Black Learners in IT Associate's Degree and Credential College Programs

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Jobs for the Future

AT A GLANCE

Associate's degrees and credentials in Information Technology (IT) have the potential to open up high-wage and high-opportunity labor market opportunities for learners. Yet structural barriers in access to and completion of these degrees and credentials continue to make it difficult for Black learners and workers to access and thrive in these programs. To learn more about opportunities and barriers along the pathways to tech careers for Black Americans, JFF conducted research exploring Black men's and women's enrollment and retention in, and completion of, postsecondary IT credential programs by institution and over time. We drew from several years of restricted-use National Student Clearinghouse data to conduct this analysis, along with focus groups with administrators, staff, and faculty at five colleges that have shown some promise in supporting Black learners into and through technology programs. Our research findings confirm that Black learner participation in associate's degree and credential IT programs across the country is limited. Out of the 1,000 postsecondary institutions that offer such programs, only 40% had at least 10 Black learners enrolled from 2017 to 2021. The number of programs with at least 10 Black male learners, 10 Black female learners, or 10 new Black enrollees is even smaller. In addition, Black learner retention in and completion from these programs is also low. From our focus groups, we learned that for most of the schools in our sample, race was not a significant or primary factor informing the development of strategies, policies, and programs to support learners. Rather, schools focused on other aspects of student need (socioeconomic, academic, social, emotional) through what could be called a "race-neutral" lens. While there were some noted exceptions to this— most prominently the acknowledged need for Black mentors and role models, especially Black men in IT, and more resources to reinforce such programs—race was not at the forefront of efforts to support students. When it came to women in IT, gender was also not a significant or prominent factor for policy or programmatic consideration. One exception to this was a school that used disaggregated institutional data by race and gender to identify Black student need and develop targeted institutional, financial, and classroom supports to address these needs.

Acknowledgments

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About JFF

Jobs for the Future (JFF) drives transformation of the U.S. education and workforce systems to achieve equitable economic advancement for all. www.jff.org.

About the Center for Racial Economic Equity

JFF's Center for Racial Economic Equity accelerates Black economic advancement by identifying solutions and best practices to disrupt occupational segregation and eradicate the Black-white wealth gap. For more information, visit https://info.jff.org/racialequity.

About JFF's Language Choices

JFF is committed to using language that promotes equity and human dignity, rooted in the strengths of the people and communities we serve. We develop our content with the awareness that language can perpetuate privilege but also can educate, empower, and drive positive change to create a more equitable society. We will continually reevaluate our efforts as language usage continues to evolve.

About the National Student Clearinghouse

The National Student Clearinghouse, a nonprofit formed in 1993, is the trusted source for and leading provider of higher education verifications and electronic education record exchanges. Besides working with nearly 3,600 postsecondary institutions, the Clearinghouse also provides thousands of high schools and districts with continuing collegiate enrollment, progression, and completion statistics on their alumni.

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Introduction

For many learners, information science credentials and associate's degrees are a likely path to economic advancement, in some cases yielding stronger results than most bachelor's degree programs.[1] Yet structural barriers—consisting of policies, strategies, programs, pedagogies, and other institutional and individual approaches to education and careers—continue to make it difficult for Black learners and workers to access and thrive in these programs.[2] Specifically for digital and IT education and careers, this includes practices that exclude Black learner and worker participation due to unaffordability; lack of access to information about and support to enter IT careers, opportunities, and onramps; lack of Black IT role models and mentors; exclusionary entry requirements; and implicit bias or negative stereotypes associated with Black learners and workers in IT. For example, a recent JFF-sponsored report that surveyed 1,000 Black Americans about opportunities and barriers to entering IT found that "almost half (45%) of Black Americans who hadn't studied a STEM subject (science, technology, engineering, or math) said they had considered it.
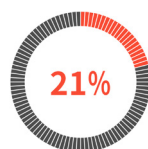
21% But 21% of these individuals thought it would be too difficult, 21% didn't know enough about it, and 14% felt it would be too expensive."[3]

Structural barriers in IT credential and degree attainment, along with labor market discrimination, contribute to occupational segregation—Black learners and workers are overrepresented in low-paying and lower opportunity educational and career pathways and underrepresented in high opportunity pathways such as IT.[4] This segregation persists for reasons that are rooted in institutional, policy, and strategic practices that limit Black learner and worker participation, retention, and advancement. For example, Christensen and Turner found that in community colleges where Black learner enrollment was higher, schools were less likely to offer technology programs. They write: "An important contributor to differences in outcomes between Black and white students at community colleges appears to be the programs of study that students are offered and encouraged to enroll in, rather than the characteristics of the students themselves."[5] As a result of occupational segregation, even as jobs in IT continue to grow, Black Americans remain notably underrepresented in IT, accounting for nearly 12% of the total US workforce but only 8% of the tech workforce.[6]

When students transfer from community colleges to four-year institutions, racial gaps in programs at the associate's and credential degree level can feed into racial gaps at the four-year degree level. According to a report by the Georgetown Center for Work and Education, "Black college graduates are underrepresented in the number of college majors associated with the fastest growing, highest-paying occupations." The authors note that between 2010 and 2014, 20% of Black learners completed BA degrees in human services and community organization, earning median wages of $39,000, compared to 8% of graduates in computer sciences majors with median wages of $65,000.[7]

Patterns of occupational segregation are also shaped by gender. At the intersection of race and gender, Black women are much less likely than Black men to earn technology degrees. In 2020, Black women earned 74% of all associate's degrees held by Black learners but only 26% of computer and information sciences degrees.[8]

To better understand these patterns of occupational segregation and the solutions to the structural barriers which underlie them, JFF conducted research that presents a first look at Black men's and women's enrollment and retention in and completion of postsecondary IT credential programs, by institution and over time. We drew from several years of restricted-use National Student Clearinghouse (NSC) data to conduct this analysis (see Appendix). NSC collects data from approximately 1,000 associate's degree-awarding schools nationally, about 90% of the population of all schools which offer such degrees. Data privacy restrictions resulted in our analysis being limited to institutions and programs with at least 10 Black learners. As a result, we were only able to include in our analysis those schools that had at least 10 Black learners enrolled in an associate's or credential IT program within a given academic year.

