

The Role of Kinship in the Retention of Science Teachers in Kingfisher School District

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Over the past two decades, there has been progress in understanding factors related to the attrition of science teachers from the workforce, with implications for science education policy and research (Ingersoll & May, 2012; Ingersoll & Perda, 2010) as well as research focused specifically on the mentoring and induction (Luft et al., 2011), little work has been done to highlight the factors for why teachers choose to remain in the field of teaching. In our research, we model the work of others in the field who have positioned their research from a positive perspective (Lawrence-Lightfoot & Davis, 1997)), focusing our research on why teachers choose to stay, rather than on the reasons they choose to leave. In this paper we examine this issue by focusing on teacher retention within a single school district, in order to better understand the factors that influence science teacher retention. The primary research question investigated in our study is: What factors influenced the high rate of retention of science teachers in this district from 2007-2017, and in what ways are those factors continuing to influence retention currently in their schools?

Theoretical Framework: The Theory of Teacher Embeddedness

To make sense of our data, we theorize teacher retention by using an adapted version of the framework of job embeddedness (Holtom et al., 2006; Kiazad et al., 2015; Mitchell et al., 2001), which we have borrowed from the field of applied psychology and economics, and which we have termed teacher embeddedness (Larkin et al., 2022). We believe our adaptation of the theory of job embeddedness, offers new insights on meaningful support for novice teachers and is consistent with our aim to focus on why teachers stay, rather than why they leave (Lee et al., 2004).

The main components of job embeddedness as originally described by Mitchell et al. (2001) are fit, links, and sacrifice, and are applied to two distinct domains: the organization and the community. In our teacher embeddedness framework, the organization refers to the workplace of the school and district itself, and community refers to the local area surrounding the school (Larkin et al., 2022). Within the original job embeddedness framework, the constructs of fit and links were defined in a positive sense, aligning with the goals of our research. However, the construct of sacrifice was presented from a negative perspective, oftentimes presented as a perceived loss. Therefore, in the teacher embeddedness framework, rather than using the term sacrifice, we use the term asset to describe those things which would be sacrificed if an educator voluntarily left a position (Larkin et al., 2022). By reframing job embeddedness as teacher embeddedness, we maintain certain elements of this earlier theory, while also focusing on the particular contexts of teachers in order to better understand the reasons for teacher retention.

Although the findings of this paper are not organized by the components of links, community, and assets, the framework of teacher embeddedness guided the construction of our interview questions and the approach to our analysis. In future work we intend to look across all district cases and apply the lens of teacher embeddedness in order to glean insight into field of science teacher retention, beyond what has already been presented in the literature thus far.

Design of the Study

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

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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 permits mapping the career trajectories of each individual science teacher for a more comprehensive picture of teacher retention, mobility, and attrition.

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. In addition to higher-than-average rates of retention, we 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 Noyce Scholarship recipients.² The district described here was one of those selected in the state of New Jersey.

Description of the Kingfisher School District

The Kingfisher School District is located within the inner coastal plain region of North Carolina, and has a number of small towns among its many farms and wetlands.³ Like many nonmetropolitan school districts in the state, Kingfisher schools are spread over a wide geographic area aligned with the boundaries of the county. The district has a significant Native American population, including at least one federally recognized tribe. The fact that many of the students, teachers, administrators, and support staff were of Native American descent was frequently referenced by those we met and interviewed in the course of our research there. We

² The Noyce Teacher Scholarship Program is a National Science Foundation program designed to meet the need for well-prepared STEM teachers in the United States. Therefore, the retention of Noyce Scholarship recipients in the teaching profession is of understandably high interest.

conducted interviews with teachers and administrators at two of the seven secondary public schools in the county, Kingfisher Central and Kingfisher South. Kingfisher Central, serving nearly 1600 students, reported student enrollment for the 2020-2021 school year as roughly 80% American Indian/Alaska Native, 10% Black, 4% Hispanic, 3% White, and less than 1% Asian. In contrast, Kingfisher South, serving almost half the population of Kingfisher Central, and with a designation of town-fringe, reported student enrollment for the 2020-2021 school year as nearly 40% Native Indian/Alaska Native, 30% Hispanic, 20% Black, 4% White, and less than 1% Asian. With 40% of students in the county from families living below the poverty line, both Kingfisher South and Kingfisher Central are classified as Title I schools.

