The Case of Granite County Technical School (#PA01)

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Introduction to the cases

The case presented here is drawn from a larger national study investigating the 5-year science teacher retention rates in four U.S. states (New Jersey, North Carolina, Pennsylvania, and Wisconsin).[1] This study has two distinct phases. In the first phase, researchers used publicly available staffing data from 2007-2018 to construct a 5-year retention map for six cohorts of novice science teachers in each state. This approach differs from sample-based retention studies because full data permitted our team to map the career trajectories of each individual science teacher for a more comprehensive picture of teacher retention, mobility, and attrition. For example, in sample-based studies, the departure of a teacher at the end of one year might simply be categorized as attrition. In viewing a 6-year trajectory, we were better able to identify teachers who left a position in a given year not simply as attritted, but possibly as having transferred to a different district (mobility) or taken a year off and then returned (such as for parental leave.)

After analyzing individual teachers' career trajectories, we calculated the 5-year retention rate of newly hired science teachers in each cohort for the years 2007-2012 for each school district. This analysis informed the second phase of the research, in which five districts per state were identified for a more detailed case study on the factors influencing science teacher retention. Districts were sorted initially for higher-than-average rates of retention, and we focused on those in the top 10% in the state. We then attempted to diversify our selection of districts by looking at factors such as school size, location within each state, type of community (urban, rural, suburban,) and relative wealth of the district. We also looked for districts that had hired (and retained) teachers of color and teachers whose teacher education programs had been funded by the National Science Foundation's Noyce Teacher Scholarship Program, which was created to meet the need for well-prepared STEM teachers in the United States.

The district described here was one of those selected in the state of Pennsylvania, and a separate PA state teacher policy case study covering the time period of this study is available on the project website. The district name is presented as a pseudonym for purposes of confidentiality. The names and position titles are similarly obscured in this case, and also in the larger study, in order to preserve internal confidentiality as well.

For further information about the study, please visit: http://www.montclair.edu/IMPREST

[1] This material is based on work supported by the National Science Foundation under Grant #1758282. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

The Case of Granite County Technical School

Granite County Technical School (GCTS) was established in the 1950s when several districts located in northeastern Pennsylvania voted to develop a public school within the county for students to pursue technical careers. Over the next 60 years, GCTS would undergo several changes, the most major of which was to reintroduce academic subjects to the school. Today, GCTS serves as one of the only comprehensive technical schools in the state, employing both technical and academic teaching professionals.

As a county school, GCTS operates essentially as its own district, and receives students from seven of surrounding school districts. Teachers at GCTS receive a salary that is commensurate with their colleagues in these districts, though the average per pupil spending is slightly higher.

Like the other districts in this study, Granite was selected for its higher-than-average retention of science teachers in the state. At the time of selection, Granite County Technical School had retained all of the novice science teachers hired in the 2007-2012 period examined in our analysis, and as we came to learn, many more novice science teachers hired eight years prior had also been retained up through the present. Currently, the school has a total of 154 teachers, of which fewer than 1% identify as teachers of color. The science department is made up of eleven teachers, with an average of 15 years' experience, the majority of which completed those years at GCTS, and all of whom identify as White.

Despite the GCTS facility's location in one of the state's wealthiest districts, 42% of students attending Granite County Technical School are classified as economically disadvantaged, though the school does not meet the threshold for receiving federal Title I funds. The student enrollment at GCTS for the 2017-2018 school year was reported as roughly 80% White, 10% Hispanic, 9% Black, and 2% Asian. Of this population, fewer than 2% of students are classified as English Language Learners with about 33% of students receiving special education services.[2]

The research team interviewed seven individuals in Granite County Technical School, including four retained science teachers, the principal, an assistant principal, as well as one additional supervisor. The primary goal of the interviews was to better understand the factors that may have influenced teacher retention during the focus period of the study (2007-2018) and to also investigate current practices around the mentoring and induction of new science teachers. Other data collected included publicly available district documents, and documentation related to the mentoring and induction efforts provided by the principal of GCTS.

