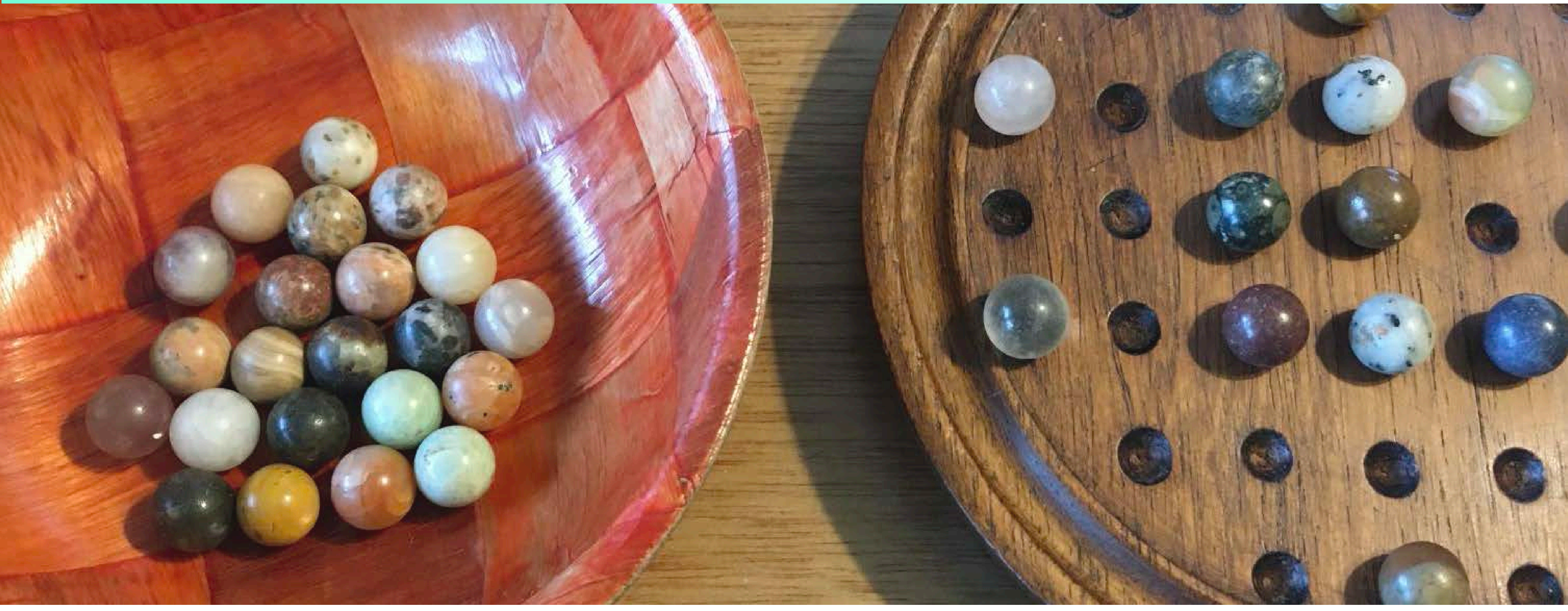
Why (Novice Science) Teachers Stay:

Findings from High-Retention School Districts



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MONTCLAIR STATE UNIVERSITY

Our Montclair State University IMPREST research team

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Research on teacher retention has often asked:

Does the first-year teacher stay to become a second-year teacher? and if not, why not?

In our study we asked:

What is *working* in efforts to retain <u>science</u> teachers?