The Kingfisher School District was initially identified for its higher-than-average retention rate of novice science teachers, as it was considered in the top 10% of districts for their retention rates in the state. The district retained 70% of its novice science teachers during our study period of 2007-2017 including a larger than average number of novice teachers of color.⁵ The research team interviewed 21 individuals in Kingfisher School District, including five novice and ten retained science teachers. Additionally, we conducted interviews with the head principal for Kingfisher Central as well as the science supervisor for the district.

The primary goal of the site visit was to better understand the factors that may have influenced teacher retention during the focus period of the study, as well as to also investigate current practices around the mentoring and induction of new science teachers. As a result of this site visit and subsequent data analysis, we posit three factors that likely influenced the high novice science teacher retention rate observed in Kingfisher School District. These are: 1) teaching as a good and available job, 2) the pull of home and the local community, and 3)

opportunities for professional growth and development. This section is followed by a brief description of current mentoring and induction efforts at Kingfisher School District.

Factor #1: Teaching as a good and available job.

The literature on teacher attrition is replete with stories of disillusionment leading to teachers leaving their positions or the profession altogether (e.g. Rinke, 2014; Santoro, 2018). What was notable about the teachers our team interviewed in Kingfisher was that nearly all described their reasons for staying in the profession as being the same as the reasons that they initially entered. In our Kingfisher interviews, conducted in the spring of 2022, we encountered little to no sense of disillusionment, and this conveyed the impression that the teachers had possessed a realistic awareness of the work of teaching from the start of their careers. This perspective was most evident when teachers discussed their path into teaching from another career, and many highlighted the fact that a teaching career was an available option to them because of their prior work and education.

Most of the science teachers we interviewed in Kingfisher had obtained degrees in science or science-adjacent fields and only later made the decision to pursue teaching by entering the profession through North Carolina's "lateral entry" pathway into teaching. One of the lead science teachers at Kingfisher Central High School highlighted this fact for us, "I think right now we only have three [science teachers] who are not lateral entry." Most of the Kingfisher science teachers in this second-career category noted they happened to have enough credits to apply for a science teacher certification because their original career goals required the majority of their coursework to be in the sciences. One teacher told us, "I knew I wanted to teach, but at the time when I was in college, I was unsure about what I wanted to teach. I was qualified for science, so I started lateral entry." A number of Kingfisher teachers reported that they did not originally

intend to enter teaching, but teaching was one of the few jobs available in the county for science majors. One of the retained teachers explained that local “job options are farming, retail, or teaching. [With] not a lot of job opportunities, teaching is a good option.” This was echoed by another retained teacher who said that the two biggest professional opportunities for individuals with a science degree in the area were in health fields and teaching. Another retained science teacher we interviewed had lived outside of the county for several years, and made the decision to return home due to a family member’s illness. Despite having no plans to teach, people in her life suggested she look into becoming a teacher. She resisted the idea initially—responding to the suggestion of teaching with, “It ain’t gonna happen!” Over time, teaching emerged as a reasonable option for her to pursue with her background in science, and she did so.

This pathway is similar to those in other states where teachers become certified while working as a teacher of record. North Carolina has recently renamed this pathway as the “Residency Licensure” program, though the term “lateral entry” was still in wide use. A few teachers shared that their main reason for going into—and remaining—in teaching was so they could also be coaches at their schools. One teacher explained their experience of becoming a science teacher in order to coach at Kingfisher South. “I ended up doing the science route and I had been trying to get to PE (physical education), but I got used to being in the science classroom.” Another teacher told us: The reason why I started teaching is because I actually started coaching here. “This is my fifth-year coaching and then there was a science position opening that came available and it kind of drove me into the classroom. So, I figured I’d have more availability as far as coaching and teaching at the same time.”

