship

After applications are submitted and students make it through initial screening, the next stage of the pipeline involves selection by employers for pre-apprenticeship. During this stage, students are reviewed by employers, and input may be invited from other stakeholders. Employers pick their top candidates based on the applications, any personal interaction during the open house sessions, and input from the student's references. Employers aim to select those applicants who want to work for their company and whom the company wants to hire, so that applicants and businesses see a win. The employers also seek a

win for the other employers participating in the program, so they negotiate preferences with each other as well so everyone can match with one of their top choices.

Companies that are the potential apprentice sponsors take the lead in reviewing applications. They may involve other partners, such as the school counselors and county CTE director, to advise them or help make matches. These other partners can advocate on behalf of students who might not look good on paper but who have the motivation and/or skills to succeed in an apprenticeship program. These partners can explain lower grades or less than ideal attendance records if there were mitigating circumstances.

Final candidates are invited to a final matchmaking event, an orientation, where their skills are tested by sponsoring companies. Most students who make it to the orientation are offered a pre-apprenticeship at one of the companies. Most of those students, but not all, accept the offer.

In other programs, **employers require trainees who already have industry-specific experience, which** obviously excludes students who lack those skills. In contrast, the Triad program does not have these industry-specific requirements. Employers focus on developing talent and willing to accept students with no work experience at all. Candidates are not even required to have taken CTE courses, although our focus groups overwhelmingly stated that some CTE background was essential to succeed in the program, even if they weren't formally required.

Additionally, some programs lack a two-way matchmaking process through which sponsor and apprentice choose each other, resulting in a process that **fails to produce good matches between apprentice and employer or generates mistrust and lack of commitment between them**. Across ETWI, employers use a balance of formal and more improvised matchmaking that allows for flexibility and inclusion without sacrificing the clarity of a structured process with clear eligibility requirements. This flexible process includes applications, informal interactions at Open Houses, formal interviews, a ranked-choice voting system for both employers and apprentices, and opportunities for school-level partners to weigh in on applicants, thus maximizing the amount of information both students and employers have when making decisions. In turn, this reduces the risks of apprentices falling out because of a bad match with an employer.

STAGE 4: Completion of pre-apprenticeship & Full Apprenticeship

Once students are selected, they enter a pre-apprenticeship that begins the summer after their junior or senior year. When students complete this pre-apprenticeship, they will have community college credits from summer coursework, a summer of on-the-job training experience, a better sense of their fit within the world of work, and a summer's worth of hourly earnings. After successfully completing the pre-apprenticeship, students can expect an offer of a full apprenticeship in the fall. If they accept that offer, the apprentice and employer-sponsor work out a contract for employment and training, including responsibilities, skills and competencies the apprentice can expect to gain, their wage schedule, their related training at the community college, and other terms of employment.

The contract is celebrated at a signing ceremony where all new apprentices and their employers sign their paperwork and begin their four-year program. Witnesses and supporters at the signing ceremony

often include the State Apprenticeship Agency and other interested state and local parties such as the leaders of the Departments of Labor and Commerce and community college leadership. Parents and other community members often attend to support the students. Students then become full apprentices and spend the next four years working on the job and taking classes according to the terms of the contract. By the end of this apprenticeship period, apprentices will have four years of paid work experience and a national journeyman certificate.

In this stage, the single greatest design barrier facing other programs involves **failing to connect pre-apprenticeship training to full apprenticeships**—in effect, students finish their pre-apprenticeship without a planned or guaranteed opportunity to complete a full apprenticeship at the same company.[41] This naturally creates a fundamental gap in the pipeline that other studies have shown is crippling to ensuring successful completion of an apprenticeship. In contrast, all four of the ETWI programs have built a strong link between pre-apprenticeship and apprenticeship—employers only accept the number of pre-apprentices that they plan to hire into full apprentices. If they lose someone, they essentially lose a staff position. In other words, the employer takes on the pre-apprentice with the explicit understanding that they will hire that student as a full apprentice if that student performs as promised.

STAGE 5: Completion of post-secondary credential

As part of the apprenticeship, students must complete an associate degree in a related technical occupation. Students start taking college courses during their pre-apprenticeship summer and enroll as part-time students during their full apprenticeship. Employers are required to support the post-secondary piece of the apprenticeship by allowing students the time away from work to take the required courses for their degree and paying them for it. Finally, a state tuition waiver ensures apprentices do not have to pay any tuition costs to complete their degree.

As part of the apprenticeship, students must complete an associate degree in a related technical occupation. Students typically attend classes at the community college for one day a week.

Apprentices attend classes with their peers at sponsoring companies. Students who start in the same year move through the degree program as a cohort. The degree is typically completed part-time over four years while the students are working and training on the job site. Students typically attend classes at the community college for one day a week.

Programs in other states have stumbled at including the post-secondary degree, often because they excluded or failed to adequately engage college leadership in program design and service delivery from the beginning.[42] This has tended to create significant **misalignments between employers, high schools, and the colleges that hold back completion of the degree**. But this has not been a design challenge in the Triad, thanks to the inclusion of college leaders at the county program tables across the ETWI. In all four counties, partners have intentionally sought to align employer industries with the occupational career pathways and degree tracks at their local community colleges. This ensures students can smoothly transition from job to college without substantive misalignments. Moreover, the high level of coordination between the community college and the employer collaboratives in each county has allowed continuous improvements to the curriculum and schedule. Annual and monthly meetings provide opportunity for feedback and adjustment in real-time.

Finally, **financial costs remain a significant obstacle in other states for completion of post-secondary credentials in apprenticeship** and more broadly across the workforce system. North Carolina's state tuition waiver eliminates this barrier and provides what our focus groups revealed as a chief reason to

pursue apprenticeship—free college and no debt. Without the waiver, employers or students would have to bear these costs, either of which would damage employer participation and employer buy-in.

Overall strengths of program design

The effectiveness of this pipeline design is seen in the strong retention numbers to date across all participating counties (see Table 9). Taken together, the programs retained 83 of the 116 students who accepted a pre-apprenticeship in 2018 (about 72 percent). Although there are some small differences from county to county, there is still remarkable consistency in the strength of retention and the stages where the most attrition occurs. Unsurprisingly, the largest percentage drop-off of students happens between screening and acceptance, as employers pick the applicants they desire most highly: given a finite number of slots, some students will not be offered a pre-apprenticeship. Once accepted, however, students fair pretty well, as employers often go to great lengths to ensure their retention and success (see Chapters 5-8).

But much of the overall strength in retention is due to strong program design, including the following:

Effective engagement of the right partners from the beginning—especially active and supportive employers. In the ETWI and across the county programs, the groups responsible for designing and launching the program brought virtually all the right partners to the table and ensured that everyone supported the program objectives and aligned with each other across program needs. The inclusion of community college leaders from the outset ensured the pipeline would contain a strong and functional pathway to a post-secondary credential—a piece often missing or broken in other places.

Most importantly, employers played an instrumental role in launching apprenticeship programs across all four counties. This cadre of employers has helped recruit students and other employers and has worked closely with program administrators to develop program guidelines and standards for student participation. They are also highly supportive of the post-secondary educational component of the program by allowing apprentices time off the job to travel to and attend community college classes and paying them for the hours spent in class. This ensures that students don't encounter barriers transitioning between the job and the community college.

Robust local leadership, adaptability, and autonomy in county programs. Alongside the crucial leadership of local employers, each of the four counties in this study has a separate anchor organization to coordinate employer engagement, student recruitment, and overall program management. The type of organization playing this role varies from county to county, which has allowed each county to develop a program that best suits the needs of their particular community, while following the basic ETWI program design. In Alamance and Guilford, it is the local Chambers of Commerce. In Randolph and Rockingham, the school system's Career and Technical Education Office fills this role. This flexible governance model has made it easier for the organization with the most appropriate capacity, skill set, commitment, and role in the space to engage in the way most suited to the county environment. For

TABLE 8: Apprenticeship Retention Remains Strong Across All Stages of the Pipeline

Stages	Alamance	Guilford	Randolph	Rockingham	Total 2018
# of Applicants (Stage 1)	33	140	51	26	250
# at Orientation (Stage 2)	26	88	40	25	91
# Invited to Pre-apprenticeship (Stage 3)	18	65	27	19	129
# Accepted to Pre-apprenticeship (Stage 4)	18	55	24	19	116
# Invited to Apprenticeship (Stage 4)	16	48	17	19	52
# Accepted to Apprenticeship (Stage 4)	16	40	17	17	90
# Retained to Date (May 2019)	16	37	14	16	83
Total Attrition for Accepted Students	2	18	10	3	33
Total Drop-off from Application (Stage 1)	17	103	37	10	167

SOURCE: Data provided by ApprenticeshipRandolph, Guilford Apprenticeship Partners, ROCKATOP, and Alamance Career Accelerator Program.

example, each of the counties has developed different strategies for engaging high schools, marketing to students, and addressing a range of functional barriers covered in Chapters 5-8. Interestingly, the local workforce boards have played a meaningful role in supporting the apprenticeship program in Randolph County, but less so in Guilford or Alamance. This suggests that strong community-based organizations and other public sector actors can move these programs forward in cases where the workforce board is less engaged or unsupportive.

Adequate funding to support program. ETWI has secured adequate funding to support personnel costs, program capacity, and direct operational support to the county programs through significant support

from state appropriations—to the tune of $3.2 million over three years. These funds allowed ETWI to support local programs and to secure advanced technical assistance from the National Fund for Workforce Solutions on program launch and implementation. This administrative backbone has made it easier to adapt to the needs of students and improve the program's diversity over time—especially in Guilford and Alamance. In the case of Apprenticeship Randolph, the program developed its own administrative capacity through the Randolph County School System CTE office, but it has also benefited from the state appropriation and the technical assistance provided by the National Fund in the years since funding was secured.