In addition, to learn more about how institutions are supporting Black learners in IT, and about structural challenges and opportunities that Black learners experience when entering and completing IT programs, we supplemented the quantitative data analysis with focus groups with administrators and faculty from five postsecondary institutions that demonstrated higher than average enrollment, retention, or completion by
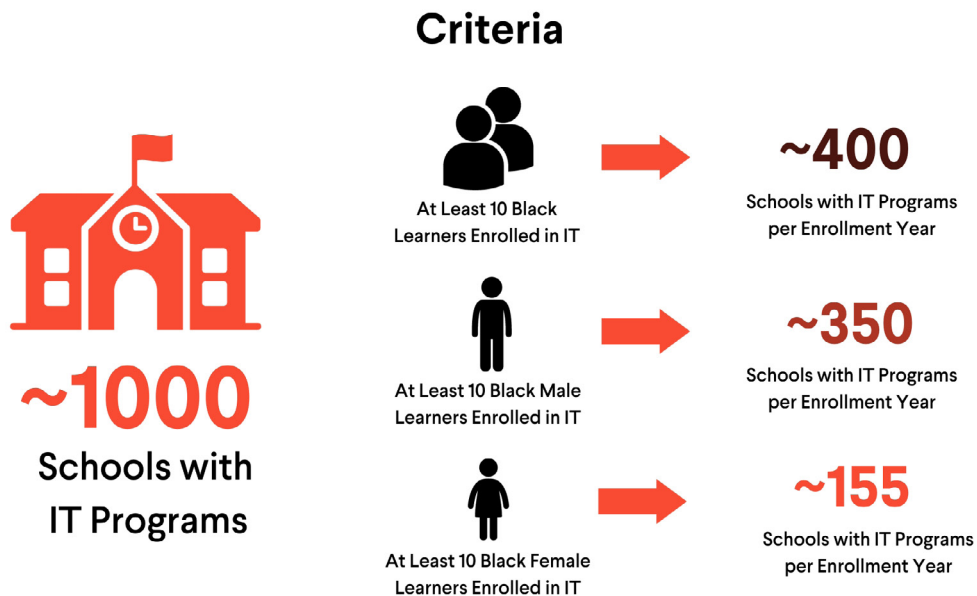
Black learners in technology programs.[9] This research strategy gives us a rich analysis of the landscape of Black learner experiences in these postsecondary technology programs. From this, new inquiry and insights can be cultivated in support of dismantling systems of discrimination and inequality.

Landscape of Black Learner Participation in Community College IT Programs
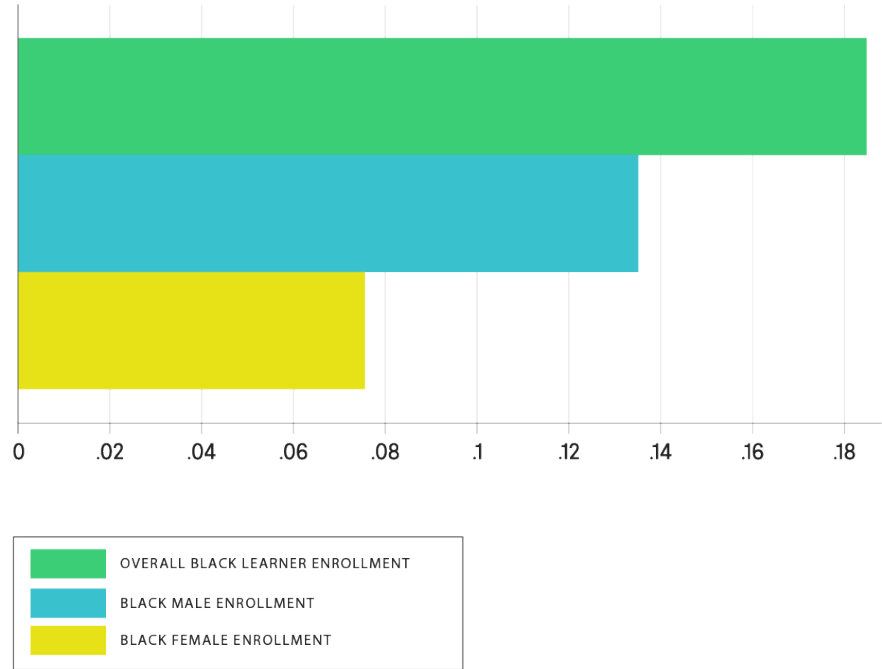
Enrollment

Between 2017 and 2021, out of the approximately 1,000 postsecondary institutions that offered a two-year IT degree program or one-year IT credential program, on average only about 400 had at least 10 Black learners enrolled per year.[10] This means that almost 60% of 1000 two-year or credential IT programs in our larger population of schools did not have at least 10 Black learners per year enrolled in their programs.

Disaggregated by gender, the number of schools in our sample became even smaller. On average, only about 35% of the 1,000 schools had at least 10 Black male learners enrolled in their IT program per year. For Black women, that dropped to 15%.

Criteria

~1000
Schools with
IT Programs

At Least 10 Black
Learners Enrolled in IT

~400
Schools with IT Programs
per Enrollment Year

At Least 10 Black Male
Learners Enrolled in IT

~350
Schools with IT Programs
per Enrollment Year

At Least 10 Black Female
Learners Enrolled in IT

~155
Schools with IT Programs
per Enrollment Year

Among the 400 schools that enrolled at least 10 Black learners in IT programs, on average, Black learners made up 18.3% (56 students) of learners per school. Looking at enrollment rates by gender and race, on average 13.5% (46 students) of learners enrolled in IT departments were Black men and 7.7% (33 students) were Black women. Overall, for each year of our study out of roughly 180,000 total students enrolled in IT programs across the country, between 24,000 and 25,000 were Black learners. A full breakdown of average enrollment overall and by gender can be found in Chart 1:

Chart 1: Average Black IT Learner Enrollment Per School

Source: Authors' analysis of NSC data. Averaged over the sample of schools with at least 10 Black learners enrolled.

While the average Black learner enrollment per school was 18.3%, the majority of schools had lower enrollment.[11] As can be seen in Chart 2, almost 65% (291 out of 451) of the schools in our sample for 2019 had Black learner enrollment below the average of 18.3% (indicated by the red line).