Despite having undergraduate degrees in fields outside of education, many of the lateral entry teachers have remained in their role as teachers, particularly in or near the schools they

attended in their youth. Some never left the area—while others made the decision to return home—and now saw teaching as a mechanism for giving back to the community in which they were raised. Why did I become a teacher? I wanted to give back to my community. I work at the same place I was born and raised; I mean in the same area. I had some really awesome teachers during my school years who really encouraged me and pushed me. And I wanted to do the same for students here in Kingfisher County. It's home to me. As will be discussed in the next section, many of the teachers had personal ties to the area. Here we highlight the pattern of these decisions to enter teaching being driven by teaching as a well-paying professional job that allowed them to stay in the area.

Teachers also described certain benefits of the teaching profession more broadly. One example that was given had to do with the way in which a teacher's schedule aligns with goals of raising a family. "It's easy to drop your kids off and come here to work." Other teachers expressed how the teacher schedule "provides time to raise a family." One teacher, in her second career, and having a child later in life, felt that teaching aligned well with the needs of being a parent, noting, "I would have the same schedule that he had." She contrasted it with working in a hospital, where she would most likely, "have to work weekends, holidays." Others teachers agreed that although teaching is not easy, the hours made the teaching profession worth it for them. "If I left teaching here, it would be for community college or university to increase salary, but who wants to work those hours?" Some teachers explained that although teacher pay was not necessarily good compared to jobs outside of Kingfisher County, or for the work they were required to do as teachers, "for this area, and since their job is only 10 months out of the year, it is hard to match the salary with another job."

In addition to salary, teachers valued the health insurance the job provided as well as the retirement benefits. These and the other features of teaching in Kingfisher described above attracted teachers into the profession in the first place, and continued to be good reasons to stay.

Factor #2: The pull of home and the local community

For the majority of the science teachers and administrators we interviewed in the Kingfisher school district, the choice to teach was often tied to decisions about where to live. In response to the question of why science teacher retention was so high in Kingfisher, one teacher responded, “Well, I mean...because everybody's also from here and then stays here.” Many of the teachers we interviewed were teaching in the very same schools they had attended as students. One of the novice teachers at Kingfisher Central, observed, “I think the outlier is not from here.” One retained teacher told us, “That's very important. Kingfisher County is where I was born and raised and I have no intention to ever leave them. So, going to another school district has never been an option for me or has never been a perceived thought. I like working here in my hometown.”

One teacher, who unlike many of her colleagues always knew she wanted to teach, described the pull to return home to become a teacher: I went to NC State, graduated from NC State in 1996. I'm originally from the county. Went off to school, came back, decided to give back because we are a rural county, we're highly poverty at risk county. I got a teaching fellow scholarship, and decided to come back to where I'm from. So, I stayed here I guess until, lived around here up until about four years ago. . . Probably half of the teachers, there's three or four on our hallway that I actually taught. So, I have a vested interest in this school and the kids. Others expressed the nature of the choice to teach locally in terms of a sense of responsibility to their community: I have nieces and nephews coming through, family members coming through,

church members' children coming through. So, it's just, I don't want to say I feel obligated, but I almost feel like I need to stay here for all these kids. It's also rewarding because a lot of our kids go to our local university and graduate and then they work in our community. This notion of teaching as a “familial duty” was more clearly stated by one of the novice teachers, who noted, “You want to take care of your parents, your siblings, you want to be a pillar in that sense, you have church connections.”

Being from the area also meant that individuals in the school had particularly close ties with their fellow teachers and staff in the building. It was common for individuals to identify their school community as “close-knit,” but that description falls short in describing the relationships we observed in Kingfisher. When someone in a Kingfisher school says their teaching community is like family, it is not always metaphorical. Many teachers are in fact related to the people they work with. Others are friends and neighbors who have known each other, and each other's families, for generations. An example of this generational presence within the school district occurred when one science teacher's father entered the library while the interview was taking place on the other side of the room:

Well, I do know a lot of people here, like my dad just walked in [nods head in direction of the door], he's been here 30 years. The head principal here, he taught me. He was actually a history teacher when I was in high school here, 2007 through 2011, and now he's the boss.