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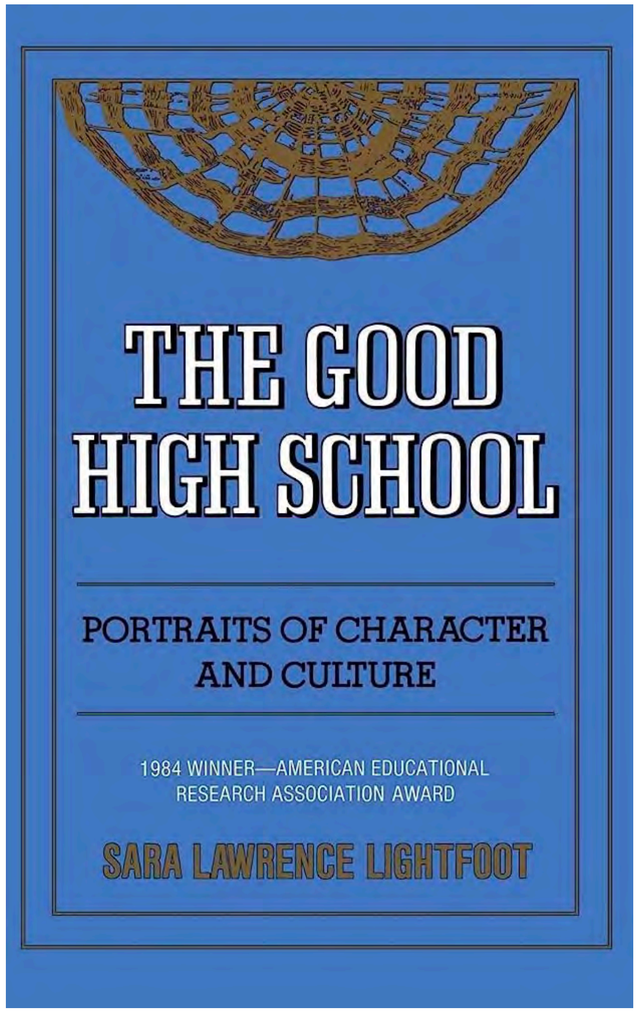
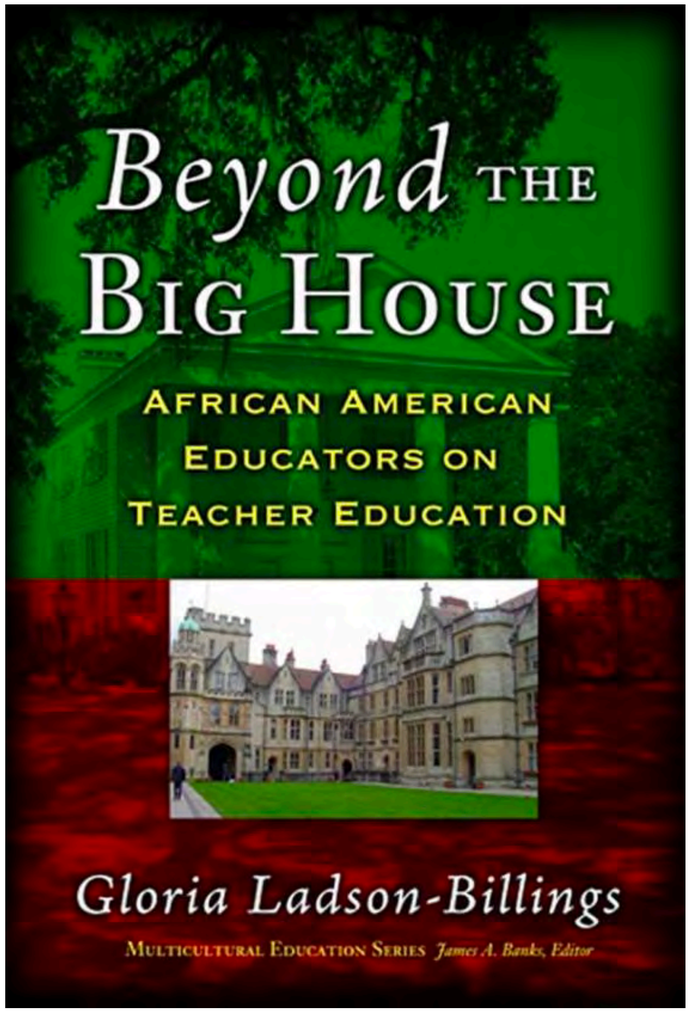
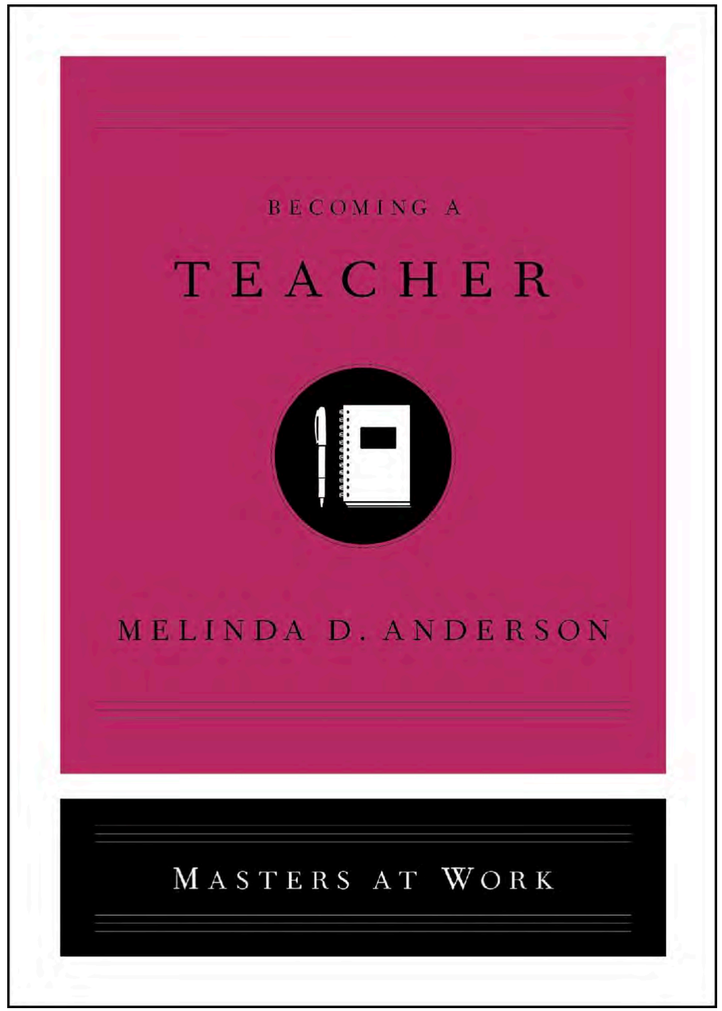
What is *working* in efforts to retain <u>science</u> teachers?