Chart 2: Enrollment of Black IT Learners Across Institutions in 2019
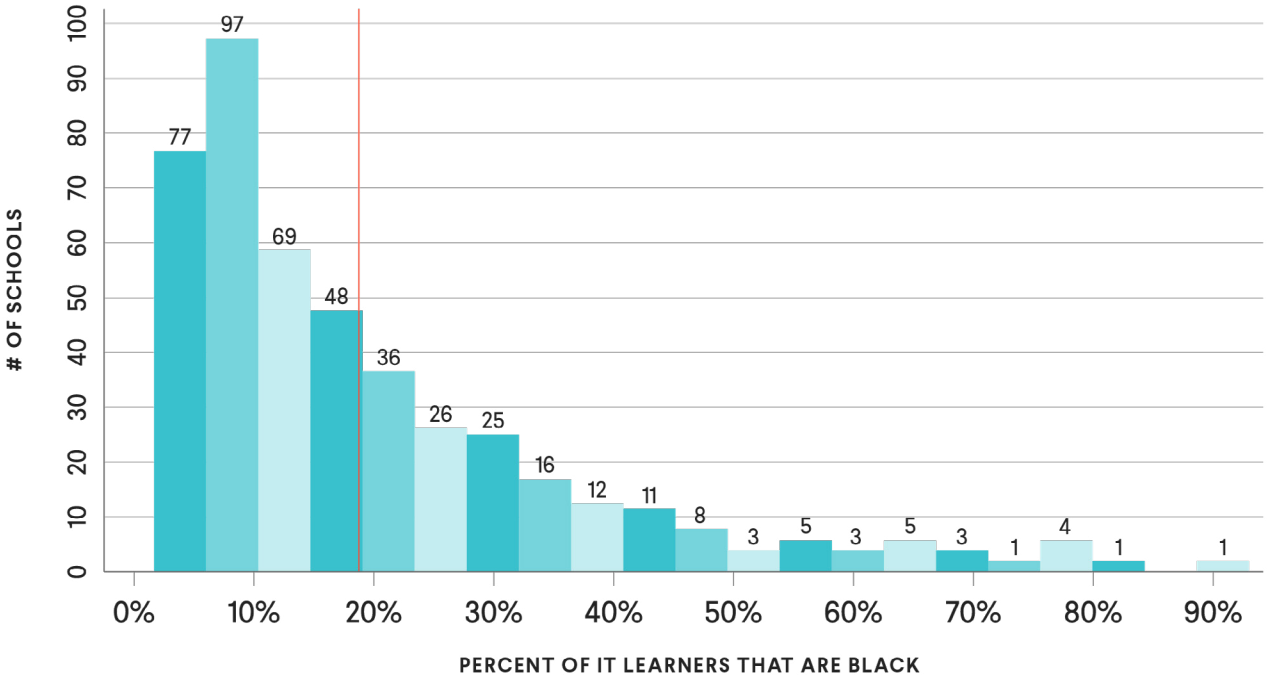
Source: Authors' analysis of NSC data for schools with at least 10 Black learners enrolled.

Most Black learners were enrolled in postsecondary institutions located in the southern region as defined by the US Census.[12] Of the school programs that had the highest rates of Black learners enrolled, 75% were in the South. Compared with the South, there were 8.5% (34) fewer Black students enrolled in Midwestern IT programs, 9.8% (33) fewer Black students enrolled in Northeastern IT programs, and 14.7% (74) fewer Black students enrolled in Western programs. Our analysis also indicated that schools in the South had significantly higher enrollment numbers as compared to other regions.

The higher enrollment of Black learners in southern IT programs is likely because Black learner enrollment in community colleges is higher in the South overall, where there is a larger Black population compared to the other regions. As we heard from one community college administrator, "We are in a majority African American county, so our demographic that we pull from probably helps with enrollment numbers as far as enrolling African American students." [13]

Retention

Retention was measured as the number of IT enrollees who were new to the college and then were still enrolled in the same college's IT program in fall of the next year (e.g., new IT enrollees in fall of 2016 still enrolled in fall of 2017). [14] When we say "new" students, this means entering as a first-year student as opposed to a student who has transferred within or across colleges from another program. As we noted above, NSC redacted any data cells that had fewer than 10 Black learners or in this case 10 new Black learners enrolled in IT per year.[15] Due to these data restrictions, this means that only about 125, or 10%, of the 1,000 schools' IT programs met the criteria per year.[16]

Average retention of new Black IT learners from 2016 to 2020 was 38.6% (nine learners). Unlike for enrollment, there were not as many outliers in the retention data (see Chart 3) which means that the schools were more evenly distributed across low, medium, and high retention for Black learners.

Chart 3: Retention of Black IT Learners Across Institutions in 2019

Source: Authors' analysis of NSC data for schools with at least 10 newly enrolled Black learners in IT.

Y-axis: # OF SCHOOLS

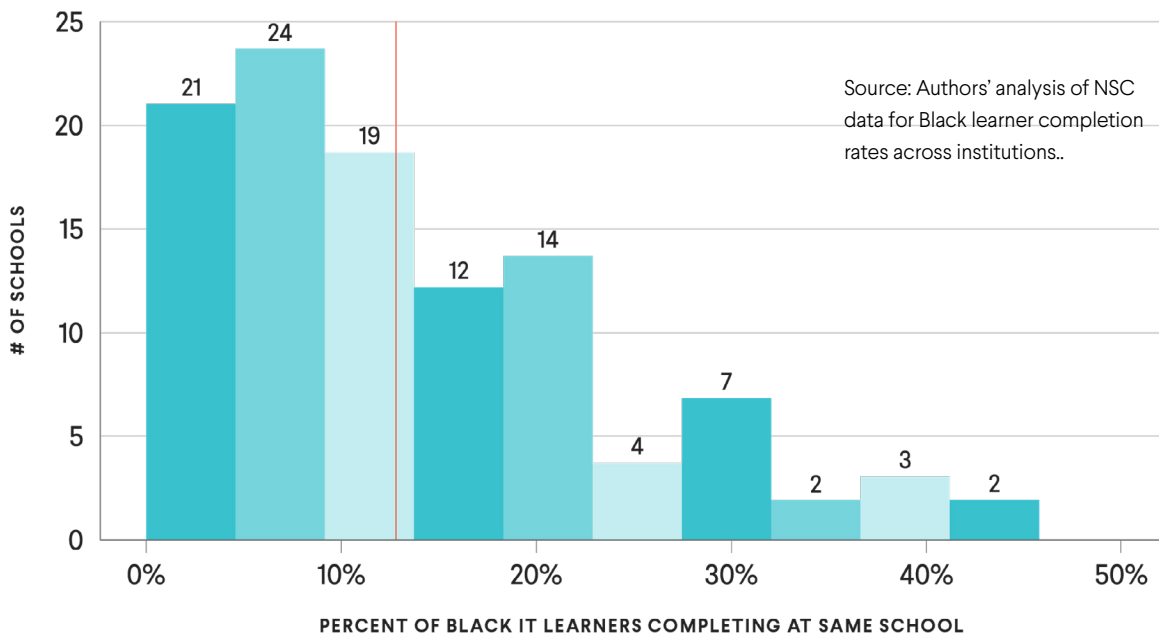X-axis: PERCENT OF BLACK IT LEARNERS RETAINED
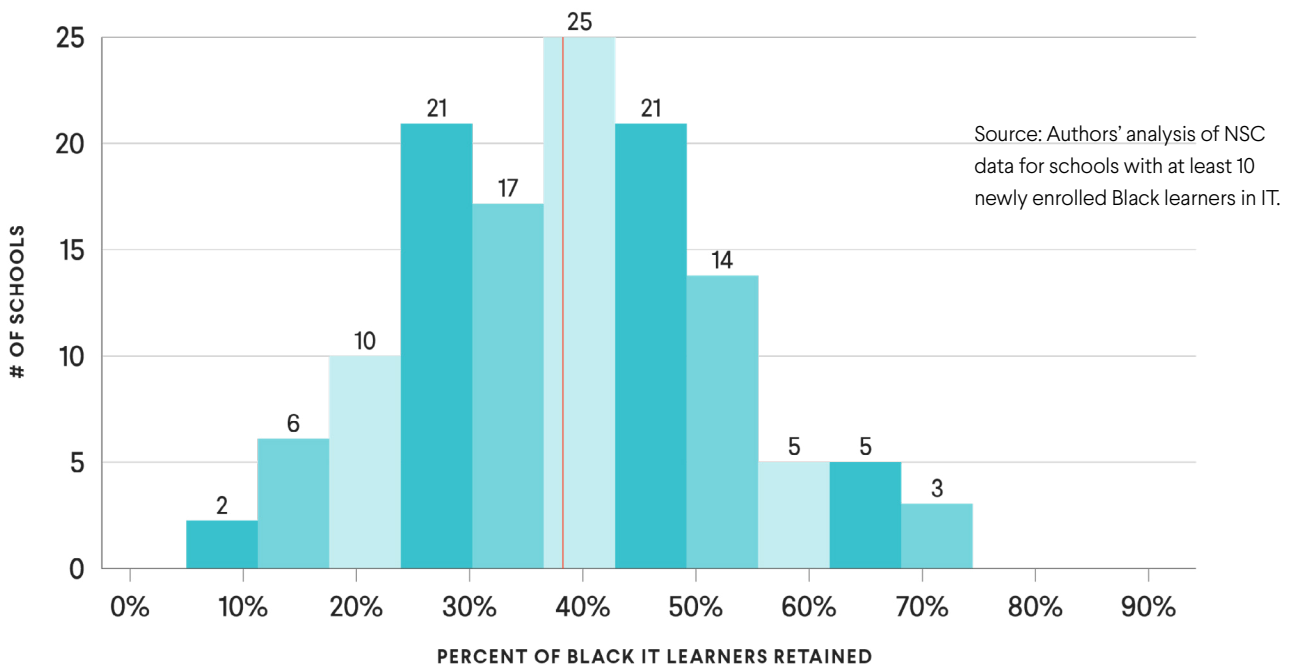
Completion