Although the teacher retention literature speaks to the phenomenon of teachers returning to teach in their hometowns (Reininger, 2012), in Kingfisher County, there seemed to be additional influences at play. The character of the district's Native American culture was often invoked as a reason for the closeness experienced by their school community:

Well, that has to do with who we are, our culture. First, foremost, who we are, what type of people we are. Most of the people around here, I don't know if you know it, but we're Native American, so that has a lot to do.

For this local Native community, the closeness and the familial ties described by the individuals in Kingfisher Central closely resembles the concept of “kinship,” often referred to by Native American cultures across the United States as well as by other Indigenous peoples outside of the U.S. Many Native cultures live within family networks that cannot be easily described through the western concept of the nuclear family unit (Miller, 2002). Such family networks serve several functions outside of child-rearing, including maintaining autonomy from colonial ways of living, and includes a sense of belonging with both the people and places from which they come. And yet, there is a long history of public schooling being used as a mechanism in destroying kinship systems among Native American communities (Deloria, 1988; Fear-Segal & Rose, 2016). Such efforts have served to privilege and reinforce “white male patriarchal kinship and family systems” (Killsback, 2019, p. 34). Pewewardy et al. (2018) note, “While there is no single epistemology connected across tribal nations, Indigenous education traditionally occurred holistically and in social settings that emphasized the individual’s responsibilities and contributions to the larger community” (p. 42). As we demonstrate below, these responsibilities and contributions were clearly evident in our visit to the Kingfisher School District, and it does appear that indigenous kinship systems are recognized—and even flourish—in schools there.

For example, the sense of kinship was exemplified when speaking with one of the science department chairs at Kingfisher Central:

You have to understand, everyone you've seen today, they've known each other or their family. The girl, the young lady next door, I taught her in school. But I have known her

since she was a little thing. I know her mother, she teaches English....Her sister works here in another department. Her sons come through here, know her family, even the principal. I knew him, I taught his son. So, you know everybody and it's just family and that means a lot. I think it means a lot that we know each other or we church together, or we ball together or we just hang out, or we have mutual friends, that just means a lot.

He then wove this idea of sustained individual relationships into a description of the community:

I knew my neighbors. Me and my neighbors were cousins. If we weren't cousins, the neighbors, we knew the neighbors because my grandparents knew their parents, their grandparents, you know what I'm saying? So it was that. We worked together. We farm, you got to realize that too. You won't have nobody old enough to talk about it but farming was a big thing around here and when I was younger. They farmed together during the summertime; they picked cucumbers during the summertime together. They did tobacco in the summertime together. That's how you get or foster the community aspect, how people... We just know each other. We relate, so that makes a difference. It makes a big difference.

It was impressed upon us by multiple interviewees that their Native American culture influences school dynamics as part of the broader community in which the school is situated. Our research team received multiple invitations to return later in the year for the local annual Pow-Wow. “You'll be able to see what I mean by what family is,” one teacher told us. “You'll see what family really does look like, what a community looks like.” It is this kinship that grounded the relationships individuals had with their coworkers and the support they received during their time as teachers in Kingfisher Central.

The science department chair recounted his first years at the school in this way: At the time when I started teaching, I knew basically the whole entire staff and they knew me, so it's not like I didn't know who they were and I didn't... and I knew I could approach them. He explained that he struggled a lot in his first five years of teaching, and often wanted to leave the profession. However, one of the reasons he attributed to his decision to remain teaching was his relationships with his coworkers. He continued by telling us, “The ladies that were here actually were former teachers of mine . . . So, when I come in, they gave me material. They gave me everything I really needed.” One of the novice teachers echoed this sentiment:

Graduating from here. I know like a good portion of the teachers out here. Some of them were my teachers when I was in school. So that's kind of nice. I have that comfort and that relationship already with them. . . And then that just kind of makes you feel like you're already home or part of the family. So, I think you have that sense of comfort. Another teacher at Kingfisher expressed the idea that because his coworkers were former teachers of his, “It made me more at ease with that person.” He told us that they would be able to joke about his years as a student while at the same time giving him a sense that he was now a colleague. “He didn't make me feel he's up here [hand up high], and I'm down here [hand lowered]. He didn't do that.” At Kingfisher South, one teacher noted a type of support that occurs because “it's just passed down from our generations, our family works here.” He continued by sharing:

A lot of my coworkers, we all... I don't know, it's like birds of a feather flock together. All of my guys that I grew up with, we all came back here and now we're all teaching, literally. I don't know, I can't speak for others... I just know personally that we stay

around here because we, of course, are going to have support, for two, we know people care about us, and then we can reach the kids because they know us personally.