Local programs connected and assisted by regional anchor/fiscal sponsor. In the Triad, the Community Foundation of Greater Greensboro played a crucial role in launching the Guilford Apprenticeship Program, a role that morphed into assisting the other county programs as data collector and sharer of program expertise as the initiative has grown. Although the local county anchors are leading their respective programs, the Community Foundation has acted as the fiscal sponsor for ETWI, handling the complex braiding of philanthropic dollars and state appropriations that support the initiative. Assigning this administrative role to a central organization has freed up the local county anchors from these time-consuming administrative tasks and allowed them to focus fully on leading employer engagement and student recruitment in their own counties.

Strong network for information-sharing, strategy development, and mutual support. Given that each county program is relatively autonomous, the initiative provides an important network for shared learning and strategy development. Quarterly ETWI-wide meetings bring together all of the major stakeholders—employers, school systems, community colleges, workforce board partners—from all of the counties to share updates, strategies, and information on what's working and what's not in their individual counties.

High level of adaptability to meet student needs and to promote equity. Across all the counties in ETWI, individual programs have demonstrated significant willingness to develop innovative solutions and workarounds to the functional barriers that apprentices encounter. There is constant, ongoing learning and adaptation, to the point where it should be considered a key feature in program design. In one of the most consequential examples of this, Guilford began its program by targeting only a handful of high schools for student recruitment. For the first two years, high school recruitment resembled a patchwork of different approaches, with some schools seeing deep engagement by employers, others seeing none at all, and others seeing somewhere in between. By the program's fourth year, GAP employers visited very high school, used robocalls to contact every junior and senior and their parents, and contracted with a marketing firm to engage students through social media. Thanks to ETWI's shared community, every county in the initiative adopted this same set of strategies in 2018-2019, ensuring 100-percent high school engagement across all the counties in the collaborative. Although there are still challenges in engaging populations within the schools, this adaptive approach has at least ensured that every school is included in apprenticeship outreach. In addition to recruitment, program partners and employers have shown considerable adaptability in meeting the needs of apprentices as they arise, particularly around financial, transportation, and scheduling issues.

Remaining Design Barriers

Despite these impressive efforts, our interviews and focus groups revealed three program design-related barriers that exist and still need to be addressed. These include:

Inconsistency in intentionally engaging students of color during the recruitment stage. This is a design challenge to the extent that the high schools serve as the entry point to the pipeline, and its effectiveness rests entirely on the ability of each school to recruit students to apply. Although the school system is at the table (a positive design feature), commitment to recruitment—especially for students of color—varies from school to school and as a result is not entirely under the control of program partners. For example, interviews revealed that some CDCs were very committed to pushing apprenticeship, especially for students of color, while others were not, either because they preferred promoting four-year college, or because they failed to see the point of specifically and intentionally seeking out students of color to apply. Although overall participation from students of color has improved, this school-level inconsistency means some students will find it more difficult than others to learn about the program and apply, depending on the school.

Need for greater representation among employers, apprentices, and grass-roots leaders with trusted voices in communities of color during the education and recruitment stages. As discussed in Chapters 5-8, students and parents of color have a hard time seeing apprenticeship as something for them when they don't see other people of color involved. Focus groups and interviews suggested that engaging grass-roots leaders with trusted voices in these communities could reduce parental skepticism and help students see apprenticeship as something for them and their community. Unfortunately, these leaders have been missing from the apprenticeship table, and their inclusion could address this design barrier.

Need to collect more data. Part of an ongoing self-assessment process could involve the collection of data by demographic group. Employers and their partners should look at the demographics of high schools, of groups the company engages with at the high school, of their open house attendees, and the demographics of their applicants, in order to better understand where they are losing minority students in the process. Additionally, school administrators, teachers, and guidance counselors have the additional challenge of serving the students who are not eligible for the program and those who fail to be selected as a pre-apprentice. Collecting data at each stage of the application and selection process would help school leaders keep track of how many students are interested in these programs but are not being placed in these programs. A regular count of demand could help school officials advocate for additional funding for similar programs that would match applicants and final candidates to other work-based-learning opportunities.

TABLE 9: Program Design Barriers

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Lack of engagement with high schools effectively cuts off the readiest source for pulling youth apprentices into the pipeline.	Inconsistency in intentionally engaging students of color during the recruitment stage. Lacking representation among employers, apprentices, and grass-roots leaders with trusted voices in communities of color.
STAGE 2: Student screening	Inappropriately stringent standards hold down student participation from otherwise qualified students. Program partners have conflicting minimum standards.	Inappropriately stringent standards hold down student participation from otherwise qualified students, especially students in communities of color.
STAGE 3: Student selection into pre-apprenticeship	Employers require trainees who already have industry-specific experience. Fails to produce good matches between apprentice and employer or generates mistrust and lack of commitment between them	Lacking representation among employers, apprentices, and grass-roots leaders with trusted voices in communities of color.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Failing to connect pre-apprenticeship training to full apprenticeships.	Need more data to monitor progress of students of color.
STAGE 5: Completion of post-secondary degree	Misalignments between employers, high schools, and the colleges that hold back completion of the degree.	

Note: Barriers found in other studies but not in the Triad are listed in red.
Barriers found in our study are listed in black.

FUNCTIONAL BARRIERS FROM INTERACTIONS WITH PARENTS, FAMILIES & SOCIAL NETWORKS

CHAPTER 5

In contrast to design-related barriers, functional barriers occur when students' personal circumstances intersect with key actors in the pipeline in ways that keep them from entering and completing the apprenticeship program. Interactions with four key actors in particular stand out for their potential to generate barriers to completion, especially for students of color. These include:

- Parents, families, and social networks (Chapter 5)
- High schools (Chapter 6)
- Employers (Chapter 7)
- Community colleges (Chapter 8).

Given that apprentices start out in high school, their immediate families—especially their parents—and their families' social networks play a crucial role in determining whether the student learns about the program, has the opportunity to apply, can participate if accepted, and has the financial resources to complete it. As one employer put it, the student needs parental buy-in from the beginning to ensure support lasts all the way through" the program. As a result, parental expectations and financial resources play a critical role in ensuring or hindering student completion across all stages of the pipeline. Program partners in ETWI have sought to address a number of these barriers, though more needs to be done.

STAGE 1: Student exposure and recruitment

We found two basic categories of barriers around exposure and recruitment that are inter-related, especially for students of color—lack of early exposure and parental skepticism. First, **many students and families are unfamiliar with technical careers generally and apprenticeship in particular** at the beginning of high school, when important course decisions are made. Students in our focus groups essentially framed this as, "Apprenticeship is a thing? No one told me until 12th grade!" This reinforces parental preferences for a four-year degree and prevents seeing apprenticeship as a realistic possibility for their children until too late—often just when application season rolls around in their junior or senior years. This compresses families' time to learn about apprenticeship, address their skepticism, and envision a different career path into a very short window around application time. In turn, this effectively filters out potential apprentices before they even have a chance to apply to the program.

Lack of early exposure appears elevated among students of color. F**amily and social networks in communities of color almost never overlap with employers or apprentices who can expose them to technical careers broadly and apprenticeship specifically.** Our focus groups revealed an interesting difference between the social networks of white families and those of color. White families had social networks that often included people who had careers or owned businesses specifically in manufacturing and trades, which tended to expose them to CTE opportunities like apprenticeship early in high school. In one high school, a number of white students mentioned off-hand that their parents had friends in manufacturing or trades who could "hook them up with jobs" after high school. Families of color, on the other hand, did not include people with these kinds of experiences—a legacy of discriminatory employment practices of the past. As a result, students of color expressed the feeling that apprenticeship was more naturally associated with white people, although seeing apprenticeship up close changed their minds about whether it could work for them. As a result, lack of early exposure hindered students of color learning about an applying for the program.

But the absence of information about CTE generally and apprenticeship in particular also exacerbates a second major challenge—**parental preference for four-year degrees and skepticism of alternative career options**. For many years, policy makers, educators, and parents generally supported the consensus view that a four-year college education was the best path for everyone after high school, even when a vocational or technical career may be the better option for the student's skills and interests. Because of this, parental skepticism pushes teens onto non-CTE tracks where apprenticeship is never mentioned, or parents refuse to support their children in their application to apprenticeship.

Meet-and-greet events are critical to the matchmaking process between students and employer. This is the first opportunity for students to get an in-depth introduction to the companies.

Additionally, our focus groups with students of color added an additional layer onto parental preferences for the four-year college option and skepticism about a technical career. **Many parents and their social networks see four-year college or joining the military as the *only* pathway out of poverty into middle class stability because it was the only path available to *them***, and the alternative for their children (no college) seems like a recipe for the life of low-wage work and financial instability that they themselves worked so hard to escape. This heightens parental skepticism in communities of color and creates a special recruitment challenge for career development counselors (CDCs) and employers that goes above and beyond what students experience. Parental skepticism is also reinforced by **fears that apprenticeship-based career pathways sound a lot like discriminatory tracking** or placing students of color onto a curriculum path that locks them into remedial courses and out of the best opportunities available.

STAGE 2: Student screening

Family and social networks influence whether students are prepared for the program, meet the eligibility requirements, and apply to the program. First, parental attendance is required at the open houses (meet-and-greet events with the sponsoring employers) where employers are seeking to convince families that apprenticeship is a good option for their student. These events are critical to the matchmaking process between students and employers. This is the first opportunity for students and employers to observe each other and for students to get an in-depth introduction to the companies.