Completion was measured as the number of new students entering their program in fall 2015 and graduating from the same program six years later, by fall 2021. As with retention, when we say "new" students, this means entering as a first-year student as opposed to a student who has transferred within or across colleges from another program. Again, to be included in our sample for completion data, schools needed to have at least 10 first-time Black learners enrolling in their IT program in fall 2015. Of the 1,000 schools, 108 met this threshold and thus could be used in our analysis. This means that about 90% of the schools did not have at least 10 new enrollees. Disaggregated by gender, only 83 of 108 schools had at least 10 new Black men enrolled in their IT program, and only 7 of 108 schools had at least 10 new Black women enrolled.

Similar to enrollment, the distribution of completion by school showed that more schools in our sample had lower completions than the average. As can be seen in Chart 4, almost 60% (64 of the 108) of the schools in our sample in 2019 had completion rates below the average of 12.9% (indicated by the red line).

Chart 4: Six-year Completion Rates (2015–2021) of Black IT Learners Across Institutions

Source: Authors' analysis of NSC data for Black learner completion rates across institutions..

PERCENT OF BLACK IT LEARNERS COMPLETING AT SAME SCHOOL

Across all schools in the sample, the average IT completion percentage for Black learners was 12.9%, which equaled to about three Black learners per school. In programs in the top 25% for completion distribution, the completion rates for Black learners ranged from 18.7% to 41.7%. In the bottom 50%, the completion rate ranged from 0% to 10%. It is also important to note that while this data does provide valuable insight, caution should be taken with the generalization of these findings because of the small number of schools and observations in the completion data sample.

Summary of the Data Landscape Analysis

The data show how Black learner participation in two-year and credential IT programs across the country is limited. Out of the 1,000 postsecondary institutions that offer such programs, only 40% had at least 10 Black learners enrolled in the years 2017 to 2021. The number of programs with 10 Black men or 10 Black women is even smaller: only 350 schools enrolled at least 10 Black men and only 150 enrolled at least 10 Black women. When we looked at new college enrollees into the IT program, we found fewer than 130 schools that had met this criterion. In 2015, only 83 of 108 schools had at least 10 new Black men enrolled in their IT program and only 7 of 108 schools had at least 10 new Black women enrolled in their IT program. This trend held true in subsequent years as on average between 2016 and 2020, only 94 schools enrolled at least 10 new Black men and only 11 schools enrolled at least 10 new Black women. Enrollment of Black learners is highly associated with the southern region of the US, while retention in and completion of IT programs remained low for Black learners across the country. For both enrollment and completion, most of the schools had fewer than average participation of Black learners. For retention, though, the distribution of schools between low, medium, and high retention was more even.

Community College Support for Black Learners in IT: Voices from the Field

To gain insight into community college strategies to support Black IT learners, and also the structural challenges learners encounter, we conducted administrator and faculty focus groups at five schools in the top of the enrollment, retention, and completion thresholds.[17]

Data and Methods

To learn more about how postsecondary institutions approach supporting Black learners in their institutions and IT programs, we invited 25 colleges who had met at least one of our thresholds for enrollment, retention, or completion to participate in two 90-minute virtual focus groups, one for faculty and staff and one for administrators.[18] To meet one of these thresholds, the school needed to be in the top 25% across all the schools in our sample. Meeting one or more of the thresholds did not necessarily mean a college had an integrated or intentional effort in place to support Black learners. Most of the schools, for example, met only the enrollment threshold (73 schools), and 75% of these schools were mainly in the South, located in communities with large numbers of Black learners. Very few schools met the 25% threshold for retention (3 schools met this criterion across all five years of the analysis) or completion (27 schools met this criterion across all five years of the analysis).

The faculty focus group included IT faculty and chairs, career and educational advisors, and other student support staff. The administrator focus group included a mix of college presidents, provosts, and directors of academic support and workforce services. Five schools agreed to participate in focus groups. The

overall enrollment ranges for these schools went from a low of approximately 1500 to a high of around 4500.[19] Overall, Black learner enrollment ranged from a low of 21% to a high of 53%. In four of the five schools, Black learner enrollment in IT was higher than their overall school enrollment. This was due to the overrepresentation of Black men enrolled in IT in comparison to their overall representation at the college. The opposite was true for Black women, who remained underrepresented in IT compared to their overall enrollment at the college. Table 4 shows the college region and the enrollment, retention, or completion criteria they met to be in our sample of schools to interview.[20]

Table 1: Focus Group Schools

School	Criteria Met
CC South 1	Overall Black Learner IT Enrollment (Top 25%)
CC South 2	Overall Black Learner IT Enrollment (Top 25%)
CC South 3	Overall Black Learner IT Enrollment (Top 10%)
CC South 4*	Overall Black Learner IT Enrollment (Top 5%), Overall Black Male IT Enrollment (Top 25%), Overall Black Female IT Enrollment (Top 25%), Black Learner IT Completion Rate (Top 5%)
CC Midwest 1	Overall Black Learner IT Enrollment (Top 25%), Overall Black Male IT Enrollment (Top 25%), Black Learner Retention Rate (Top 25%)

*CC South 4 is a historically Black college or university (HBCU).

