**CASE STUDY REPORT**

**Acknowledgements Author:**

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outsourced vendor from Decision Consulting for IBM This report provides a deep dive into the execution of the P-TECH model in this school’s particular context. This project has involved collaboration across multiple partners and stakeholders to make this work possible. Special thanks to school and P-TECH program leaders James Natoli, Nicholas Lisi, and Maureen Sweeney for seeing this project through for the Institute of Technology at Syracuse Central by providing school data and background. Additionally, great thanks to the partner representatives who contributed to the project with their accounts and experiences. Without your perspectives and insights, we would not have the well-rounded case study we have today. Sincerest gratitude to: — Students and alumni: Imari Gary, Eliza Velezquez, and Tiana Vo — Industry Partner Representative: Martha Ponge — Community College Partner Representative: Amy Kremenek

**Approach**

The goal of the case study is to provide an example of the P-TECH model

outside of the IBM industry partner context. Over several months, IBM worked in partnership with ITC P-TECH to take a deep dive into understanding the implementation of the P-TECH model. ITC P-TECH provided non-identifiable student-level data with key academic metrics by academic year. Additionally, IBM interviewed eight individuals representing different parts of the P-TECH model – from students or alumni to industry partner representatives. This approach provides a broad view and holistic take on what P-TECH looks like from those directly impacted or on the ground running the program.

**Results**

ITC P-TECH has excelled in being agile to the needs of their community and

students in the program. In their first years of implementing the P-TECH model, they have made changes and continue to do so as they have ongoing partnership conversations and feedback from their stakeholders. ITC takes pride in experimenting and making the best of what they have to ensure students can have a valuable experience that they can take with them for years to come.

In a program built from the ground up, the first cohort has an incredible retention rate of 81% in four years and 79% for six years. However, only seven students (14%) in the cohort graduated with both their high school diploma and AAS degree. With these achievements, there is also an impressive number of students who graduated with college credits. About half of the high school graduates earned between 9 – 12 credits (almost one full-time semester’s worth). The other half of students earned up to a year or more in college credits, giving them a great advantage for continuing higher education. Students who earn college credits before enrolling in higher education, or earn at least 15 credits in their first year, are more likely to earn their degree – this is a key indicator of academic momentum.

After completing the program, almost a quarter of graduates went to work directly after high school at companies including Dupli Graphics, Nucor Steel, TTM Technologies, and 2 United Radio. Most graduates chose to continue their higher education.

From interviews with educators, students, alumni, and industry partner professionals, lessons were learned on implementing the P-TECH model best. Individuals reflected on how important it was to have consistent communication between partners to provide the best structure and resources for students’ success. Others spoke about the various ways small local businesses can adapt the model and have a lasting impact on students’ workplace learning development. Additionally, others mentioned how P-TECH has an impact on more than just the student, but also the industry professionals that work with the students.

**Case Study Approach**

Over several months, IBM worked in partnership with ITC to take a deep

dive into understanding the implementation of the P-TECH model. ITC provided non-identifiable student level data with key academic metrics by academic year. These metrics included state-level eighth-grade exam scores in English and math, high school and college GPA, college credits earned, AAS degree earned, graduation, demographics, and enrollment status. We chose these metrics to learn more about how academically prepared students entered the program and observe students’ enrollment patterns and progression in the program.

Additionally, IBM interviewed eight individuals representing different parts of the P-TECH model – from students or alumni to industry partner representatives. It was important to have insights from the people who have been directly impacted and a part of making the P-TECH model work. P-TECH is more than the academic results that can be placed in a report – it is also a way of being innovative and changing in an education setting, which is best displayed through narratives.

The following sections in the report provide key data points and narratives demonstrating the success and experiences of implementing the P-TECH model in their particular context ITC P-TECH has managed to attract students that are typically underserved and underrepresented in STEM fields. The demographics and background of the first cohort demonstrate that ITC P-TECH is keeping with the mission of serving students who may not have had the opportunity to go to college or the workplace learning experiences if it wasn’t for the P-TECH program. Meet some students and alumni from ITC P-TECH to learn more about their experiences in the program.