Unfortunately, **some parents cannot attend these open house sessions, as required**. This happens either when a parent or guardian lacks a clear understanding of the value of the program and how it works, or because **they lack transportation to the session**. This may happen if a parent is working on evenings or weekends when the open houses are held, another family member needs the family car on evenings or weekends; or if parents have other family. Students whose parents cannot attend are at a significant disadvantage in the screening process, given the importance employers place on demonstrated parental support. Although lack of parental attendance is a barrier for all students, **families of color are more likely to face challenges with attending the open houses because they are disproportionately lower income**—and thus more likely to multiple jobs that don't permit them to attend or less likely to have a spare car—when compared to their white counterparts.

STAGE 3: Student selection into pre-apprenticeship

Once students pass initial screening, their acceptance into the program depends heavily on their interaction with employers. Aside from parental involvement, we found a number of other barriers elated to student's families at this stage. First, **families and social networks instill students with different kinds of social behaviors, which may be different from the behaviors expected by all-white employers**. Employers may perceive students with social networks that include fellow businesses owners or share a similar history with manufacturing as having the better "fit." Given the focus on "fit," **this can disadvantage students of color during the selection process, if they show behaviors that**

differ from these cultural expectations. In effect, basic family socialization can unwittingly act as a signal to employers about who is and who isn't the best fit.

Additionally, students with soft skill deficits will be at a disadvantage in the selection and matching process. They will not stand out or attract the attention of an employer, and they may even attract negative attention. **This may be a particularly important barrier for students of color, since the interpretation of behavior and "soft skills" is so subjective.** These students may not be in social networks that overlap with participating employers, so soft skills might be different, and skills that the students do have might not be as readily recognized. In both of these cases, employers in several counties have recognized these challenges and sought to address them.

STAGE 4: Completion of Pre-apprenticeship and full apprenticeship

During the pre-apprenticeship and full apprenticeship stage, several barriers stand out. First, **apprentices and their families may lack sufficient income to buy the appropriate materials for the job** (e.g., tools, steel-toed boots) and **to maintain a dedicated vehicle for travel to and from work**. The logistics during the pre-apprenticeship are particularly complex. During the summer, the students are attending both community college courses (usually one day a week) and going to work (usually four days a week). During the school year, they are going to high school, community college courses at another campus, and work. **Given that families of color on average earn less than their white counterparts, these financial barriers and the complexity of balancing these various obligations will disproportionately impact apprentices of color.** Our interviews revealed stories of apprentices riding their bikes to work 20 miles each way, ad hoc carpools, and in one case, the high school CDC taking the apprentice to and from work every day. Employers have adapted very creatively to this (see below) but challenges remain.

Beyond family financial conditions, family expectations play a critical role in completing the program. **Families may also expect apprentices to work multiple jobs during their apprenticeship, which can make it harder to focus on and succeed at the apprenticeship.** Our interviews revealed an interesting dilemma on this point. Program partners expressed significant concerns about this possibility and especially the impact on student performance. Yet the students and apprentices we spoke with largely suggested their parents were not requiring them to work multiple jobs, or if they were, they expressed confidence they were able to balance everything. This draws out the likelihood that some students are more comfortable privately expressing their concerns over competing priorities to their employer (or their CDCs), but other students are not. As a result, some students of color in particular may not feel comfortable expressing their concerns about balancing family and work demands to their largely white employers, especially given the general tendency of these students to feel silenced when communicating vulnerabilities.[43] This has a related impact. P**arental skepticism and emphasis on family responsibilities may hinder an apprentice's ability to stay motivated and engaged in the midst of a challenging program.** We heard stories of several highly recruited apprentices who dropped out of the program (or refused to accept employer offers) because family members expected them to play family caregiver roles. Additionally, **unplanned pregnancies** raised significant barriers to completion.

STAGE 5: Completion of the post-secondary credential

Apprentices and their families may lack sufficient income to cover expenses related to work and education. Given that families of color on average earn less than their white counterparts, these financial barriers disproportionately impact students of color. In this program, students "earn and learn," attending community college while employed and training on the job. Employers paid for apprentices' college tuition before 2017 when the N.C. General Assembly allocated funding for tuition waivers to apprentices who graduate from high school. As a result, students now face no significant costs associated with obtaining their credential.

Overall strengths of engagement with students' parents, families, and social networks

Employers and program partners displayed a high level of adaptability in their engagement with parents and efforts to address a number of these barriers. Most importantly, they have sought to address the challenges related to student and parent attendance at Open Houses by finding creative work-arounds unique the needs of individual students—everything from having a CDC take the place of a guardian at Open House to carpools to get students there. Additionally, employers have provided a range of wrap-around services to overcome the financial barriers facing students (see Chapter 7 for details).

Despite this remarkable adaptability, our interviews revealed widespread recognition that program partners needed to build greater awareness of CTE careers and apprenticeship among students and parents much earlier in their high school careers and intentionally engage parents as a way of overcoming their skepticism. This is where ETWI programs would especially benefit from addressing the design-based barrier around lack of representation of trusted voices and grass-roots leaders in communities of color.

TABLE 10: Functional Barriers—Parents, Families & Social Networks

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Students and families are unfamiliar with technical careers generally and apprenticeship in particular. Parental preference for four-year degrees and skepticism of alternative career options. Students are not exposed early enough in high school to overcome parental skepticism or envision a CTE career.	Family and social networks in communities of color almost never overlap with employers or apprentices who can expose them to technical careers broadly and apprenticeship specifically Parents and social networks see four-year college or joining the military as the only pathway out of poverty because it was the only path available to them. Parental fears that apprenticeship-based career pathways resemble tracking.
STAGE 2: Student screening	Some parents cannot attend required open house sessions. They lack transportation to the session.	Families of color are more likely to face challenges with attending the open houses because they have disproportionately lower income.
STAGE 3: Student selection into pre-apprenticeship	Students with soft skill deficits will be at a disadvantage in the selection and matching process.	The interpretation of behavior and soft skills is very subjective
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Apprentices and their families may lack sufficient income to buy job materials. Apprentices and their families may lack sufficient income to maintain a dedicated vehicle for travel to and from work Unexpected pregnancy.	Financial hardship affects families of color disproportionately. Parental skepticism and emphasis on family responsibilities.
STAGE 5: Completion of post-secondary degree	Course-related costs other than tuition are too high.	Course-related costs other than tuition are too high.

CHAPTER

6

FUNCTIONAL BARRIERS FROM INTERACTIONS WITH HIGH SCHOOLS

Apprentices typically begin their encounter with apprenticeship in high school, where career development counselors (CDCs) and Career and Technical Education faculty inform students about the program and recruit them to apply. They are the primary place where recruitment occurs and are involved in every step of the apprentice's journey through the pipeline. Students encounter a number of barriers related to their engagement with their high schools, although there continues to be strong adaptation to address these barriers by program partners to the extent that they can influence high school decision-making.

STAGE 1: Student exposure and recruitment

High schools play a crucial role in building awareness about technical careers broadly and recruiting students to apprenticeship specifically. At this stage, they have enormous influence over student decisions by filtering them toward or away from technical education and the apprenticeship program itself. This filtering role raises a range of barriers to participation and completion, yet employers repeatedly pointed out individual school decisions about recruitment and exposure lay outside their direct control, suggesting that these functional barriers present special challenges even for the most adaptable apprenticeship program.

In this stage, the greatest source of barriers involves the **failure of high schools to expose and recruit enough students,** including **missing the mark on intentionally engaging students of color**. Practically, this can happen when high schools pitch CTE classes only to some students and not others at the beginning of high school. Since most recruitment happens through CTE classes, the fewer students and parents that high schools engage at the start, the smaller the pool of potential apprentices who can apply for and enter the pipeline at the end. Moreover, our interviews revealed that in certain counties, principals in higher income schools refused to allow ETWI employers to recruit students because they were opposed to a "blue collar program," thus limiting exposure and recruitment of students from these schools.

Students of color may disproportionately experience this barrier because of the implicit bias of faculty members, staff, and administrators. In this case, implicit biases are unquestioned assumptions that apprenticeships are more appropriate for white kids from manufacturing family backgrounds, rather than African American students who have never expressed an interest or connection with technical careers in the past.

These implicit biases also reinforce barriers related to racially oriented tracking, where students of color are locked into certain curricular "tracks" involving remedial academic classes and locked out of CTE courses where they can be exposed to apprenticeship and recruited. To be clear, our research did not find that tracking actually created problems for students in the Triad Collaborative, but our interviews did find a high level of concern that tracking could be discouraging students of color from participating.

As a result, **many students of color miss out on apprenticeship because they were not specifically recruited to CTE or invited to apply to an apprenticeship program (only white students are recruited)**. But without exposure for African American students, those students never get the chance to learn about and become interested in these options, in effect filtering them out of apprenticeship.

Additionally, the exposure and recruitment stage may fail because **high schools do not engage**

students in a way that lets them see that apprenticeship is an option for them in particular. Our focus groups and interviews revealed that some schools relied on schoolwide mandatory assemblies for exposure to apprenticeship. In the eyes of some students and staff, this proved a less effective tool for engaging students (because "nobody pays attention during assemblies anyway") than targeted exposure efforts that involved a mix of in-class presentations and direct CDC Career Development Counselor relationship building. This is especially important for preparing and recruiting students for when applications open. Our interviews reinforce the findings of other studies that a direct relationship with a mentor improves the likelihood that a student will know about and apply for apprenticeship.[44] Without a relational approach to recruitment, these connections are lost, and potential apprentices never apply.

This raises several special problems for students of color. Most important is the **Representation-Recruitment Challenge, where students of color don't see that CTE or apprenticeship is for them because CDC/CTE faculty aren't people of color themselves**. This sends the message to a student of color that no one who looks like them is involved, so the program must not really be for them. This finding from our interviews echoes the findings of other studies that lack of representation in recruitment hinders participation among students of color.[45] In particular, our research suggested that the race of the career development counselor plays an important role in apprenticeship participation among students of color. For example, our high-resource school (Triad High School A) has a lower participation rate among apprentices of color, despite an aggressive outreach and recruitment strategy by the Career Development Counselor, who happens to be white. The CDC talked with Career and Technical Education faculty about who to recruit, conducted in-class presentations in CTE classes, and most importantly, identified and engaged students of color directly and relationally. Yet participation among students of color remains very low, despite the best efforts of the CDC.