Findings

As a result of these interviews and subsequent data analysis, we posit four factors that likely influenced the high science teacher retention rate observed in Granite County Technical School. These are (1) an overall culture of community and collaboration within and outside the school, (2) strong teacher relationships within the original academic hire cohort (3) teacher autonomy, creativity, and support and (4) financial support. In this section we detail each of these four

[2] From the Pennsylvania Department of Education, Data and Reporting website: https://www.education.pa.gov/DataAndReporting/Enrollment/Pages/PublicSchEnrReports.aspx and also the US Department of Education Civil Rights data at https://ocrdata.ed.gov/search/district

factors, followed by a brief description of current mentoring and induction efforts at Granite County Technical School.

Factor #1: A culture of community and collaboration within and outside the school

A culture of community and collaboration was a defining feature for the teaching staff at Granite County Technical School. According to one retained teacher, "I feel like our department is very collaborative, like we're very helpful with each other. If anybody needs anything, people are willing to help each other out . . . I think that's why I've stayed so long." Teachers were willing to share both their physical and intellectual property with one another, from laboratory equipment to pedagogical styles. One retained teacher talked about how common it is for teachers at GCTS to share lessons with one another:

> That whole Teachers Pay Teachers thing, I can't stand that.[3] Can't stand it. Somebody gave me something, now it's my turn to pay it forward to give it to you. So that's how we operate as a department. And that's I think why we've all stayed. It's a great place to be because you're not just stuck out there—people are excited to share their stuff! If I came up with something really awesome, and it worked great, let me share it with you so that you can have the same success I did.

Teachers also expressed that although they may not have to share classrooms with one another, classrooms were seen as shared spaces. One retained teacher told us the story of his first day at GCTS. He explained it was still technically the summer, and students had not yet reported to the school building.

> I walked in, the head of our department, he had a whole lab kit for a course I was going to teach, and it was an entire wall of a classroom, and he flat out said, "Even though this isn't your room, you can have this room any day you want; everything on this wall is also yours." He showed me how to use everything, dropped off a whole stack of books that can go with it, extra student workbooks, CDs, to take the digital copies home to look through everything. It doesn't matter that it was ordered for his class, it's your class too. And that was just the first 15 minutes of working with these people.

This sense of community was felt beyond the science department. One of the science teachers explained that due to the school's program design, as a comprehensive technical school, students spend the majority of their high school careers with the technical teacher in their area of interest. It is clear that students attend GCTS because they have a strong affinity for their future technical careers. This passion for their technical field, paired with the amount of time they spend in their technical classes, inevitably leads to the development of strong bonds with their technical teachers. Academic teachers might possibly see this as a disadvantage, however teachers at Granite have discovered that they can reach out to their students' technical teachers for help and support. By bridging the potential divide between the technical and academic areas of the school, teachers from the academic and technical sides have developed strong feelings of collegiality and community with each other.

[3] Teachers Pay Teachers (https://www.teacherspayteachers.com) is a website created in 2006 where teachers may sell or purchase original self-created instructional materials.

Teachers had several different explanations for the sense of camaraderie they have established in their department. One of the retained teachers was also a longtime union officer, and informed us that, "The union's solidarity and strength has allowed us to push back at any time that administration may not have been listening to us." Although union/management relations can be contentious in some school districts, it appeared that at GCTS, this relationship provided a pathway to "open dialogue between staff and administration" resulting in "strong mutual respect." Another teacher felt it may have resulted from many of teachers coming from previous careers in science and industry. They explained that in such jobs, individuals are accustomed to working together. Another teacher suggested that because the science subjects are often more difficult to teach, there is a stronger need to be cooperative with each other. One teacher related the culture at Granite County to that of a "small private college," where they could walk into the administrative offices, including that of the superintendent. He explained that since everyone is in the same building, as opposed to a larger district, it feels more like "family."