Our focus group questions concentrated on three main areas aligning with our NSC analysis including:

▸ What contributes to Black learner enrollment at the college? In IT?

    What, if anything, is the college doing to recruit Black learners into the college? Into IT?

▸ What contributes to Black learner retention (or completion) at the college overall? In the IT program?

    Can you think of any efforts that have been particularly successful supporting the retention or completion of Black learners in IT?

▸ Are there any programs, policies, or strategies that target the support of Black men or Black women in enrollment, retention, or completion?

▸ What areas for growth do you think your institution has for helping Black learners succeed in IT?

Each focus group transcription was coded and analyzed by one member of the research team, who then summarized the codes into main themes and findings.

Focus Group Findings

Overall, the majority of colleges in our sample described an approach to student recruitment and support that did not explicitly focus on or account for students' racial or gender identity. Colleges' priority was the development of policies, programs, and strategies that met the many and varied needs of all students without specific regard to race, ethnicity, or gender:

> So it's all about that relationship of meeting that student where they are and trying to build a road map to where they want to be and with reasonable expectations. (Admin, CC South 1)

> We're not only doing this just for male minorities or anything like that. I mean we're doing this across the board for all of our students. We're all about breaking down those barriers. I know in student services, we're student advocates. (Faculty, CC South 2)

> I really don't do anything specifically different for African American learners. I just treat everybody the same. The expectations are the same. The latitudes are the same. So, it's not African American students-specific, it's just student-specific. I don't know that we do anything any different in our program than we do for anybody else. I think it's just a matter of setting the expectations. (Faculty, CC South 3)

> Still, [the] progress report is part of the persistent retention that we focus on and not really just on African American students, but doing it in general. (Admin, CC Midwest 1)

For one faculty member, because of the online teaching environment, a student's race might not be apparent:

> I honestly am not even sure what the ethnicity of a lot of my students is because I'm not seeing them face to face a lot of the times. It's asynchronous, or we're doing videos and not requiring videos in return from them.
> (Faculty, CC South 3)

An exception to this was the college that used disaggregated institutional and survey data to identify needs of students by race and gender and develop strategies to meet these needs:

> And we also have new dashboards that we have—faculty all have access to where they can look at, where they have data available to themselves— success rates of different students broken down by race and ethnicity so that they can see and identify any gaps.
> (Admin, CC Midwest 1)

The colleges mostly did not take a proactive approach to assisting women to overcome barriers to entering technology, even though women are less likely than men to enter technology:

> [The] IT field is not a girly field. It's not a girly industry that women are just kind of knocking each other over to get there. (Faculty, CC South 4)

> Again, that's where it becomes challenging because we tend to look at it from a broader scope than that, I would say, [referring to gender]. We're looking for everybody coming into IT. (Faculty, CC South 2)

CC Midwest 1 was again an exception to this where an effort was underway to make IT more inviting to women by revamping their recruitment materials to be more gender inclusive. In response to a question about programs or strategies around enrollment for those who identify as women, one respondent said:

Yeah, we actually did have last year and the year before, I think it was. There was a consultant that came aboard and worked with a small group of us...Things like, for instance, we did an analysis of the visuals, and value statements that we were using to recruit female folks into IT. And that consultant brought some research that showed some of the different values that might be more appropriate in attracting folks in, resetting some of the visuals and then bringing in some other successful female folks to do a talk and bring students aboard that way as well. (Admin, CC Midwest 1)

The one designated historically Black college or university (HBCU) in our sample also described their approach to supporting students as being "inclusive" as opposed to providing selective support to Black learners:

I don't see us as—even though we're [an] HBCU—I don't see us as just gearing all of our education and all of our initiatives towards our African American students. I see us as all-inclusive. (Faculty, CC South 4)

However, several focus group members at this school also noted that as an HBCU located in a majority Black city, there is an extent to which any services or support they offer to all students do heavily serve Black learners since that is the majority of their student body.

Still, the emphasis at this school was on "inclusivity" for all learners, as noted by this faculty member who told us, "I definitely want to...stress that we practice inclusion for all of our learners." Several others from this college explained how an inclusive approach might be strategically more effective in securing more support from the community and would face less "backlash" than a Black student-focused approach, even though Black student-focused policies and strategies were needed:

> That's the only problem when you're talking about specifically targeting [Black students]. And like I said, it is needed. It is necessary, it's long due, but again, at the same time that is not the society that we're living in, okay? It will not be understood. It will not be taken in a positive manner. It will be taken in a disadvantage as—it just wouldn't work well. I think we would get in trouble. (Faculty, CC South 4)

In addition, the "race neutral" approach to Black learner support at this HBCU may be rooted in faculty and administrator perception that student challenges cut across all students regardless of race:

> So I don't know that anyone's coming in with that preconceived notion of, "Oh, I can't do it because I am underrepresented." I think it's more the people that aren't doing it don't believe they can do it. And some of them absolutely could if they put their mind to it. (Faculty, CC South 4)

> And just to add, we meet students where they are. Everybody comes with different background, but most of us have some very similar goals. So identifying what an individual needs [is important]. (Admin, CC South 4)

A similar perspective was reported from respondents at three other schools in our sample, where it was noted that many of the challenges that students faced were rooted in socioeconomic factors, which cut across race and ethnic groups:

> *The majority of our students do have external factors that are dragging on them, whether it's work, whether it's home life, parents that are sick, whatever the case may be. We have a lot of students that come in the door. And a lot of this is related to socioeconomics. (Admin, CC South 3)*

> *We're one of the most economically distressed counties in our state. (Faculty, CC South 3)*

> *And we provide a mobile access opportunity for our students to be able to complete assignments at home because most of what we see, although we have a high population [of] African American [students], economics plays a big part in it. They don't have the finances to buy a Mac device. Or they don't have access to a laptop, which is why we offer the free laptop or to check out the laptops in the hotspots and that sort of stuff. (Faculty, CC South 4)*

In one focus group, respondents told us that they considered student's country of origin, in addition to race, when fashioning student support:

> *I've seen quite a few people kind of come to the realization that just the term "Black learners" is a little bit tricky when you start to dig in because [that] sort of umbrella term includes groups that could be having very different educational experiences at an institution like ours. Great example would be that we have a strong population of native African immigrants and/ or international students and that's a very different educational experience and background than some of our African American students in general. (Admin, CC Midwest 1)*

Yet even as schools applied a "race-neutral" approach to student recruitment and support, focus group participants across several schools also noted a persistent and specific challenge in recruiting Black men into the college:

> The inspiration [for an African American male retention program] is because the rate is so low. And [with] what we have going on in our culture, we are trying to motivate them and push them to be successful. That was the motivation. If you look at what's going on in the news, in the world, our young African American [men], they need help. (Admin, CC South 1)

However, this administrator also went on to note how all men were struggling:

> Everybody needs help, not just them, but it's a flag for me, because I've always had a soft spot for our male [students]. And there are young men [who] need help. Let's be real about it. They really, really need help. Just trying to motivate them and push them to be who they've been called to be. (Admin, CC South 1)

A faculty member at another college noted:

> I think it's put out by the STATE public school forum here in STATE. They look at different metrics between the 100 counties, and our third grade reading proficiency in COUNTY is one of the lowest compared to the other 99 counties. And it doesn't take a lot of research to find how our Black male students follow within that metric. (Faculty, CC South 3)

We did not hear similar concerns for Black women entering college. This may be because Black women were much more likely than Black men to be enrolling in these colleges. The fact that Black women are not entering IT in representative numbers was, for the most part, not viewed as a structural barrier that the college needed to address but as an individual career "choice."