In contrast, the lower-resource school (Triad High School B) engaged in a similarly aggressive direct recruitment effort (although with significantly less direct engagement from employers) but saw a much higher participation rate among students of color. The CDC of Triad High School B is African American, suggesting that representation is a central factor in increasing participation among students of color. In other words, aggressive and relational approaches to recruitment are important to improving the participation of these students, but intentionality about the representation of the faculty and staff doing the recruiting is decisive.

This may also be a downstream effect of a broader challenge around access to career counseling and other support services among students of color. In our conversations with students, we heard them frequently make statements like "if you make the effort, you can find out about the program." However,

we also heard from adults of color working in and around the program that too many students of color feel like trying to engage faculty and staff wouldn't make a difference and like they **can't really access the career counseling services that are intended to be available to connect students to apprenticeship**. One community college staff member articulated a "burden of blackness"—a fear of being stereotyped or judged for being black and considered a representative of all black people—that hinders these students from proactively engaging career counseling services. Putting together the student and adult reactions is illuminating as it suggests that the recruitment process works for proactive students but may work less well for the silent students.

Similarly, **sharp income disparities within the school may reinforce exclusion for low-income students of color** by adding another sense of difference and disadvantage. Our focus group in high-resource Triad High School A suggested to us that lack of income in an otherwise high-income, high-resource school could potentially increase the silencing effects of racial differences for students of color. "If all the other kids applying to apprenticeship have a car, and I don't, do I belong in the program?"

Taken together, these barriers suggest that **lack of intentionality in recruiting students of color**, including who is doing the recruiting, can stand in the way of improving recruitment (and ultimately completion) among all students, but especially those of color.

Two final barriers that stand are related to marketing materials. First, **students may lack adequate information about apprenticeship because marketing materials are insufficiently detailed** to answer important questions about what apprenticeship is really like. Every single student or apprentice in our focus groups agreed with the statements: "We don't know enough about [apprenticeship] before we are asked to apply" and "We need more detailed information earlier in the recruitment process." This affects students of color disproportionately, given heightened parental skepticism in these communities.

Secondly, **students of color may feel excluded if marketing materials lack racial diversity**. In the Guilford Apprenticeship Program in particular, early video materials featured the first cohort of exclusively white students. This likely reinforced the sense that "apprenticeship is not for me" for many students of color, for the reasons previously discussed. In recent years, however, GAP and the other programs have sought to diversify their materials and have seen an improvement in the number of students of color participating.

STAGE 2: Student screening

High schools play one implicit and one explicit role in the screening process. In terms of the implicit role, the schools encourage certain students to attend the open houses and submit applications if they meet the eligibility criteria. Low GPAs and poor attendance records will put students below the threshold for consideration. While these standards aim to ensure students are prepared to succeed in the program, they may discourage students who otherwise would be a good fit. GPAs often reflect deeper socioeconomic disparities, as well as implicit biases, and disproportionately disqualify people of color. As a result, high schools may implicitly filter students out over the course of a high school career, either through long-term erosion of a student's eligibility or indirectly encouraging self-deselection.

In terms of the explicit role, high school staff can leverage their own networks—relationships with employers, program administrators, and CTE directors—to ensure that students who are a good fit are considered for the program at the time of application, even when they don't have qualifying GPA or have too many absences. High school staff, who have direct experience working with these students, can personally recommend them to the program, emphasizing the full range of a student's abilities, preparation, and passion.

Our interviews suggested that **students of color may face barriers regarding staff support for their applications, including the implicit biases of individual staff and lack of comfort engaging white faculty and staff**. If the students have not built relationships with multiple adults in the school system, they might not have an advocate who understands their specific situation and how they might fit with the apprenticeship program. **Like parents, school administrators and college counselors often prefer students go directly to four-year universities over earn-and-learn options like apprenticeship.**

STAGE 3: Student selection into pre-apprenticeship

At this stage, the student's high school is less involved, but **the absence of earlier-stage supports for students can act as barriers when employers look for fit—especially around soft skills for employer engagement**. Some high schools recognize that certain students will need extra preparation around soft skills and the proper signaling behaviors necessary to convince employers they are good match. Although this includes many white students without family manufacturing backgrounds, **it remains especially important for students of color, whose family and social networks may teach a different set of soft skills and signaling behaviors than what employers are expecting**. The absence of this intentional preparation can make it more difficult for these students to get selected by employers. Employers in Guilford attempted to address this issue by having at least one current apprentice of color return to his high school to support soft-skill development with his former classmates.

STAGE 4: Completion of pre-apprenticeship and full apprenticeship

In pre-apprenticeship, the high school is still the students' home base, even as they are taking community college courses and working on the job. **High schools occasionally have academic requirements that conflict with a students' scheduling needs to complete pre-apprenticeship. High schools may also have multiple locations, such as a central county location for CTE courses, making pre-apprenticeship logistics even more complicated for CTE students.** This challenge may be exacerbated in the 2019-2020 school year, when Guilford County shifts to a Signature Academy model for certain CTE concentrations—one school focuses on a specific CTE track that becomes its "signature." Although CDCs expressed optimism that this specialization would help with recruitment and preparation, students in our focus groups expressed concerns that **the Signature Academy approach would create logistical and transportation problems in scheduling and shuttling between different locations**.

The high school can help streamline the student's experience by adjusting school schedules to fit with the student's various obligations. At this stage, especially when an apprenticeship program is new, **there may only be one or two pre-apprentices from the high school, so getting attention to their needs can be difficult**.

These challenges may also be present for full apprentices. In several cases, we discovered **full apprentices who still needed to complete one or two required high school classes in order to graduate**. They already had completed the pre-apprenticeship, been accepted into the full program, and were trying to balance work, and high school course schedules—a logistical nightmare. County programs are addressing this challenge differently—GAP requires a student to graduate from high school before beginning the associate degree program, while Apprenticeship Randolph allows students to enroll simultaneously.

Finally, interviews revealed concerns among employers and program partners that **many apprentices lacked adequate financial literacy** to make sound decisions with the money they were earning. High schools typically provide a financial literacy curriculum, but apprentices are not benefiting from such classes as much as is needed. Employers have adapted to this problem by providing financial literacy classes to their apprentices.

STAGE 5: Completion of the post-secondary credential

The quality of high school education is notoriously unequal across and within school districts and notably unequal across majority white and majority black school systems. Poor preparation in high school will make college coursework more difficult.

Since the community college coursework is in vocational and technical programs, students may have an advantage if they took Career and Technical Education (CTE) courses in high school, particularly if those CTE courses align with the vocational program at the community college. Although CTE coursework is not a requirement for the apprenticeship, our focus groups reinforced the idea that it should be. Students felt they needed these training classes to prepare themselves for the rigors of the apprenticeship program. Stakeholders reported that the CTE courses in some counties were not always aligned with the college programs, which led to some students receiving less than ideal preparation. **The misalignment could impede the progress of students from CTE programs who might otherwise have a head start.**

Overall strengths of high school engagement

Despite the reality that program partners have limited ability to influence high school decisions about apprenticeship participation, our interviews revealed strong adaptation and problem-solving to address some of these barriers where possible. Although additional work remains, three examples stand out, especially in relation to screening and marketing.

Engaging mentors and advisors in the high schools to write letters of recommendation for the students helped students on the bubble of being screened out of the program. These letters helped employers understand why grades might have fallen in a specific semester or explain a series of absences. The additional context demonstrated that a low grade or a semester of low attendance does not reflect the student's potential in this program, and as a result, these letters made difference in admitting a number of students who otherwise would have been disqualified.

Ensuring regular communication between high school CDCs, county CTE directors, and employers helped address issues for students as they arose. In one example from our interviews, CDCs know that a student intends to participate in the apprenticeship program but does not have a parent to accompany them to the open house. The CDC and CTE director worked together to identify a solution by providing a ride for the student or connecting with the parent or guardian directly. Additionally, the CTE director engaged other local organizations and partners in the apprenticeship program, such as members of the local Chamber of Commerce, who were able to arrange a ride, or employers who were willing to carve out time on a different day to connect with the student and parent. The regular and open communication between partners in the ETWI apprenticeship programs enable these kinds of solutions and activate a number of supports for students that are made possible through the networked approach to program administration.

Adapting and improving marketing over time. Early marketing materials centered white apprentices and provided only limited detail. Over time, the county-level programs have addressed these gaps, especially around racial diversity. Program detail, however, remains a concern for many students.

TABLE 11: Functional Barriers—High Schools

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Failure of high schools to expose and recruit enough students. High schools do not engage students in a way that lets them see that apprenticeship is an option for them in particular. Marketing materials are insufficiently detailed.	Missing the mark on intentionally engaging students of color. Implicit bias and tracking. Students of color not specifically recruited to CTE or invited to apply to an apprenticeship program (only white students are recruited). No representatives of color involved in recruitment, including career counselors. Lack access to career counseling services. Wealth disparities silence low-income students Marketing materials lack racial diversity.
STAGE 2: Student screening	Low GPAs and poor attendance records screen out students. CDC preferences for four-year degrees.	GPAs often reflect deeper socioeconomic disparities and implicit biases that disproportionately disqualify people of color. Lack of access to staff support for applications.
STAGE 3: Student selection into pre-apprenticeship	Absence of earlier-stage supports for students can act as barriers when employers look for fit—especially around soft skills.	Students of color may have a different set of soft skills and signaling behaviors than employers expect.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Conflicting scheduling needs. Multiple campus locations. Apprentices lack adequate financial literacy.	
STAGE 5: Completion of post-secondary degree	Misalignment between high school and community college for occupational training.	Unequal high school education provides unequal preparation for associate degree.