Teachers in Kingfisher felt strongly that being from the community, and even more specifically, working at the school they graduated from allowed them to offer and receive more support from their colleagues. They also noted that it helped them deepen their relationships with students in their classrooms:

Well, I love the kids, of course, and once again, I'm from here. The kids, they know of me. A lot of kids know me, their parents went to school with me or was a little bit older than me, and so it's kind of easier because I can reach them and then I understand their background, the reason why they behave the way they do or the reasons for their actions.

Others broadened this belief by suggesting that being from the area allowed them to have stronger connections with one another. Teachers in Kingfisher felt connections helped foster a much deeper sense of care for the people they were working with, which led to higher rates of retention.

You work a little bit better and you work a little bit harder when you have ties to something. Whereas if you can cut something loose with the quickness, you're like, I don't care. I don't care I don't have any ties. When you don't have ties there. And see, we all are from here. We have ties here. For the overwhelming majority of teachers in this district, being in their home community was the driving factor for choosing to live and teach in Kingfisher County.

As one of the retained teachers in the district described succinctly, “It’s because we are from Kingfisher County and we see the need. We are just from this area.”

Factor #3: Opportunities for professional growth and development

When asked about professional development, almost every teacher we interviewed mentioned different opportunities that were available to them at the district or school level. One of the opportunities that stood out were district-funded retreats that took place during the time frame of our study's retention data (2007-2018) but are no longer offered. Teachers who had been in the district for ten years or more looked back on these retreats as highlights in their teaching careers. "We would actually go on retreats. We would have teacher retreats. And it's kind of like, it would just give us a boost." These retreats would take place over a weekend, at places such as Myrtle beach, where teachers would engage in professional development similar to what they would receive on a typical professional development day in their school building, "When we do our retreats, we caught up. We have fun. We are there to do our job and learn, but at the same token, we're there to learn from each other, and build relationships." Another teacher noted that the retreats "rejuvenated" teachers. Although the novice teachers we spoke with did not have the opportunity to attend these retreats, it was clear that it was foundational in supporting many of the retained teachers as well as giving them something to look forward to during the year.

Teachers also referenced opportunities that were specific to the science department. Many were focused on biology teachers, given that biology is a tested content area in the state of North Carolina. Other opportunities that were also mentioned were those used to meet the state's teaching license renewal requirements. One recent professional development that was not mandatory, but did count towards license renewal, took place in the summer of 2019 and was centered around the Next Generation Science Standards (Achieve Inc., 2013). One of the retained science teachers at Kingfisher Central told us that she "learned a lot about it and I brought that knowledge back."

Other science specific professional development came in the form of “teacher work days,” (i.e., in-service days), where students would stay home and teachers would take part in professional development. One teacher told us that these days would look differently over the years depending on the administration, and teachers would be encouraged to work collaboratively with their colleagues or be left to work individually. Teachers also mentioned that different science content areas had the opportunity to have day-long planning sessions. These sessions typically took place twice a year and occurred away from their buildings so that teachers would not be disturbed while they were working. One teacher described what occurred during these planning sessions:

We were told that the cancellation of the retreat was one of the many impacts of the COVID-19 pandemic. At this writing it is not clear whether the district will resume this practice. Gathered our supplies, our pacing guide, standards, all that. And we went to the middle school... We planned our semester. We planned all of our tests. We worked on lesson plans, a skeleton. Standards that we struggle with, our students struggle with, we focused on those, gathering resources. It was almost like a brainstorming.