Four schools noted the important role that Black IT mentorship or role models had for Black student recruitment and support, especially for Black men. Despite the apparent value of mentoring and role models, efforts at three of these four were not made to replace a Black faculty mentor when they left the college or to establish a more sustainable mentorship model:

Because he was a Black man, [he] had an immediate connection. I could see the differences. I mean people just tend to connect in that way. If you've been, say, discriminated against in the past, and you see somebody that's the same color as you, then you're going to feel more connected. (Faculty, CC South 1)

[This faculty] was involved in the community. He was a member—and I don't know what fraternity it was, but one of the local Black men's fraternities in our community. And I can't help but believe that through his involvement in the community, he had a way of reaching students that I am not [sure] we reach right now. (Admin, CC South 1)

*We've had the network engineer I mentioned who's really been a role model. He's now since retired, but he brought a drone academy to our campus, and African American children. And that was a weekend activity, and it since taken off and become its own [program].
(Admin, CC South 2)*

I think if we're talking about specifically helping African American males be successful [in] any program, and it's not just talking about trades program for me, it's seeing more African American male instructors and more African American male presence in our classrooms. I think that would be an opportunity for growth. Bringing in more African American male speakers and lecturers that would talk about careers that African American males are actually interested in. (Admin, CC South 3)

Several schools also expressed that outreach to local majority Black high schools was an important strategy to recruit Black learners to the college and to IT. But this also fell into the "race neutral" category. Based on participants' sharing, it was more about connecting high school students in the community to the college rather a program specifically developed to address the needs of Black learners:

> *And so I believe that one of the strong areas for us to focus on are the students while they are in high school, to continue to build those relationships. And so when they [martriculate] and graduate from high school and then come to us…we've already begun to build those relationships. (Admin, South 1)*

The one exception to this had again to do with the importance of having a Black role model working with the Black community to support connections to the college. However, this was not a structural approach to address a racial barrier but one that emerged from individual initiative:

> *One of our board members is a local pastor in our community, and he pastors a very large congregation, predominantly an African American congregation. And so he invited our president to come. They were having a youth day for their graduating seniors. They were having a luncheon for [them], and he wanted our president to speak to them. (Admin, South 1)*

It should also be noted that while most schools we spoke to did not have systemic institution-wide or IT-focused approaches that focus on Black learners, all schools had implemented targeted, one-off supports for them. These efforts, including a laptop loaner program during the pandemic at one college, were often funded through short-term grants. Across the five schools, these programs or strategies included:

a Black male mentoring program, a Black learner affinity group, and special articulation agreements and support for Black STEM learners transfering to four-year colleges.

And at two schools, faculty members spoke about how creating trust with all students regardless of race, ethnicity, or gender supported student engagement and success:

> *Just the basic support in letting them know you're there for them and you intend for them to succeed. But that's kind of outside the question [of supporting Black learners], because at that point it's the same for everybody. I think that making that connection, letting people understand that it's going to be fair, no matter what, it is the most important thing as far as retention. (Faculty, CC South 1)*

> *I try and make it so the students want to be able to come and talk to me or need to think that if they need to come and get help, that I'm approachable. And they can come to my office hours, or they can email me and set up a time to do a Google Meet call or resolve things over emails. (Faculty, CC South 3)*

At two schools, we also heard about Black-focused equity strategies that were being considered and in one case implemented:

> *And I will say, that is certainly a point of emphasis for us, at least recently, as we've revised our vision and mission statement and our objectives at the college, which includes supporting our faculty, staff, and students in terms of equity, diversity, and in general. (Admin, CC South 3)*

"Our STATE system office, they have an initiative in which they're trying to help campuses close equity gaps across the board by 2030, where there's zero disparities. And one of the efforts that we participated in over the past year—the last academic school year was a teaching about culturally relevant pedagogy…As [the] academic affairs team, every three years, we do a deep dive into program data with those faculty. And that's an element of data that we're talking about so that we can see are there specific groups of students within specific programs that need to be addressed, if there's gaps there, and then thinking creatively on ways that we can do that and kind of partnering together with different stakeholders to make that happen. (Admin, CC Midwest 1)

CC Midwest 1 also conducts observations of faculty to give feedback on how they can build strong equity approaches in their pedagogy, as well as taking diversity into account when hiring:

"And we've also done a lot of work recently about culturally relevant pedagogy in ways to integrate different cultural examples into curriculum, doing things like talking with faculty about their program data, looking for equity gaps as well as just overall student success rates and then, of course, engaging in equity work when we're doing all of our hiring, trying to make sure that we're looking for diverse candidate pools. (Admin, CC Midwest)

But, for the most part, the strategies, programs, and initiatives to support learner recruitment, retention, and completion focused on all students, regardless of race and gender. More specifically, in discussing recruitment of all learners, respondents spoke about programs such as dual enrollment, where students can earn community college credit while still in high school, and other outreach to area high schools. For IT, it was thought that giving high school students "hands-on" experiences with technology engaged them to think about IT careers.

For all prospective students, career exploration and navigation tools were used to help students find and learn about IT career pathways. Given the rigor required for an IT education, several colleges established onramps into the program through technology content-based college readiness classes. And in several of the regional economies where our sample colleges were located, the strong market for technology jobs, supported by healthcare tech companies, military bases, and newly expanded fiber connections, was thought to enhance student interest in IT, along with interest in gaming and cybersecurity. However, at other schools, we heard that lack of demand for IT graduates dampened student enrollment into the IT program.

For retention, engagement, and completion of IT programs, the administrators and faculty we spoke with felt that internships and other work-based learning opportunities were especially important to give students real world experience to apply and build their technology skills. Strong pedagogy and faculty mentorship were also described across several schools as key factors for student retention and completion, along with tutoring and student success centers:

> First of all, again, the instructors are great mentors. They do instruct them, give them all the information they need, of course, they know the industry. So they know the skills they'll need when they get out into careers. And they have the partnerships with the community. So that's one way [they're] supported through their instructors. (Faculty, CC South 1)

> In community college, instructors make or break programs. (Admin, CC South 1)

I know we already touched on the great faculty that we have in the IT department, and I think that that makes a really big difference. It's very clear when programs or students don't feel like they have the very best faculty, and we sure hear about it. And luckily, I don't hear a lot about IT, and I think that that bodes well for them. (Faculty, CC Midwest 1)

Wraparound supports related to the financial and socioeconomic constraints that students face were noted by all schools as a primary strategy for student retention through completion.