CHAPTER

7

FUNCTIONAL BARRIERS FROM INTERACTIONS WITH EMPLOYERS

Apprentices encounter employers throughout the pipeline—first, when high schools introduce apprenticeship to students; next, during the orientation, application, and selection processes; and finally in the role of employee on the job. These employers play a key role in shaping who applies, who is accepted, and who finishes the program. As with the other actors in the pipeline, students experience barriers when engaging with employers, although these businesses have consistently sought to adapt and address these barriers.

STAGE 1: Student exposure and recruitment

At this stage, the student doesn't have a formal employer (they are not even in the program yet), but their encounter with employers early in high school can have enormous influence over whether they enter the apprenticeship pipeline at all. At a most basic level, students may miss out on this career path because **they never encounter employers who show them that CTE or apprenticeship is a possibility**. Employers can spark the imagination and create personal connections for students to a career path they never envisioned. If this encounter never happens, students may never find apprenticeship. At its root, barriers to the employer encounter can happen if **employers go only to some classes and some high schools, not others**. Our interviews revealed different levels of employer engagement with high schools, and Career Development Counselors pointed out the challenges with exposing students to apprenticeship at schools where employers never show up or show up only in certain classes.

Students of color may be especially vulnerable to missing a meaningful employer encounter. They may not be in the classes where employers visit because of **implicit bias**, or **faculty and staff may not proactively identify and encourage these students of color to engage employers** when they do come to the school. Without proactive exposure and recruitment through mentoring relationships, many students of color will miss the opportunity to enter an apprenticeship program.

Additionally, **students of color may never see employers who look like them**. This is the employer spin on the Representation-Recruitment Challenge. Our interviews reinforced the findings of other studies that students of color need to see employers of color to feel like the program is for them. Introducing employers of color also has the effect of expanding the social networks for these students to include the employers that have historically been more likely to hire people of color than white-owned firms. In a similar vein, **students of color may never enter the program because they do not encounter current apprentices or program alumni of color**. These are perhaps the most important connections a student needs to feel in order for this to seem like a career for them. Our focus groups suggested that deeper involvement of these key stakeholders of color could play a key role in persuading these students that apprenticeship is a viable career option.

STAGE 2: Student screening

At this stage, the program partners have set eligibility criteria and hosted a series of open houses at which students can demonstrate their interest, meet the participating employers, and learn about the companies. These sessions provide critical opportunities for employers to evaluate students. **To the extent that students and parents are unable to attend these sessions due to family-related barriers, employers will have a harder time getting the information they need to admit them in the program.**

Additionally, **employer representatives in this program are majority white and will have implicit**

biases about minority students. Even students of color who do meet minimum eligibility standards may need to ensure they have additional recommendations by individuals who can speak to their fit with the program. Where there are racial, gender, or cultural differences, employers will intentionally have to rely on the student's record and recommendations and not their own impressions of the student or a familiarity with the student's family and networks.

STAGE 3: Student selection into pre-apprenticeship

As in the screening process, **implicit bias** among employers presents challenges for selecting apprentices of color. Since most of the employers are white and male and come from a similar professional culture, they may be more inclined to connect with white students, male students, and students whose parents are professionals in manufacturing or in similar professions. If employers' professional and social networks are majority white and majority male, this will influence their ability to identify good candidates from outside of these networks given their lack of experience with other types of people. Without an intentional departure from this behavior, e**mployers tend to hire apprentices who look and act just like them**, **which disadvantages students of color who look and act differently**. Similarly, our interviews found that newer employers in the program have more difficulty assessing soft skills and may rely more on preconceived notions of who is a good fit. Employers with lots of experience in the selection process tended to be better at identifying those students whose behaviors will genuinely limit them in the workplace and behaviors that might be unattractive, or just different, but will not limit their success at work. Employers and program partners across the ETWI recognized these challenges have sought to overcome through deeper engagement and preparation of newer employers joining the county programs.

The lack of racial diversity among employers presents an added challenge at the selection stage. Recent studies have shown that employers of color in the broader labor market are more likely to hire workers of color than are white employers.[46] Most of the companies participating in ETWI have white, male leadership and low racial diversity, which will create barriers for students, both in their perceived fit with the employers and the likelihood employers will choose them to work at the company. As a result, **apprentices of color may be unable to find slots because too few employers of color are recruited into the program**.

Lastly, **lack of immigration documentation may hinder the participation of Latinx apprentices**. Our interviews revealed a number of Latinx students who did not complete the selection process because they or their families lacked legal immigration documentation. Since employers in North Carolina are required to use E-Verify, this rules out students brought to the United States as children by undocumented parents and who have no documentation themselves. Given heightened immigration enforcement action in certain Triad counties, Latinx students fear applying to the program even if they have documentation but their parents do not, as it requires documentation of status to participate.

STAGE 4: Completion of pre-apprenticeship and full apprenticeship

The heart of the apprenticeship experience occurs with their employer, and this is where many of the most problematic barriers arise in other programs. Across ETWI, however, strong employer leadership and adaptation has minimized many of the barriers that apprentices typically face. Yet a number of barriers still remain:

During the pre-apprenticeship, **the student's ability to hone soft skills, including self-awareness and behavior control, becomes critical**. At the workplace and particularly in manufacturing environments, failure to follow procedure, failure to have an awareness of the local environment, and failure to stay healthy and fit for the job all become safety issues.

Workplaces can have very different norms, expectations, and behaviors than schools, and students often

need support to interpret those expectations as well as to interpret adult behavior. **This supervision and mentorship are especially important for students of color working in majority white workplaces. These students may need help interpreting behaviors and understanding the intentions behind those behaviors.** Employers, supervisors, and mentors also need an awareness of their own norms and behaviors as well as awareness of implicit biases and how these might affect their pre-apprentices.

Our interviews found a growing level of awareness among employers and program partners that these barriers could cause problems. For example, one employer shared a story of a time when one of his African American apprentices came to work wearing a do-rag, which he initially felt was inappropriate for the workplace. But rather than immediately reprimand the apprentice, he went to another African American colleague to understand whether this type of head-gear was appropriate in communities of color. Informed that do-rags were just like baseball caps in the black community, the employer supported his apprentice and did not ask her to remove it. Although a small example, this demonstrates the kind of internal mental adjustments necessary to eliminate implicit biases.

Lastly, in both pre-apprenticeship and full apprenticeship, many **employers have a limited tolerance for unexcused absences and zero tolerance for current drug use**. Students need advance awareness of these expectations and a clear understanding that behavior outside of work might affect behavior at work. Employers can make it clear why these tests and expectations are important by emphasizing how they affect the company. Despite clear advance warning by employers, students still fail drug tests and are automatically ejected from the program.

STAGE 5: Completion of the post-secondary credential

In contrast to other studies, we did not find any meaningful barriers to apprentice completion of the post-secondary component arising from employers. This is due largely to employer leadership and buy-in, coupled with strong program design that integrates the credential into a core aspect of the program. (See more in Chapter 4.)

Overall strengths of employer engagement

Although more work remains to address these challenges, employers across ETWI programs have shown remarkable adaptation and desire to address the full range of functional barriers facing their apprentices. These include:

Promoting second chances for students before legal challenges. Employers have allowed second chance systems for minor transgressions, including absences and past criminal behavior. Although employers maintain a firm zero tolerance policy for current drug use, past criminal history (even violent offenses) are treated as past transgressions. Apprentices in these situations are given the chance to show they've changed and are willing to follow the employer's and the program's rules going forward.

Providing flexible engagement with apprentices in challenging personal circumstances. Employers have helped apprentices through other challenges, including women who become pregnant and individuals with disabilities who have been encouraged to stay in these programs with workarounds for these barriers.

Providing apprentices with strong network of supports. This includes employer-sponsored funds that provide apprentices with gas cards, carpooling, safety goggles, steel-toed boots, and other safety equipment in cases where cost is out of reach for the apprentices and their families. Additionally, program partners and employers together have recognized the financial literacy challenges of many low-income apprentices and have provided special classes to give apprentices the financial tools they need to manage their money responsibly, including balancing their checkbooks, filling out complex home loan applications, and other financial needs.

TABLE 12: Functional Barriers—Employers

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	No encounter with employers who show them that CTE or apprenticeship is a possibility. Employers go to some classes and not others.	Implicit bias and lack of intentionality when selecting students for employer visits. Students of color never see employers, alumni, or apprentices like them.
STAGE 2: Student screening	Attendance barriers to open houses hinder employers from meeting students.	Employers are majority white and have implicit biases about minority students. Students of color may need additional recommendations.
STAGE 3: Student selection into pre-apprenticeship		Implicit bias. Employers hire apprentices who look and act like them. Newer employers in the program may rely more on preconceived notions of fit. Applicants of color are unable to find slots because too few employers of color are recruited to the program. Lack of immigration documentation.
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Soft skills, including self-awareness and behavior control, become critical. Employers show no tolerance for unexcused absences and current drug use.	Behavioral differences in white workplaces.
STAGE 5: Completion of post-secondary degree	No barriers.	No barriers.

CHAPTER

8

FUNCTIONAL BARRIERS FROM INTERACTIONS WITH COMMUNITY COLLEGES

In most studies, the post-secondary educational component of apprenticeship presents a range of design-related problems for students. Thanks to a strong program design, however, students in ETWI programs do not face these challenges. Instead, student interaction with the community college component of the pipeline generates a range of functional barriers that both directly and indirectly hamper progress to completion.