Outside of district or school sponsored professional development, teachers reported being supported in attending a variety of outside opportunities. One retained teacher told us, “Our principal is really good about leading. If we want to go to a workshop, I mean, I’ve never known him to say no.” Examples of such professional development opportunities included the Bertino Forensics Summer Institute for teachers in New York, and the annual National Science Teachers Association (NSTA) conference. Registration, travel, and accommodation, were covered by the Kingfisher School Board. One teacher reported, “I’ve never been turned down for anything that

I've ever needed." Prior to the COVID-19 pandemic, many teachers took advantage of these types of professional development opportunities.

Another opportunity for professional development was through the local universities. One district administrator explained that they "have a good relationship" with one local university in particular." One teacher recalled a professional development session at the university that had been specifically devoted to the issue of teacher challenges over the course of a career, which he connected directly to his retention: "When I first started teaching. So again, maybe about let's say 2008, 2009. I had a PD that actually the university set up and we did it through them. It talked about the yo-yo effect of teachers, the highs and the lows:

The first five years you're going uphill, it's going to be a struggle. And then you hit year seven and you're sort of, kind of getting under grips on things. And then you might drop off. You might get a little complacent. So, you drop back down in the valley, but it's not as far down as you would have been in your first year. So, it showed the yo-yo effect and it even mentioned, after your 10 years, between your 10 and 13 years, that's when you become really begin establishing your teaching.

This affiliation with the local university was only one of a number of offerings for teachers through higher education institutions. Another teacher told us about training offered at North Carolina State University:

If you go through NC State, they have all kind of stuff for agricultural uses. There's all kind of things for professional development in your content area that's available. The school district had multiple relationships with this university. For example, high school students could also obtain college credits by taking courses there.

The district also partnered with the university for teacher certification, and the administrator noted that the schools receive “a lot of student teachers or students observing.”

One final professional opportunity for teachers was a joint program funded by grants and run by the local university in partnership with the local Native American tribe. “So, they have a lot of programs, ...and they push STEM. They have a lot of science camps during the summer and events during the year.” Teachers noted that the university “looks to our science teachers to run the camps.” These STEM camps provided students and teachers alike with the opportunity to travel to different out of state locations such as the Kennedy Space Center in Florida or to Washington, D.C.

Not only were teachers supported in their professional growth through different professional development opportunities, but it became apparent that the district also supported teachers in attaining advanced degrees. A large majority of the teachers we spoke with obtained their Master’s degree in education during their time in the district. This support for degree advancement suggests that district administration was in support of teachers furthering themselves professionally, and that doing so was a net benefit to the district.

Mentoring and Induction

In Kingfisher County, all new teachers, including those new to the district, are assigned a mentor teacher for three years, referred to as the Beginning Teacher (BT) program. Although this program has experienced changes during our study period, the district has consistently worked to provide beginning teachers (BTs) with support. Although some teachers referred to the support of their official mentor as meaningful to their continued retention, others felt that the informal mentorship they received from colleagues held greater value as one of their reasons to continue teaching in the district.

At the beginning of the time frame investigated by this study, new teachers were paired with one of only four mentors assigned by the district. These four district mentors provided the support to all new teachers in the district (referred to locally as “Beginner 1s” or “B-1s”), and were overseen by a district administrator. “They worked with the B-1s, 2s and 3s. And, of course, by the time you were a B-3, you didn't see that person very often.” According to one of the retained teachers, meetings with mentors were scheduled, and would typically take place every other week, with additional meetings in between if they felt they needed extra support. The retained teacher told us that for her, much of the mentorship centered around “classroom management,” where the mentor teacher would observe her in the classroom and provide feedback. For this teacher, her mentor was essential to her first-year retention. “Two things that helped me survive my first year. . . One was the mentor teacher.” She elaborated:

She had been in a classroom for a long time before becoming a mentor teacher. And she had such a presence and just really would sit down. She'd come before school started at eight o'clock and we'd go through and talk stuff. She was real good about if I had a question to help me work through some of those, for example, classroom management and give me ideas. I loved her to death.