Understanding why teachers **stay** is more interesting to us than why teachers **leave**.



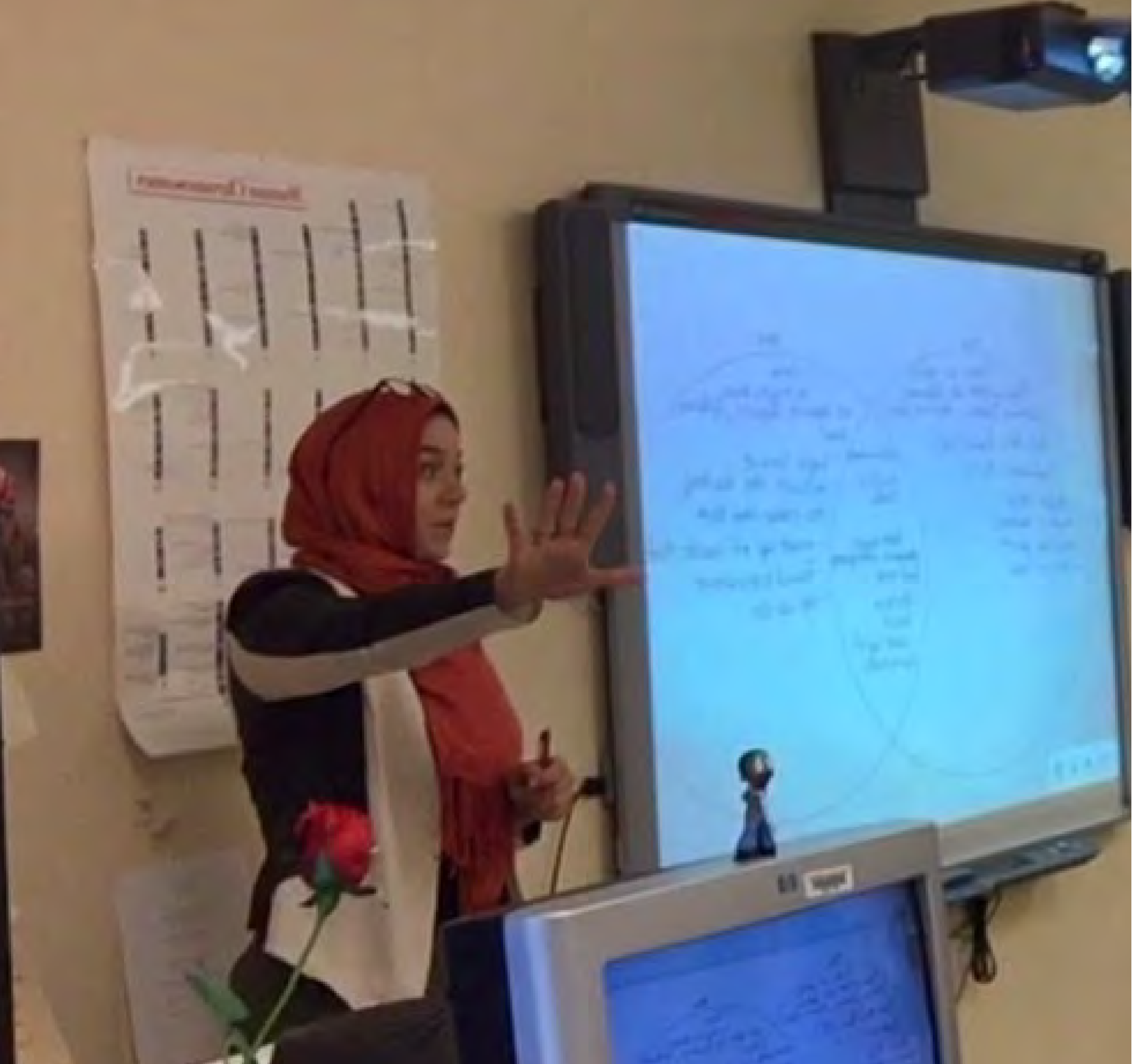




This project takes up the stance of education research as an inquiry into the “good,” rather than a chronicling of the pathological.