STAGE 1: Student exposure and recruitment

At the early stage of exposure, the community college obviously plays a limited role in the apprentice's experience. The chief barriers that students experience from this encounter involve **lack of exposure to the educational component of the apprenticeship and the fact that they can receive an associate degree for free**. Our focus groups revealed a keen awareness of college debt among students, and a number of them repeatedly referred to the free community college tuition as the main reason to do an apprenticeship and said many of their friends would have pursued apprenticeship if this had been advertised sooner in high school. This is especially true for students of color because free college is especially attractive to low-income families of color. Lack of exposure to this key benefit deters these students from pursuing this financially supportive option.

Additionally, interviews with CTE directors revealed that **students can suffer from scheduling alignment issues if taking CTE classes at a community college during high school**. In high schools that rely on community college classes to supplement and support the high school CTE curriculum, scheduling conflicts between the two may prevent students from accessing the community college classes they need to prepare for apprenticeship. Interviews revealed this was particularly challenging in Alamance, where changing leadership at the community college disrupted a previously tight alignment between high school CTE tracks and Alamance Community College's career pathway programs, especially in advanced manufacturing. Although a strong relationship with a CDC can help resolve these scheduling problems, students of color may experience a **lack of comfort engaging white faculty and staff** if they feel support is not there for them.

STAGE 2: Student screening

Community colleges provide an additional layer of eligibility requirements that can present barriers to students, and sometimes **community college minimum acceptance standards conflict with the minimum standards for the program**. For instance, most of the counties set a 2.5 minimum GPA for acceptance into their programs, but a policy set by the N.C. Community College System requires everyone with less than a 2.8 to take remedial courses. This has two negative effects on student progress. First, forcing apprentices to take remedial courses completely disrupts the cohort model that our interviews found so effective at ensuring smooth completion of the degree. Apprentices would no longer move through the associate degree together, in effect pulling apart the learning community and mutual support the cohort approach brings to these apprentices. Secondly, the apprenticeship tuition waiver does not cover remedial classes, placing at risk one of the core pillars of the program.

In practice, program partners have adapted to this by adopting the community college standard as the apprenticeship program's minimum standard—in effect, raising the minimum GPA for eligibility to whatever the community college has set. But this has the consequence of **screening out students with GPAs that fall in between**, which has a **special impact on students of color** for the reasons discussed

above. Additionally, students must meet basic college admissions standards, which not every student is able to do.

STAGE 3: Student selection into pre-apprenticeship

As in the screening stage, community college requirements for degree programs can hamper student acceptance into the program. If the requirements are too stringent, otherwise good minority candidates are selected out of the process and they never have an opportunity to meet the employers.

STAGE 4: Completion of pre-apprenticeship and full apprenticeship

Community colleges value apprenticeship less than traditional associate degree to bachelor's degree pathways. Our interviews suggested that while the community colleges have played an important and supportive role in the ETWI's apprenticeship programs, internal institutional inertia toward a traditional pathway among college senior leadership has made it more difficult to integrate fully the apprenticeship with the college's occupational post-secondary pathways.

STAGE 5: Completion of the post-secondary credential

Most of the students take CTE classes, but **problems arise when those classes are misaligned with the career pathways available at the community college**. For instance, we learned that following a leadership transition at the community college in Alamance County, the college abandoned a multi-year partnership with the high schools focused on an aligned mechatronics pathway. This created challenges for high school CTE students who were interested in mechatronics at the community college and potentially disrupted the pipeline to an associate degree in this occupation.

In addition, **developing new accredited pathways remains challenging**. Stakeholders spoke of a long turnaround time to bring new technical programs online, requiring engagement with the N.C. Community College System and the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC). Ironically, Continuing Ed and non-credit programs would have a much faster turnaround, but that defeats the purpose of the program. An additional challenge related to this process was the need to show demonstrable proof regarding value and need of program, and apprenticeship is still new enough that showing value may remain challenging, given the institutional support for traditional preparation for four-year college. We heard similar concerns in Guilford County that the community college did not always easily adapt to the needs of employers

Overall strengths of Community College engagement

Most of the strengths involving student interaction with community colleges are design-related, but program partners are attempting to address many of the functional barriers in this part of the pipeline by keeping local community college leadership at the table in each county program. This allows ongoing conversation, monitoring, and adjustment to meet the needs of apprentices as they engage the post-secondary credential aspect of the program. Employers in some counties reported a desire to deepen engagement with their local community college to ensure apprentices were adequately supported, especially following leadership changes.

TABLE 13: Functional Barriers—Community Colleges

Pipeline Stages	Barriers facing all students	Barriers facing students of color
STAGE 1: Exposure & Recruitment	Lack of exposure to free associate degree. Scheduling alignment issues if taking CTE classes at a community college during high school.	Lack of exposure to free associate degree. Discomfort engaging white faculty and staff at community college.
STAGE 2: Student screening	Community colleges' minimum acceptance standards conflict with minimum program standards, leading to remedial classes that damage the cohort approach. Higher standards screen out students.	Higher standards screen out students of color disproportionately because of flawed measures like GPA.
STAGE 3: Student selection into pre-apprenticeship	Community colleges' minimum acceptance standards conflict with minimum program standards, leading to remedial classes that damage the cohort approach.	
STAGE 4: Completion of pre-apprenticeship and full apprenticeship	Community colleges value apprenticeship less than pathway of a traditional associate degree to a bachelor's degree.	
STAGE 5: Completion of post-secondary degree	CTE misaligned with career pathways at community college.	

Implications & Policy Recommendations

CHAPTER

9

IMPLICATIONS FOR ADULT TRAINING SYSTEMS

Although the Triad provides an outstanding model of a youth apprenticeship program, the approach itself also has significant implications for adult training systems. **The ETWI programs are deeply intertwined with adult training systems.** Thanks largely to federal funding categories, workforce professionals tend to separate youth training (including apprenticeship) from adult systems. North Carolina's model bridges this divide. Although many of the participants in the Triad program started in high school, a majority did not enter the program until the year after their graduation. And even for those apprentices who entered the program during 11th or 12th grades, the program lasts for four years, carrying these apprentices well into early adulthood. Moreover, the requirement that all apprentices complete an associate degree in their occupational field brings these apprentices directly into the heart of the adult workforce system—a connection that is reinforced by the tuition waiver that allows students to graduate debt-free. The Triad youth model has several implications for adult systems:

Employer leadership provides a great model for industry partnership-centered career pathways. A strong benefit of the Triad program involves the leadership role played by employers in ensuring the community college system provides career pathway programs that are aligned with their specific needs for training apprentices. This role need not end with apprenticeships. It could easily be expanded to include all career pathway programs for non-apprentices.

Apprentices need wrap-around supports. Our study matched the findings of others that apprentices—especially those in low-income families of color—a need extra support to make it through the program.[47] This is increasingly understood as a critical approach for improving completion among low-income groups across all areas of post-secondary attainment.

Employers' efforts to address student needs has created an alternative method for providing wrap-around supports for low-income students that does not involve the workforce board. In the Triad model, the employers largely created their own structure to support student needs—providing safety equipment, transportation, even financial literacy classes—that operate in parallel to but separate from the types of services supported by the federal WIOA funding streams. Part of this is due to the inconsistency of workforce board (WIB) involvement across ETWI. For example, while the workforce board is at the table in Randolph, the Guilford workforce board has played no role at all in GAP, suggesting that local programs cannot consider the WIB a guaranteed partner. But perhaps more importantly, the creation of an alternative service delivery model also reflects a deeper mismatch between the federal workforce system and employer-based collaboration. The employers are typically more solution-oriented and highly adaptable, while workforce boards are typically bound by highly regimented bureaucratic guidelines that make it difficult to support innovative, employer-led programs

like the ETWI. Indeed, our interviews with program staff and employers across all four counties suggested that the WIBS were just too bureaucratic to meet employer needs in real time. In a telling example, the only direct support one county program received from their local WIB involved the board laminating a couple marketing fliers used as handout at one quarterly stakeholder meeting.

Uncertain or absent participation from the workforce board may raise long-term sustainability challenges by shutting off access to WIOA support, especially for low-income students. In the short run, employers have shown remarkable resiliency and adaptation in meeting students' needs in the early years of these apprenticeship programs. In long run, however, employers will inevitably face sustainability challenges as program participation grows and more students from low-income families seek to participate. If employers and WIB staff can address the bureaucratic hurdles that stand in the way of cooperation, WIOA has the funding capacity to backstop employer efforts and provide additional funding for the wrap-around services for a growing number of students. WIOA dollars in particular can be used to support the purchase of job materials like tools and safety equipment and may be another source of funds to improve public transportation for this program. This suggests that ultimately employers will need to more tightly engage the workforce system broadly in order to access WIOA funds. Given the boards are composed partially of employers, opportunities for alignment clearly exist, especially if the workforce board staff is willing to support stronger employer engagement in service delivery of key programs.

CHAPTER

10

KEY POLICY RECOMMENDATIONS FOR OTHER PROGRAMS

Apprenticeship programs involve a full range of partners who contribute in different ways to the success or failure of the program to move students through the pipeline. Each of these partners share responsibility for reducing barriers and ensuring apprentices complete the program, just as they share responsibility for promoting more equitable outcomes for apprentices of color. Based on our analysis of barriers in the Triad's apprenticeship pipeline, partners in apprenticeship programs should consider the following recommendations for getting the pipeline right for everyone and especially students of color.

Local Program Administrators

1. Build an anchor capable of bringing all the partners together but promote local leadership and flexibility about what type of organization should play this role. In the Triad, the Community Foundation of Greater Greensboro has played an essential role as fiscal sponsor, data collector, program manager, and convener, but each county has extensive local leadership and autonomy to develop their own program. In turn, each county program has relied on a single anchor to administer local programs, bring together employers, engage high schools, coordinate student recruitment and marketing, and secure the cooperation of the local community college. Without the local anchor organization, county program administration may fragment among different agencies, leading to competing visions, inadequate alignment, and lack of ultimate responsibility about goals and execution. At the same time, however, the Triad shows the importance of flexibility around the type of organization that assumes the anchor role. Community foundations, Chambers of Commerce, community colleges and school district CTE offices all can play this role.