This sense of community extends to the student body, evidenced by the number of alumni now employed at Granite County Technical School, as well as to the larger community. Not only does the school offer adult education programs to individuals in the community, but as a part of the technical nature of the school, students have the opportunity to work in their future field as high school students. In order to provide internships for students, GCTS has developed relationships with many local businesses. This aspect of the school adds an additional layer to the community feeling/relationships that may exist in other small districts. As one teacher noted, "Not only will you have students who are the children of students you have taught in the past, but you may also have students working in one of the local businesses that you frequent." It appeared that this extra layer of community attachment contributed to the close-knit feeling both teachers and administrators felt working at GCTS. One teacher explained this network in the local community as a "lineage." Teachers expressed that although the school as a whole was a community, the science department was its own smaller community within it.

Factor #2: Strong teacher relationships within the original academic hire cohort

The cohort of teachers that were hired in 2000, which one teacher referred to as "the original crew," bonded together over numerous shared struggles in the early years, and many of these individuals are still teaching at GCTS today. "We were all in the same boat," one teacher explained. For this group of science teachers, their unique shared experiences and cohort-like characteristics were of such significant importance to their retention, we felt compelled to describe them as a discrete factor.

Prior to 2000, Granite County Technical School served the surrounding districts for several years as a part-time vocational school, and students also attended local area comprehensive schools for their traditional academic subjects. When the school was restructured to include a comprehensive education, GCTS needed to hire certified teachers for the main subject areas. "They hired a boatload of these teachers and they were young kids. They were in their 20s," the GCTS principal noted. We selected to visit GCTS for its ability to retain all science teachers hired within our study period of 2007 to 2017, however our interviews revealed that for this cohort of teachers, being hired during this pivotal time in the school's history was related to high levels of teacher retention at the school.

Teachers from this group explained that at this time the school had no set curriculum for the academic teachers. Although these circumstances made for a difficult and trying experience for new teachers, it also afforded them the opportunity to work with and grow with one another,

as well as with technical staff already working at Granite. One retained teacher expressed it in this way:

> So, people weren't set in stone in their ways, everyone was willing to try new things; it wasn't like you were the only new person. New stuff was going on everywhere, so you didn't feel alone or isolated and when you needed something everyone gave their stuff up. They weren't trying to keep things secret. . . It was really no struggle to build up your ability, your skill, your experience, everything was there as a community to help you. Even my first year, if lights were going out in the middle of class, Tech teachers would walk in and start repairing things to help you out. They would be fixing your room faster than maintenance could. Everyone was there to help you, it's that community feel.

One experienced teacher spoke to us about the collective ethos that developed over the years in the department, stemming from the "early days," where they needed to count on one another. She explained:

> If we didn't all kind of help each other, we would have just drowned. It was that community idea; no man is an island—it really made a difference. You didn't feel like you were just kind of left out there. It was important then as we moved along as a department.

Over the past 20 years, the science department has managed to maintain this communal philosophy, and the teachers who were hired more recently expressed feelings of being welcomed in. One example they shared with our team regarded the way the schedule was divided each year. In many schools, teachers are not given a say about who will be teaching which classes. Often, schedules are dependent on the level of seniority and teaching experience. However, at GCTS, the science department teachers explained that they come together to determine what would be best for everyone, thinking about not only their area of certification, but also "the load that you're going to have to carry and how do we make sure that we kind of give everybody an opportunity to not be buried." One teacher described the process:

> A new teacher gets hired and they're the last one in, so they get this God-awful schedule. So then, as a group, we would talk to each other and say "Okay, can we make some changes within our own schedule, so that the new teacher is not drowning in their first year?" And it's that sense of, again, we're community and then, you know, hey - here's a couple of lessons that I put together that worked out really well.