In addition to individual mentorship, all new K-12 teachers, of all subjects, would meet once a month for new teacher training sessions where there would be “special speakers, or sometimes we role played stuff. Then they would have folks from the district itself there.” Currently, the mentor program for the secondary schools has transitioned to having individual, “on-site” mentors, who received a stipend of \$100 per month.¹⁰ This stipend is paid by the district. The Beginning Teacher (BT) Coordinator, who oversees the mentoring program in the district, explained that mentees are encouraged to meet with their mentor teachers weekly in their

first year, biweekly in their second year, and as needed in their third year. Mentors are informed of selection via email and prepared with district checklists to help structure meetings with their mentees. They are also encouraged to “do a walk through their classroom every week [and] look at their lesson plans every single week.” Additionally, mentors are required to complete two, 15-hour online modules as their mentor training at the beginning of the school year. Although mentors and mentees are typically paired by their content, science teachers may be paired with mentors from a different science discipline when it isn’t “feasible.”

In one of the Kingfisher schools we visited, those that teach the same discipline share a common planning period, which allows for meeting times to be more easily arranged. In the elementary and middle schools in the district, the district has maintained but modified the model of district level mentorship. Mentors are given the designation of academic coach, and no longer hold teaching positions in the district. According to the BT Coordinator, this is a model of mentorship she would like to see implemented at the secondary level. Currently, the BT Coordinator meets with all new teachers to tackle topics that teachers have reported on an initial survey that “they need help in,” one example being classroom management. These meetings take place after school for approximately two hours every quarter, with secondary teachers meeting on one day and the elementary and middle school teachers on another. One of the main purposes of these beginning teacher meetings is to address issues around the “monitoring tool,” used by Principals to evaluate teachers’ effectiveness. According to the BT Coordinator, teachers are required to conduct a self-assessment of their own teaching practices, followed by the development of a professional development plan. Prior to a summative evaluation by their principals, teachers also have at least one non-summative evaluation by their principal as well as a peer teacher.

In addition to the BT meetings, the BT Coordinator explained that she also holds a “summer boot camp.” This boot camp primarily functions to introduce novice teachers to district expectations, including the evaluation process, issues of licensure, and “the rules that we expect of them coming in.” Typically, supervisors from all content areas are in attendance as well as the district superintendent. Kingfisher teachers spoke about the formal mentoring and induction processes as factors they felt impacted their retention in Kingfisher County. However, many of the science teachers we spoke with highlighted experiences of informal mentorship they had received during their time in their schools.

One such example of informal mentorship came from one of the retained science teachers who had never been an official mentor, but felt as though they unofficially acted as one. “Our department's really...just close-knit.” This teacher described emulating the different support approaches that had been given by two informal mentors when he was a novice teacher. The mentoring he saw as important was, “simple stuff that kind of gets overlooked, like how to get supplies or what to do when you need to call out or take a sick day.”

Conclusion

In this case study, we found three primary factors that influenced the high rates of teacher retention in the Kingfisher School District. The first was that teaching was seen as both a good and available job for which the Kingfisher teachers were well-qualified. Second, having a career in their home community appeared to be important many teachers and administrators in Kingfisher. This was strongly related to teachers’ identification and sense of belonging with the local Native American tribe. There was ample evidence that teachers saw their work in schools as an extension of kinship and community ties, and that schooling in Kingfisher was not antithetical to sustaining indigenous culture, as might be the case in other public-school districts

with significant indigenous populations. Finally, teachers uniformly noted that that they were provided opportunities to grow and develop through professional development. Teachers directly referenced such opportunities as factors in which they believe teachers have decided to remain in the Kingfisher School District.

Scholarly Significance

A better understanding of the successful efforts to support and retain science teachers has the potential to significantly reduce science teacher turnover across the country, and ultimately provide higher quality science instruction to students in our nation's schools as the shortage of highly qualified science teachers is addressed. In particular, this study highlights the culturally relevant factors that may impact science teacher retention in schools with a largely Native population. According to a study conducted by The National Indian Education Association, the No Child Left Behind Act's focus on math, science, and reading has "pushed tribal languages and cultures out of schools" (Tippeconnic III & Fox, 2012). As non-indigenous researchers in the field of science education, we must continually assess our own understandings and policy implications for biases and perpetuations of damaging colonial practices, not only in matters of curriculum but also in the area of retaining science teachers.