2. Aggressively recruit employers, including businesses of color. Employer participation remains essential to program success, so program administrators should work with employers from the outset to educate them on the benefits of the program and seek to address their concerns about student recruitment, matching, and selection. Getting employer buy-in is also essential for ensuring the post-secondary educational component of the apprenticeship works as intended. In the Triad example, employers agreed to pay their apprentices for their time in the classroom, and this has ensured that both pieces support each other rather than compete with one another in the apprentice's work. Lastly, administrators should pay special attention to recruiting businesses of color, which are typically more likely to hire workers—and apprentices—of color. Given that many such businesses are often undercapitalized, connecting apprenticeships with a push for increased public contracting opportunities for employers of color could bring more of these businesses into the program.

3. Aggressively recruit high schools, especially those in low-resource communities. If employers are the end-user of the apprenticeship pipeline, then the high schools remain the entry-point and gatekeeper. Program administrators and employers should engage high school principals, career development coordinators, and CTE directors during program launch and throughout the school year to ensure these important gatekeepers are aware and supportive of the program. Special attention should be paid to schools in low-wealth communities to ensure that even the lowest-income students are as aware of the opportunities associated with apprenticeship as those in highest-income schools. For example, teachers, coaches, mentors and counselors could complete short-term externships with local companies so they can understand the workplace as a learning site and be more prepared to describe work-based learning opportunities through apprenticeship.

4. Engage students about CTE and apprenticeship as early as middle school. First exposure to apprenticeship in junior or senior year is often too late to overcome parental skepticism and preference for a four-year degree in the weeks before applications are due. Instead, program administrators should consider aggressively engaging students as early as middle school to expose them to the possibilities around career and technical education broadly and apprenticeship in particular.

5. Build systematic approaches to student exposure and recruitment in the high schools with a focus on direct student engagement. To avoid a patchwork approach, program administrators should develop a system-wide protocol for student recruitment that involves direct engagement with students through one-on-one career counseling sessions, in-class presentations to CTE and non-CTE students, common materials and informational events, flyers, and robocalls to families.

6. Train high school faculty and staff to recognize barriers around perceived lack of access. Once a systematic protocol is in place, program administrators should train CDCs, CTE faculty, and other school staff to directly recruit students—rather than relying on general schoolwide presentations—with an eye to the specific needs and barriers of students of color. Online trainings could supplement cohort-based, in-person trainings for these faculty and staff and help them address issues of perceived unequal access and implicit bias.

7. Secure buy-in and support from grass-roots leaders with trusted voices in communities of color to better engage and recruit students and parents of color. Rebuilding trust between communities of color and the schools that have often excluded them remains a significant hurdle for improving participation among students of color. Program administrators should engage local grass-roots leaders with trusted voices in these communities—pastors, YMCA directors, recognized business leaders of color—and secure their support for apprenticeship. In turn, these voices can help parents address their skepticism of apprenticeship and non-four-year college career options. These voices can also encourage students of color to access school support systems (faculty, guidance counselors) who they may not feel are available for them.

8. Recruit alumni and current apprentices of color to engage students of color currently in high school. This study suggests that how students of color respond to apprenticeship recruitment has a lot to do with who is recruiting them. If too many students of color don't see people like them doing the recruiting, they may feel like apprenticeship is for other people not for them. Intentionally bringing alumni and current apprentices of color to class presentations or informational sessions may help address this problem and overcome student perceptions that they cannot access these programs.

9. Centralize data collection in the lead anchor organization. As with the entire workforce system, collecting quality, usable data on apprenticeship demographics, participation, and performance remains a challenge. In this study, we had to collect data from three separate organizations in order to understand fully the demographics of apprenticeship participants and how they compared to the broader demographics of their high school. Instead, local anchor organizations should collect this data, use it for ongoing assessments of progress, aggregate and share the information to maximize transparency and accountability.

Employers

1. **Support apprentices on and off the shop floor, including participation in community college courses.** Supportive employers are the cornerstone of an effective apprenticeship program. This means employers must agree to all program guidelines, actively provide their apprentices and pre-apprentices with the mentorship that is essential to the experience and support their post-secondary attainment goals. ETWI provides another excellent example of this, where employers allow apprentices time off the job to travel to and attend community college classes and also pay them for the hours when they're in class.

2. **Provide wrap-around services and adapt to the needs of apprentices as they become apparent.** As in the best practices embodied by the Triad program's employers, participating businesses need to recognize and adapt to the barriers facing their apprentices—including the special barriers facing students of color. This involves range of supports, including creating an employer-paid transportation fund that provides gas cards or public transit tickets, or it could involve providing their apprentices with the special tools and safety equipment (e.g., goggles or steel-toed boots) they need to perform the job when the apprentices can't afford them.

3.**Encourage flexibility around selection criteria and special circumstances for apprentices, especially those from marginalized backgrounds.** Employers need to trust the quality of the students they're selecting as apprentices for four years, but they need to remain flexible about the specific measures of student quality they're willing to accept. For example, GPAs are not always the best indicator of student performance and often reflect teachers' implicit biases and broader society's discrimination. Other supplementary measures may be appropriate. While employers in the Triad maintained a GPA requirement, they worked with apprentices who guidance counselors felt could succeed in the program despite a lower GPA than the standard required, and they tried to find accommodations where possible.

High Schools

1. **Engage students and parents in late middle school and early high school to expose them to Career and Technical Education generally and apprenticeship in particular.** High school CTE directors and CDCs should work with program administrators to engage students and parents in eighth and ninth grades. They should go beyond whole-school assemblies to presentations in core classes that everyone must take, so that everyone is exposed to CTE broadly and apprenticeships specifically early enough so that students can make decisions about taking CTE classes and see apprenticeship as a possible career path.

2. **Use a layered marketing approach to explain apprenticeships soon and in more detail.** Provide students with a one-page summary of the program and its benefits throughout high school and provide detailed information in the weeks before applications go live. Schools shouldn't just rely on flyers or a mandatory assembly in the auditorium. Instead, they should provide details about every stage of the process and engage students directly and relationally.

3. **Encourage CDCs to recognize inequities in access and to respond by intentionally engaging students of color.** Too many students of color feel like career counselors or individual faculty mentorship are not available to them. CDCs and CTE faculty can overcome this barrier by identifying potential recruits of color early in high school; maintaining relationships with them over the course of their sophomore, junior, and senior years; and culminating in personalized appeals to apply to the apprenticeship program. This type of intentional engagement could also include cohort-style training of CDCs to support deeper penetration of schools to engage students of color.

4. **Directly engage students and parents of color, preferably with representatives of color.** Go beyond whole-school assemblies to regular presentations in CTE classes, preferably by employers, staff, and current or alumni apprentices of color. This can help students feel like the program is for people who look like them—a key step in ensuring they participate.

5. **Pay attention to income and wealth gaps within otherwise high-resource schools as a potential barrier to participation by students of color, particularly when these gaps fall along racial lines.** In the Triad, wealth gaps within high-resource schools reinforced a perceived lack of access among lower-income students of color and exacerbated concerns that apprenticeship was not for people like them. Faculty and staff in high-resource schools need to recognize the consequences of this kind of inequality and intentionally seek out students of color for recruitment.

Community College System and Local Community Colleges

1. **Give local community colleges the flexibility to match their minimum standards with those of the apprenticeship program.** For example, a community college that requires anyone with less than a 3.0 to take remedial classes would completely throw off an apprentice's course pathway if he/she has only met the minimum for the apprenticeship program (e.g., GPA of 2.8).

2. **Local community colleges need to align their career pathways with CTE tracks in local high schools and ensure that apprentices can obtain an associate degree in the same occupation where they are employed as an apprentice.** Ensuring alignment between career pathways and CTE tracks is critical to making sure that students are academically prepared to follow the appropriate occupational track in college without needing remedial training. Additionally, local colleges need to ensure that the correct associate degree is available so apprentices can complete the program.

State Policymakers

1. **Increase state investments in apprenticeship, including substantial appropriations dedicated to supporting anchor organizations.** Program administration is largely impossible without adequate staff capacity, which requires significant funding support. In the Triad example, the program would not have been as effective without a state appropriation of $3.2 million granted to the regional anchor (the community foundation). Although funding for central administration, program development, and technical assistance is useful at the college system office, state legislatures should supplement these funds with new (and meaningful) appropriations to support local apprenticeship anchor institutions.

2. **Enact (and protect) an apprenticeship tuition waiver—the linchpin for the entire program.** North Carolina's tuition waiver is the vital connection that allows students to complete their associate degree debt-free without burdening their employers with the cost. In the Triad program, student after student said it was the deciding factor in why they decided to pursue an apprenticeship, and it is the key tool for putting students onto a career pathway and securing a recognized post-secondary credential. State legislatures should enact such a waiver and protect it all costs.

Appendices

APPENDIX A
Research Design & Methodology

Case Selection

We selected the Eastern Triad Workforce Initiative in the Piedmont Triad region of North Carolina for our study location. This regional collaborative includes individual apprenticeship programs in four counties—Alamance, Guilford, Randolph, and Rockingham—each in different stages of development.

We examined all four programs but focused especially on the Guilford Apprenticeship Program (GAP), as this program launched first in the region. GAP has the most robust program, the deepest bench of employers, the largest cohorts of apprentices and has served as a regional model for the other three programs to emulate as they get started. Most importantly, GAP is the first county program to see an apprenticeship cohort finish the program, allowing us to assess its completion.