Factor #3: Teacher autonomy, creativity, and support

One experienced teacher in the 2000 cohort reported that though her early years at GCTS were difficult, she would "rather have had the complete chaos we had and be able to grow through that than, you know, be a soldier following along and having no autonomy and having no control over anything. I will take that option any day." This sentiment echoed the interrelationship of community with the sense of autonomy felt by teachers at GCTS, which many cited as a reason for the high teacher retention rate at the school.

Teachers at GCTS reported feeling that they had high levels of autonomy, especially compared with their colleagues in other schools. Examples they shared included having the ability to modify curriculum, choose classroom activities, and the ability to make day-to-day decisions they deemed necessary within their classrooms without feeling pressure from the administration. GCTS teachers were not required to submit weekly lesson plans, which they interpreted as a measure of confidence in their professionalism.

One teacher described this situation in the following way, "We obviously have to teach to the Pennsylvania state science standards, but we have a lot of freedom. Like, there's no micromanaging over what you want to teach as long as people know that you're teaching to the standards." One teacher explained that having professional autonomy was, "the number one reason why I like working here and haven't looked anywhere else." Similarly, an administrator highlighted this autonomy as a specific reason for why teachers choose to stay:

> They have free will. When I've gone to observe different schools, [I've seen] colleagues micromanage a lot of the curriculum. I don't think we do that…I know we don't do that at all, so I think they have free reign to pretty much teach what they do, as long as they get the big scope and scale sequence in there.

Among those we interviewed, teacher autonomy was closely linked to creativity, a quality that appeared to be highly valued at GCTS. The science teachers on the academic side of the building described their ability to be creative as something afforded to them by working in a school alongside technical teaching staff. One teacher explained this distinct relationship in the following way:

> I know, for me and some other people I've talked to, one thing we really enjoy is, I don't know if it's professional to say, but the fun factor. We actually have fun with what we're doing. We're doing labs, being able to dive-in, get interested, and even be able to cross with the tech shops. When you need something and it's not quite working or you need something new that you can't quite get your hands on, I send kids down to their tech program and they 3D print pieces for the lab. To see that excitement in them kind of causes excitement when they go, I'll be right back, I can take care of this, and they come back and you got something brand new to work with. A hot plate just broke and a kid took it down to their shop and came back with new resistors installed, everything was back up and running, and they were excited to help. They're not excited to do the worksheet that goes with it, but the fact that they were able to help in the activity in a different, unique way, it just makes them smile more when they're happy with it, and I feel happier with the activity. That just makes me happy at the end of the day.

Administrators were not only willing to provide teachers with the resources they needed, but they also were quick to find resolutions for teachers' concerns and valued teacher voices. One experienced teacher explained that he, "never had an issue where it wasn't resolved within one day. Within one day someone is getting back to you, even if they say we have to go talk to someone else and we'll get the answer tonight and it'll be in your email. You'll get a message, they're getting back to you, no one's making you wait."

Factor #4: Financial support

Teachers at Granite County Technical School expressed on multiple occasions that the salary and other resources were factors for remaining at their school. GCTS receives students from several districts in the county, and pays teachers roughly the average of the salaries of its sending districts. For many teachers, this fair salary combined with the level of autonomy and creativity, the opportunities for collaboration, and the overall culture of the school building beat out leaving the school for slightly more competitive pay elsewhere. One of the more novice science teachers explained to us that "the pay is fair" and leaving to go to a private school, where the salary would most likely decrease, was not an attractive option:

> I personally live in a quote "wealthier" district and my mom has always been like, "Why don't you look there?" And I just say, "You know what? I don't want to have to deal with those politics and our pay is almost as good, and I'd rather keep our platform that we have in this school than go to another school for just a little more money."