**TIANA VO**

Current student

**What were some challenges you faced in the program, and how did you overcome them (or dealing with them now)?**

The first thing that comes to mind is freshman year. We had two or three

engineering teachers. The reality of it was that the district or the school couldn’t maintain these teachers. I guess either they didn’t like them, or they wanted more pay or something like that. It’s also difficult, I understand because they’re engineers, and the district finds them wherever they do, and then they come in, and they’re meant to teach a class, and they’re not used to teaching. So, it’s kind of difficult on both ends. It impacted our first year and how we settled into P-TECH. Other challenges would be the competitions. We all would want to win, and it would be tense. But down the line, we all cared about each other. Everything was kind of easy after we all became acquainted with each other – like a P-TECH family other than just different individual students. So, after that, I don’t think of things as challenges. It’s more of a collective, that’s tough, and then we kind of moved past it.

**What does your day-to-day role look like in this partnership?**

My day-to-day involves coordinating staff who create work-based learning

activities, such as career coaching. We set up events monthly with ninth and tenth grade cohorts, bringing in career coaches to engage with students involved in handson activities associated with what they’re learning in school. These representatives sit down for up to an hour and a half each month and start building relationships with the students through career exploration activities such as guest speakers, design challenges, personality assessments and industry visits. Eleventh and twelfth grade career readiness is more centered around the job search and application process, resume reviews, interview preparation, job shadows and internships. ITC will let us know what students are learning and reach out to coordinate events during the school year. For example, let’s say students just finished their class on CNC Machining. We reach out to a company that employs CNC Machinists to schedule field trips during which they and witness something relevant to the coursework they’re doing right now. In the spring, we coordinate a career fair to bring in employers who have offered internships and job shadows in the past to link those kids up with summer positions. We help the students with resumes and mock interviews to ensure that students are ready to apply for positions.

**What are some challenges you have come across in your first year on this job?**

We began the 2020-21 school year completely virtual for the first three weeks

due to the pandemic. We transitioned to a hybrid model in early October 2020. Then had to go back to virtual simply because of the high COVID numbers in the country for probably about four weeks around January 2021. And then, in April of this year, we’ve opened it up so that students could come in more days a week. High school students could only come one day a week to start. Now they can come two days a week, which is fabulous. But career coaching events, when it’s completely virtual, you send a Zoom link, and everyone logs on. So, how to logistically do all of that? I worked with the IT department to get a mini camera and microphone mounted in my classroom. You can’t have a student room full of laptops with everyone on headsets and microphones. There would be so much feedback, and we’re trying to socially distance. So, that was a big challenge. But going forward, if there is a hybrid or virtual component next year, I’m on top of it, and I know how to do that. I have ordered some additional equipment to overcome that challenge. But it was almost easier being totally virtual. With so many moving pieces, we were trying out the links ahead of time, seeing where everyone could hear the coaches in the best place and how far the camera angle would go. So, I would say definitely COVID challenges my first year and we’ll see what next year brings for us. But every day is exciting!

**About P-TECH**

P-TECH is an innovative public education model to address education access

and workforce development challenges. Students can graduate with high school diplomas, tuition-free associate’s degrees aligned to industry needs, and workplace experiences, including paid mentorship and internships, within six years or less. P-TECH was created to provide underserved youth with an innovative education opportunity — with a direct pathway to college attainment and career readiness and to strengthen regional economies by building a workforce with the academic, technical, and professional skills required for new-collar jobs. Since the inception of the model in 2011, P-TECH is now, in August 2021, in 28 countries with about 260 schools across the network. P-TECH started in New York and has expanded to at least 10 states, as of August 2021, states, including Texas and California. For more information on P-TECH and how to bring it to your city, please visit [www.ptech.org](http://www.ptech.org).

**Case Study Approach**

Over several months, IBM worked in partnership with GST SA to take a deep

dive into understanding the implementation of the P-TECH model. GST SA provided non-identifiable student-level data with key academic metrics by academic year. These metrics included state-level eighth-grade exam scores in English and math, high school and college GPA, college credits earned, AAS degree earned, graduation, demographics, and enrollment status. We chose these metrics to learn more about how academically prepared students entered the program and observe students’ enrollment patterns and progression in the program. Additionally, IBM interviewed nine individuals representing different parts of the P-TECH model – from students or alumni to industry partner representatives. It was important to have insights from the people who have been directly impacted and a part of making the P-TECH model work. P-TECH is more than the academic results that can be placed in a report – it is also a way of being innovative and changing in an education setting, which is best displayed through narratives.