References

- Achieve Inc. (2013). *Next generation science standards: For states, by states*. National Academies Press.
- Deloria, V. (1988). *Custer died for your sins: An Indian manifesto*. University of Oklahoma Press.
- Fear-Segal, J., & Rose, S. D. (2016). *Carlisle Indian Industrial School: Indigenous Histories, Memories, and Reclamations*. U of Nebraska Press.
- Holtom, B. C., Mitchell, T. R., & Lee, T. W. (2006). Increasing human and social capital by applying job embeddedness theory. *Organizational dynamics*, 35(4), 316-331.
<https://doi.org/10.1016/j.orgdyn.2006.08.007>

- Ingersoll, R. M., & May, H. (2012). The Magnitude, Destinations, and Determinants of Mathematics and Science Teacher Turnover. *Educational Evaluation and Policy Analysis*, 34(4), 435-464. <https://doi.org/10.3102/0162373712454326>
- Ingersoll, R. M., & Perda, D. (2010). Is the supply of mathematics and science teachers sufficient? *American Educational Research Journal*, 47(3), 563-594. <https://doi.org/10.3102/0002831210370711>
- Kiazad, K., Holtom, B. C., Hom, P. W., & Newman, A. (2015). Job embeddedness: a multifoci theoretical extension. *J Appl Psychol*, 100(3), 641-659. <https://doi.org/10.1037/a0038919>
- Killsback, L. K. (2019). A nation of families: traditional indigenous kinship, the foundation for Cheyenne sovereignty. *AlterNative*, 15(1), 34-43.
- Larkin, D. B., Patzelt, S. P., Ahmed, K. M., & Carletta, L. (2022). Making Sense of Science Teacher Retention: Teacher Embeddedness and its Implications for New Teacher Support In J. Carinci & L. Manier (Eds.), *Noyce Track 4 Research Results: Addressing Preparation, Effectiveness, and Retention of K-12 STEM Teachers in High-Need School Districts*. American Association for the Advancement of Science.
- Lawrence-Lightfoot, S., & Davis, J. H. (1997). *The Art and Science of Portraiture*. Jossey-Bass Publishers.
- Lee, T. W., Mitchell, T. R., Sablinski, C. J., Burton, J. P., & Holtom, B. C. (2004). The Effects of Job Embeddedness on Organizational Citizenship, Job Performance, Volitional Absences, and Voluntary Turnover. *Academy of Management Journal*, 47(5), 711-722. <https://doi.org/10.5465/20159613>
- Luft, J. A., Wong, S. S., & Semken, S. (2011). Rethinking Recruitment: The Comprehensive and Strategic Recruitment of Secondary Science Teachers [Article]. *Journal of Science Teacher Education*, 22(5), 459-474. <https://doi.org/10.1007/s10972-011-9243-2>
- Miller, J. (2002). Kinship, family kindreds, and community. In P. J. Deloria & N. Salisbury (Eds.), *A companion to American Indian history* (pp. 139-153). Blackwell Publishers Inc. .
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablinski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict teacher turnover *Giornale del Farmacista*, 44(6), 21-21.
- Pewewardy, C. D., Lees, A., & Clark-Shim, H. (2018). The transformational indigenous praxis model: Stages for developing critical consciousness in indigenous education. *Wicazo Sa Review*, 33(1), 38-69. <https://www.jstor.org/stable/10.5749/wicazosareview.33.1.0038>
- Reininger, M. (2012). Hometown disadvantage? It depends on where you're from: Teachers' location preferences and the implications for staffing schools. *Educational Evaluation and Policy Analysis*, 34(2), 127-145. <https://doi.org/10.3102/0162373711420864>
- Tippeconnic III, J. W., & Fox, M. J. T. (2012). American Indian tribal values: a critical consideration in the education of American Indians/Alaska Natives today. *International Journal of Qualitative Studies in Education*, 25(7), 841-853.