I'll start with the opportunity to assist students who may not have the technology at home and access to Wi-Fi… through the library, where that connection is made. If a student connects with us or we become aware, we receive an early alert that, "Hey, this student has informed us that they're struggling. They're not completing their assignments because they don't have access to internet at home." So that becomes a referral. (Admin, CC South 4)

We've become a hunger-free campus and have food distributions—free food distributions on each of our campuses monthly. We also do food or shoe drives and clothing drives and things like that to give students access to resources they might not have. (Admin CC Midwest 1)

We have programs in place where if we know students are hungry, we find them food. I mean, just really things of that nature. So we pride ourselves on being very student focused. And I think that goes a long way to the success and the numbers that you're talking about. (Faculty, CC South 2)

Others noted the importance of these supportive services, especially for Black learners:

> I do believe that whatever additional wraparound support that we can give our Black students [will] be very beneficial. (Admin, CC South 1)

To recap, although there was recognition of the importance of Black mentorship and role models for Black learner retention and completion of IT programs, for the most part, the administrators and faculty we spoke with emphasized a "race-neutral" approach to the support of students through their college and IT pathways. Some described this as an "inclusive" approach to student support that addressed the many socioeconomic, academic, and other needs students had to be successful at the college and in IT:

> And so far as what I do or provide as it relates to our Black students, I don't do anything specifically to our Black students. What I do specifically is try to make them the best that they can actually be regardless. (Faculty, CC South 4)

> We're doing what's right by the students that we serve. And we're reaping the rewards because we're doing right. I mean, we're trying to put people to work. We're trying to improve people's lives in our service area, and we're listening to the students. We care about the students. (Admin, CC South 2)

Summary and Discussion of Findings

Our analysis of the NSC data showed that only 40% of the 1,000 postsecondary institutions in our sample had at least 10 Black learners enrolled in their IT program; over 600 IT programs did not meet this benchmark. Disaggregated by gender, the numbers shrink to 35% of schools for having at least 10 Black men enrolled and 15% for Black women. Ninety percent of the schools in our sample did not enroll 10 Black new learners into their IT program, on average, between 2017 and 2020. Fall to fall retention, averaged across the five years, was only 38.6%, or nine learners per institution, while the six-year completion rate for a cohort of new Black learners starting an IT program in 2015 was only 12.9%, or three learners per institution.

Disaggregated by gender, the participation of Black women in these postsecondary IT programs was much lower than men's participation. One stark statistic demonstrating this gender gap was that only 11 of the over 1,000 schools in our sample had at least 10 new Black women students enrolling in their IT program in 2020.

With one exception, the colleges in our sample described an approach to student recruitment and support that did not explicitly focus on or account for students' racial or gender background. That is, race was not the significant or primary factor informing the development of strategies, policies, and programs to support learners. Rather, schools focused on other aspects of student need (socioeconomic, academic, social, emotional) through what could be called a "race-neutral" lens. While there were some noted exceptions to this—most prominently the acknowledged need for Black mentors, especially Black men in IT, and more resources to support such programs—race was not in the forefront of policy, programs, or strategies supporting students. When it came to women in IT, gender also was also not a significant or prominent factor for consideration.

In some cases, this race neutral approach was rooted in the ideal of serving all students equally, regardless of race. In others, it was thought that a focus on "inclusivity" rather than racial differences would garner more support from policymakers and the community and avoid backlash. There was also a concern that race-targeted policies might be seen by policymakers or the wider community as ultimately more harmful than good, since they are sometimes mistakenly interpreted as lowering academic standards for Black learners rather than dismantling structural barriers.

The exception to this "race-neutral" approach was at the school which had a more explicit focus on supporting Black learners through the analysis of disaggregated institutional and survey data to identify need and develop supports. This school also took a proactive approach in hiring Black faculty, seeing the importance of Black role models, and had launched a Black community-wide support group. The impetus for these Black-focused strategies seemed to come in part from college leadership initiatives and state-implemented higher education equity goals.

Unlike the "race-neutral" approach of most of the colleges in our sample, the "race-conscious" approach of this college does not assume that institutional systems, practices, and policies works equally well for all students but tests this assumption with ongoing disaggregated data analysis. Years of community college reform, including the guided pathways movement, which has demonstrated that "race neutral" reforms do not necessarily close equity gaps, point to the value of this kind of ongoing disaggregated analysis and corresponding action planning for strengthening Black learner participation, retention, and completion.[21] Furthermore, for Black women, the multiple barriers and diverse experiences at the intersection of race and gender could also be addressed with this kind of attention to disaggregated data.[22]

By not explicitly including Black men's and women's needs and perspectives into policies, initiatives, and strategies, postsecondary systems and institutions are less likely to disrupt systems that prevent Black learner success or to transform them into systems that can foster economic opportunity.[23] Institutions and systems that intentionally identify and address roadblocks for Black learners may also build a foundation for improving outcomes for other students who are historically underserved by postsecondary education.

In addition, a structural approach to Black educational equity is likely more effective than the one-off program or strategy approach. Unlike one-time grant-funded programs, a structural approach is more likely to be tied to other institutional goals—and thus long-term funding, support, and accountability—with coordinated support across the campus from administrators, staff, and faculty.

In the next section, we put forth a research agenda that centralizes Black men's and women's needs and perspectives for dismantling structural barriers to their success and strengthening pathways into high-opportunity careers for all.[24]

Research to Build Opportunity for Black Learners in IT

JFF views these findings as a call to action for the learn-and-work ecosystem to ensure that Black learners can succeed and advance in today's digital economy. We are working with partners across education and workforce systems to build the evidence base for strategies that can promote Black economic advancement. To expand on what we have learned from this research, fill research gaps, and continue to identify effective practices, JFF is pursuing the following research agenda for building opportunity for Black learners and workers in IT. These areas for continued research are part of the Center for Racial Economic Equity's ongoing servicing of our goals to disrupt occupational segregation by increasing the number and share of Black learners and workers entering and advancing in high-growth, high-wage careers.

Black Learner Voice: To ensure that colleges and IT programs are meeting the varied needs of Black learners, researchers need to hear directly from Black learners what their experiences are with the college and the program. This includes challenges and opportunities in enrolling in and completing IT programs and transitioning to other educational programs and employment. Involving Black men and women in different stages of their educational journey, such as pre-enrollment and post-graduation, is critical to identifying and addressing educational segregation; gaps in academic, social, economic, and other supports; and structural challenges and hidden biases embedded in practices, policies, and procedures.