**Demographics and Background**

For this case study project, we focused on observing the progress of all cohorts

of students entering chapter 1 (ninth-grade) between Fall 2016 to Fall 2021. The first P-TECH cohort included 29 students, and following cohort enrollments have gradually increased over the years with new recruiting efforts over time. Matching the surrounding student population, most students are White (93%), and over half the students are first in their family to attend college. Additionally, almost half (47%) of the student’s identity is female.

| **COHORT 1**  N % | | **COHORT 2**  N % | | **COHORT 3**  N % | | **COHORT 4**    N % | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|
| 4 | 14% | 6 | 17% | 7 | 19% | 5 | 14% |
| 2 | 7% | 4 | 11% | 2 | 6% | 1 | 3% |
| 14 | 48% | 12 | 33% | 4 | 11% | 7 | 20% |
| 5 | 17% | 8 | 22% | 8 | 22% | 8 | 23% |
| 4 | 14% | 6 | 17% | 15 | 42% | 14 | 40% |
| **29** | **100%** | **36** | **100%** | **36** | **100%** | **35** | **100%** |

**SCORES BY COHORT**

| **COHORT 1**  **N %** | | **COHORT 2**  **N %** | | **COHORT 3**  **N %** | | **COHORT 4**  **N %** | |
| --- | --- | --- | --- | --- | --- | --- | --- |
|
| 5 | 17% | 5 | 14% | 9 | 25% | 6 | 17% |
| 2 | 7% | 4 | 11% | - | - | 1 | 3% |
| 10 | 34% | 13 | 36% | 10 | 28% | 7 | 20% |
| 10 | 34% | 10 | 28% | 14 | 39% | 10 | 29% |
| 2 | 7% | 4 | 11% | 3 | 8% | 11 | 31% |
| **29** | **100%** | **36** | **100%** | **36** | **100%** | **35** | **100%** |

**NICHOLAS WOOD**

Nicholas is a recent P-TECH graduate from Horseheads, NY. Before learning about the school, he knew he wanted to be an engineer but did not know how to move towards that goal. Nicholas learned about the P-TECH program when he was in middle school. In 2015, the school was just an idea – there was no staff hired yet, and he showed a video of another P-TECH school. Seeing a clear path to his engineering goal, Nicholas applied, interviewed, and got into the program. In the time spent at the school, Nicholas participated in student council, toured facilities, and completed a workplace challenge to help solve a real workplace problem. Nicholas graduated within four years with his high school diploma and associate’s degree in mechanical technology (CAD design).

After graduation, the goal was to go straight into starting his career for local

industry, but the global pandemic of COVID-19 halted that plan. Taking some time to shift gears on his goals and reflect on what he wanted to do, Nicholas applied and then was accepted into the Electrical and Computer Engineering Technology program at the New York Institute of Technology. He plans to complete his bachelor’s degree and find the right future career opportunity for him.

**What are you most proud of in your work in this P-TECH program?**

Oh, there is a lot! I am proud of having our first program completed last

year,and these students did it during a pandemic. We created a cool video for them, but we also made signs for their yard and visited everyone’s house, which was only seven, so not as many as other cohorts that graduated. We got on our school bus, blasted music, and really celebrated them. Their reactions as we were on their front lawn, dancing around and playing music for their success, really showed appreciation for their last years of work, and for us to try new things felt worth it.

Graduation rates and degrees earned In the P-TECH model, students can take up to 6 years to complete the program with a high school and associate’s degree. Within the first cohort, ten students (34% of Cohort 1) graduated high school with a high school diploma and AAS degree between four and five years. This is an excellent achievement, considering the program starting from scratch and making changes as time went on to help the students. For students who did not graduate with both degrees, many students who exited the program on average earned 45 college credits, which puts them in a great position if they choose to continue higher education. Students who earn college credits before enrolling in higher education, or earn at least 15 credits in their first year, are more likely to earn their degree – this is a key indicator of academic momentum5.