For this teacher, a slight increase in salary did not offset the cost of what she might be losing if she left GCTS. In addition to being satisfied with their salary, teachers at Granite County did not feel pressure to pay for materials "out of pocket." One teacher explained, "We really don't, like we get almost everything we want to order." The retained teacher who also serves as the department chair, and who is charged with ordering supplies, told us:

> I've never disapproved anyone. I never said, "No, we don't have money for this" or "No, you can't have that." So, I mean, that's a nice perk. Like pretty much everything you want to try, you know as long as you can prove that it's good for kids or it's going to help you, you know if you're teaching that, you can pretty much get it.

The principal shared with us that when he speaks with colleagues in other districts, they report struggling to even provide paper for their teachers, something he felt would be unheard of at GCTS. He told us that he has "never heard of an issue with that." He continued to explain that he believed the school's ability to provide their teachers with more than adequate supplies is a result of their relationship with the surrounding community. By maintaining a positive relationship and deep network with the local community as discussed previously, the school board is very supportive of the school's decisions. In addition to having a good relationship with the school board, the local community also shows up in support for school fundraisers, such as their annual car show and open house. This unique connection with the community contributes to not only the sense of family at the school, but also the ability to provide teachers with the resources they need to be successful in their classrooms. Teachers and administrators alike commented on there being sufficient supplies for teaching.

These resources and support extended to the adequacy of classroom space for teachers. The principal noted as a point of pride that despite the regular need to share laboratories, the school had "no teachers on a cart." He explained that during his first two years of teaching, he himself had to move his materials between rooms on a cart, and because it was an experience he did not recall fondly, he made it a point to ensure that no teachers in his school were put in that position.

Mentoring and Induction

For teachers at Granite County, the mentoring and induction program was a reflection of the community established within the school. They explained that the mentorship program, although established by the administration, was really a run by the teachers in the department. Teachers did express that having a former chemistry teacher for a principal helped in developing meaningful experiences for new science teachers.

One mentor teacher described different roles such as aligning his mentee's schedule with his and helping as much as he could with teaching materials, despite teaching different content areas. He went on to tell us that although he was the official mentor for a novice teacher:

> It really doesn't matter because we're still a community. So every environmental teacher is jumping on board to give them material and help them out. Just because someone's labeled your mentor doesn't mean they're the one who's going to be helping you out with every little bit because everyone else is still there for you. The label is just kind of a formality.

Another experienced teacher agreed. She said, "You can reach out to anybody within the department and there's going to be this sense of helping each other and community and whatnot." She explained that although the mentoring program was important, it was the "organic" informal mentorship that she felt impacted new teachers the most. She told us she believed that this type of mentorship was not guaranteed at all schools, and that it came "from within the department, within the people themselves."

Summary

For all teachers we interviewed at GCTS, the feeling of being a part of the community appeared to be the most important factor for remaining a teacher there. The more experienced teachers—especially those who arrived as a cohort when the school first established the academic component of the building—felt that their common struggles allowed them to forge the community they continue to be a part of today. They were also able to develop good relationships with the technical teachers who offer support and unique opportunities to bring creativity into their classroom teaching. For teachers who were not a part of that original crew but who came later (and who were in the time period of interest for our study), they were welcomed into a strong and collegial school community that had already been well-established.

In addition to this strong sense of community within the school building, the surrounding community also provided teachers with a sense of family and continued support. The relationships with the local community not only gave students and staff distinctive opportunities afforded by being a technical school, but also resulted in being provided the necessary resources for their classrooms and more than adequate salaries. Lastly, having a strong community at GCTS did not come at the expense of teacher autonomy. Teachers and administrators alike spoke to us about having the freedom and flexibility they needed to be successful in their individual classrooms, while at the same time collaborating with one another across the science department. We close this case with a quote from one of the retained teachers, which we feel succinctly captures the reasons why this school has continued to retain teachers in their science department. When asked for possible reasons for teacher retention, he replied:

I think it's a lot of the stuff that we spoke about: flexibility, freedom to teach the way that you want to teach, having a competitive salary, an adequate budget to spend on materials and consumables and lab equipment, and collegiality between the people we work with. I mean, everybody here is very supportive.