Taken together, however, the entire multi-county collaborative provides researchers and policymakers with an excellent test case for modern community-led, USDOL-registered youth apprenticeship programs in the post-Obama era. The program includes all of the major partners that the U.S. Department of Labor requires—employers, community colleges, school systems—and has taken steps to proactively address many of the barriers facing apprenticeship completion, especially among students of color. Moreover, the entire ETWI provides an interesting model of county-level, locally-led apprenticeships programs connected to each other through a shared technical assistance provider (the National Fund), funding streams, and a learning and information-sharing community of partners and employers across the initiative. This allows us to incorporate variation across program implementation within a common program design model.

As a result, the study provides a composite view of the barriers facing student completion across the entire initiative. Our aim is not to generalize from one county to another (for example to say that Guilford has exactly the same barriers as Randolph, and vice versa). Rather, we are assembling a collective picture of the barriers facing students—and the strategies used in addressing those barriers—across all of the programs, so that each county adds its own challenges and solutions to the picture of the greater whole. As a result, this approach gives us a global view of what has worked and what still needs to be addressed to ensure more equitable and successful apprenticeship programs across the region. In turn, our hope is that this composite view benefits anyone in the United States seeking to develop or improve apprenticeship pipelines that are effective and racially equitable.

Data Collection

Our data collection had several main components. First, we reviewed a range of program documents, including marketing materials used to recruit students into the program (flyers, video advertisements, and presentation slide decks) and program summaries from administrators. We used these documents to understand the operational nuts and bolts of the program and as evidence for assessing the barriers affecting completion.

Second, we collected quantitative data on the number and demographics of the apprenticeship cohorts in each county at the high school level. This was not as straightforward as we'd hoped because this data was not centrally maintained. Instead, we secured the overall cohort data by year from the Community Foundation and the racial demographics from the school system CTE directors. Additionally, we also collected publicly available student enrollment data (including demographics) about the high schools participating in the apprenticeship program from the N.C. Department of Public Instruction website.

Finally, we conducted extensive qualitative data collection. This involved interviews with 29 program staff, employers, faculty and staff in the school system, high schools, and community colleges, as well as the apprentices themselves. Given our special focus on barriers facing apprentices of color, we conducted two focus groups with about 12 current high school students of color who were considering the program (arranged with the help of high school Career Development Counselors) and one focus group of eight current apprentices of color (arranged with the help of several employers). With these focus groups, we sought to be intentional about demographic composition so that students of color would feel able to speak freely.

We also conducted follow-up interviews with a number of these students to drill more deeply into their stories. These interviews and focus groups provided us with the bulk of our findings about barriers, especially as they are experienced by students and apprentices of color.

Analytical Approach

Using a mix of our interviews and existing studies, we developed the conceptual approach of looking at the four actors that students encounter in the apprenticeship program (parents, high schools, employers, colleges, and program administration) and the separate stages of the apprenticeship pipeline. We then used our qualitative research to identify barriers for all apprentices and assess them with respect to each actor and each stage of the pipeline. We then took the additional step of analyzing the ways each barrier that affected the general population had special implications for apprentices of color.

A critical aspect of our analysis of barriers involves our engagement with high schools. We wanted to understand how recruitment numbers for students of color differed depending on the different strategies used for promoting apprenticeship from school to school. We also wanted to see the ways in which potential racial disparities in apprenticeship marketing strategies reflected deeper racial disparities within the schools.

From this, we decided to look closer at individual high schools, selecting high schools based on how the racial composition of their apprenticeship cohorts compared to the racial composition of their respective school population. Specifically, we decided to test the idea that students of color at high schools with lower nonwhite apprenticeship participation than their representation in the school at large are likely to face more barriers than similar students at a high school where non-white apprenticeship participation is greater than their representation in the broader school. We then compared the demographic composition of apprenticeship cohorts for each high school with the total demographic composition of the entire student body at that school.

We then selected two similarly-sized high schools with similar demographic breakdowns where students of color were in the minority (between 30% and 40% nonwhite), but where the racial diversity of the apprenticeship cohorts was significantly different. We focused specifically on majority-white schools because previous studies suggested that racially oriented barriers were heightened in situations where people of color are in the minority, and we thought these conditions in particular would reveal barriers in the sharpest contrast.

Using this method, we selected Triad High School A and Triad High School B as the sites to hold our student focus groups, staff and faculty interviews. Once we began engaging these schools, it became clear that the starkest difference between them revolved around school resources and the wealth of the families of the students attending each school. This allowed us to consider our findings in the context of wealth and resource disparities within and between high schools.

Finally, we used these comparisons (apprenticeship diversity success and school wealth) to develop and sharpen our analysis of barriers facing students of color, particularly in the exposure and recruitment stages of the apprenticeship pipeline.

APPENDIX B
Policy recommendations for the Triad

Although this report is primarily intended for a national audience, we hope it will also be useful for local program partners in ETWI. Despite strong program design and remarkable adaptation to address many of the barriers we found, ETWI partners still have more work ahead to strengthen their pipelines, especially for students of color. This appendix provides a set of recommendations for these partners to consider implement where appropriate in their own county-level programs.

STAGE 1: Exposure & Recruitment

Engage students and parents in late middle school and early high school to expose them to Career and Technical Education generally and apprenticeship in particular. High school CTE directors and CDCs should work with program administrators to engage students and parents in eighth and ninth grades. They should go beyond whole-school assemblies to presentations in core classes that everyone must take, so that everyone is exposed to CTE broadly and apprenticeships specifically early enough so that students can make decisions about taking CTE classes and see apprenticeship as a possible career path.

Intentionally engage students of color during the recruitment stage, preferably with representatives of color. Recruitment effectiveness rests entirely on the ability of each school to attract students to apply, and commitment to recruitment—especially for students of color—varies from school to school. Although school-level decisions around recruitment remain outside the direct control of program partners, CDCs and school administrators should be encouraged to intentionally and proactively engage students of color through individual meetings and relationship building. Go beyond whole-school assemblies to regular presentations in CTE classes, preferably by employers, staff, and current and alumni apprentices of color. This can help students feel like the program is for people who look like them—a key step in ensuring they participate.

Use layered marketing approach to explain apprenticeships sooner and in more detail. Provide students with a one-page summary of the program and its benefits regularly throughout high school and provide additional detailed information in the weeks before the application goes live.

Encourage CDCs to recognize inequities in access and to respond by intentionally engaging students of color. Too many students of color feel like career counselors or individual faculty mentorship are not available to them. CDCs and CTE faculty can overcome this barrier by identifying potential recruits of color early in high school and maintaining relationships with them over the course of their sophomore, junior, and senior years, culminating in personalized appeals to apply with the apprenticeship program. This type of intentional engagement could also include cohort-style training of CDCs to support deeper penetration of schools to engage students of color.

STAGE 2: Screening

Involve high schools in setting eligibility criteria. CDCs and other school-level staff have more information than the employers and maybe even parents about the students' performance and aptitudes, depending on the amount of time they have spent with the student, their resources, and workload. High school staff may be in the best position to assess how individual students and demographic groups will respond to the eligibility criteria, which students will become discouraged and how they can be re-directed or how students close to meeting the requirements could be encouraged to apply. High school staff can seek to mediate the communication and reception of the standards and ensure that students close to meeting the requirements are encouraged to apply.

Broaden feedback provided by high schools. To support students who might otherwise fall out of the process early, CDCs rely on their relationships with students, CTE Directors and even employers. To avoid student dependence on relationships that may or may not have materialized during their time at the high school, school staff should be sure to provide more formal and generalized feedback to the apprenticeship program that could inform adjustments to the standards and could extend the sources of information about students who are considered in the application process.

Broaden concept of employer-student "fit." Along those lines, employers and partners might want to think creatively about alternative demonstrations of fit and opportunities to connect with employers beyond open houses. More exposure of the students to project-based learning and competition could help develop skills that could be demonstrated to employers. Alternative skill assessment could be considered, helping to more closely identify the skills and aptitudes that employers are seeking and reducing the dependence on GPA as an indicator of fit.

STAGE 3: Selection

Strengthen soft skills and employer engagement preparation and make it widely available to all interested students in high schools. To improve employer fit, this could involve providing students with focused, intentional preparation for interviews, professional interpersonal communication, teamwork, work consistency, and even job shadowing—skills that could benefit all students, but especially those seeking to enter apprenticeship. Guilford County is experimenting with this approach now, and program partners should examine it for lessons learned as well as opportunities for scaling across other counties' school systems.

Continue addressing employers' implicit bias and intentionality around selecting students of color. Particularly in Guilford, program partners in ETWI have already taken significant strides in shaping employers' support for racial diversity through intensive engagement with the senior leadership when employers come on board. This could be scaled in other counties and include a short online training on implicit bias and racial equity for new employers as they enter the program. Following up with consistent promotion of these concepts immediately before and during the selection process could reinforce these core objectives for employers.

Recruit additional employers of color, company representatives of color, and companies that already have diverse employees. These types of businesses are predisposed to hire apprentices of color, which should help address issues around implicit bias and cultural preferences where they exist.

STAGE 4: Pre-apprenticeship & Apprenticeship

Engage high school career counselors in ongoing assessment of soft and technical skills needed to succeed in the program. Interviews with employers suggested that more ongoing communication with high school staff could help monitor and prepare apprentices with the various skills they need to succeed in the program.

Continue flexibility and adaptability around student challenges. Employers and program partners have played a critical role in adapting to the needs of their apprentices. This leadership and willingness to solve these problems should continue.

STAGE 5: Community college degree

Integrate lessons learned from these high quality work-based learning opportunities into community college decision-making. This includes engaging employers in a learning process about what works and what doesn't and the continued alignment of community college and CTE programs. Community colleges should treat apprenticeship as equally important as the traditional pathway to four-year colleges.

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