Black Learner Pathways through IT: To identify barriers to enrollment, retention, and completion, research drawing from institutional data can be used to map where Black learners are progressing toward their educational goals and where they face roadblocks. This analysis should be disaggregated by gender and age and should explore the effects of other factors, such as socioeconomics and family status, to get the full picture of what is working, for whom, and under what conditions. With this kind of ongoing multivariate and

disaggregated analysis, researchers can pinpoint the best use of targeted or limited resources for Black learner support and identify areas where structural college- or program-level interventions are needed.

Ecology of Needs and Opportunities: Community colleges are intimately connected to the communities in which they serve. Research on how to best support Black learners must include deep exploration of the social, economic, and cultural regional context within they live and work. This work could include, for example, regional mapping of poverty and services to support low-income students, regional occupational segregation by race and gender, and dual enrollment and CTE resources available in the secondary system.

Making the ROI Case for Community Colleges: Community colleges serve as key hubs for not only education and workforce development but also economic development. By creating pathways to high-opportunity employment and the skills employers require for growth, community colleges serve as key engines of prosperity in their communities. When there is occupational segregation by race, Black learners face structural barriers to entering high-opportunity and growing careers. Economic growth is then depressed. Research that demonstrates the return on investments to the community from an equitable community college education system—and the tremendous costs to a community due to occupational segregation—can help colleges make the case for the funding they need to successfully support Black learners in high growth pathways like IT.

Appendix: Using NSC Data to Analyze Black Learner Participation in Postsecondary IT Programs

Data and Methodology

For this analysis, we drew from restricted-use National Student Clearinghouse (NSC) data on Black learner enrollment, retention, and completion from postsecondary schools across the country that had two-year associate's degree or credential programs in IT. This original sample included about 1,000 schools. The data were divided into three separate data sets: one for enrollment data, one for retention data, and one for completion data. Each data set had an inclusion criteria of at least 10 Black learners enrolled to ensure privacy and reduce the risk of identification. Additionally, all school identities were hidden by the use of unique ID numbers.

Enrollment data were provided for five enrollment years between 2017 and 2021. As noted above, any schools with fewer than 10 Black learners total in any enrollment year were removed from the data. After incorporating these data privacy measures, each enrollment year included data on roughly 440 schools: 451 schools in 2017, 441 schools in 2018, 451 schools in 2019, 428 schools in 2020, and 433 schools in 2021.

Fall to fall retention data were provided for enrollment years between 2016 and 2020. The retention analysis was conducted with students newly enrolled in the college and IT in the fall of 2016, 2017, 2018, 2019, and 2020. Additionally, any schools with fewer than 10 new Black learners enrolled in fall of any enrollment year were removed from the data. After incorporating these data privacy measures, each enrollment year included data on roughly 125 schools: 122 schools in 2016, 130 schools in 2017, 127 schools in 2018, 129 schools in 2019, and 109 schools in 2020. Retention measured fall to fall reenrollment in the same college's IT program.

Completion data were provided for one six-year cohort beginning in fall of 2015. Completion percentages were calculated by counting the number of learners who had completed their programs at the same school six years later (i.e., by fall of 2021). After incorporating these data privacy measures, there were 108 schools included in our dataset.

Analysis

Enrollment and retention data were first assessed for significant differences across enrollment year (e.g., was there significantly higher Black learner enrollment or retention in any given year). After an analysis showed no significant differences, all enrollment and retention data were analyzed as a pooled sample across all enrollment years. Completion data only included observations on one enrollment year, so no such analysis was necessary for this dataset. In order to identify "high performing" schools, many approaches were considered. However, given the limitations of the data (e.g., not knowing institution names, states, cities), it was not possible to benchmark our findings against geographic or institutional data. We couldn't, for example, identify IT programs that had enrolled Black learners at levels matching or higher than the enrollment of Black learners at the institution. Nor could we benchmark enrollment against population demographics. To expand our understanding of Black learner participation in IT programs, these would be data strategies to pursue in a next phase of research.

Taking these limitations into consideration, we decided to select our "high performing" schools by comparing schools to one another within our dataset. We did this by dividing schools into percentile rankings, or grouping schools by the top 25%, top 10%, top 5%, or top 1% of schools included in the data. These groupings were then used to create weighted scores across several criteria schools could meet. The criteria included being in the top percentile groups of categories like overall Black learner enrollment, overall Black learner retention rate, overall Black learner completion rate, and others. Additionally, schools needed to have been at a threshold for all five enrollment years in order to meet the criteria based on enrollment and retention data. For example, for School X to be counted in the top 25% of overall Black learner enrollment, they needed to have met that threshold of at least the top 25% for every year between 2017 and 2021 in the enrollment data. The full list of criteria can be seen in Table 2.

Weighting

When assessing the numbers of schools meeting the criteria we had established, it became clearer that all our thresholds should not be equally weighted. In particular, far fewer schools were meeting criteria for overall Black learner retention and Black female enrollment. Based on these findings, we decided to weight these criteria more heavily so that they would matter more in a school's overall performance. The full weighting procedure can also be found in Table 2 below.

Table 2

Criteria	Weighted Score
Overall Black Learner Enrollment	
Top 25%	.75
Top 10%	.90
Top 5%	.95
Top 1%	1
Black Male Enrollment	
Top 25%	.75
Top 10%	.90
Top 5%	.95
Top 1%	1
Black Female Enrollment	
Top 25%	1.25
Top 10%	1.50
Top 5%	1.75
Top 1%	2
Black Learner Retention Rate	
Top 25%	1.25
Top 10%	1.50
Top 5%	1.75
Top 1%	2
Black Learner Completion Rate	
Top 25%	.75
Top 10%	.90
Top 5%	.95
Top 1%	1

Endnotes

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9   We had originally planned to analyze Black learner enrollment, retention, and completion at the 4-digit CIP Computer Science/Information Technology level to investigate within IT racial educational segregation. Because of small sample sizes at this 4-digit level (most schools did not meet the minimum enrollment of ten Black learners), we were unable to conduct this investigation and used instead the 2-digit CIP 11.

10   This includes all students enrolled in the IT program, not just new students.

11   Note that these averages were calculated for schools that had at least 10 Black learners enrolled. The average over the 1000 schools would be lower.

12   U.S. Census 2020

13   Faculty, CC South 3

14   The number varied by year. For clarity in the retention (and completion) analysis, we did not include learners who had transferred into the IT program from other programs since the retention (and completion) experiences of students may be shaped by their total enrollment time at the college in ways that are also correlated with student's race.

15   Additionally, because of the small number of schools we had in our dataset for retention it was not possible to disaggregate these findings by gender.

16   This number of schools meeting the threshold was not correlated with the pandemic.

17   We did not have the resources in this project to interview Black learners but are planning this in a second stage of research.

18   The 25 schools we invited to participate were randomly drawn from the 60 schools which met at least one top enrollment, retention, or completion performance measure (see Appendix for methodology).

19   To protect confidentiality, we are only giving approximate data for each school or overall ranges across the five schools.

20   A limitation of the study is the lack of variation in the size and region of the community colleges who agreed to participate in the focus groups. Whether these findings hold for larger colleges in other regions would need to be tested.

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