What we know

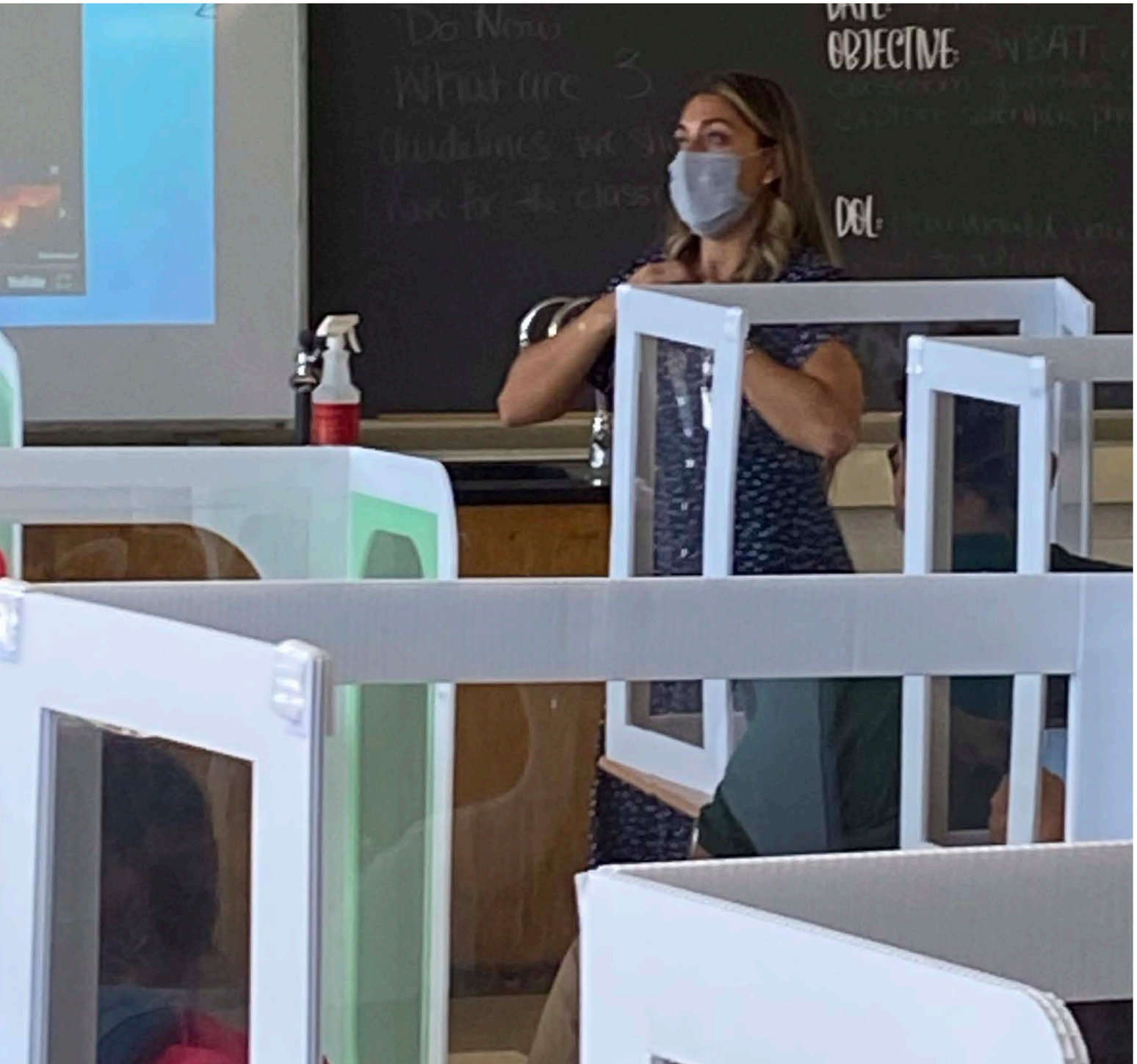
We know that retaining teachers is an important component of addressing teacher shortages (Ingersoll & Perda, 2010).



What we know

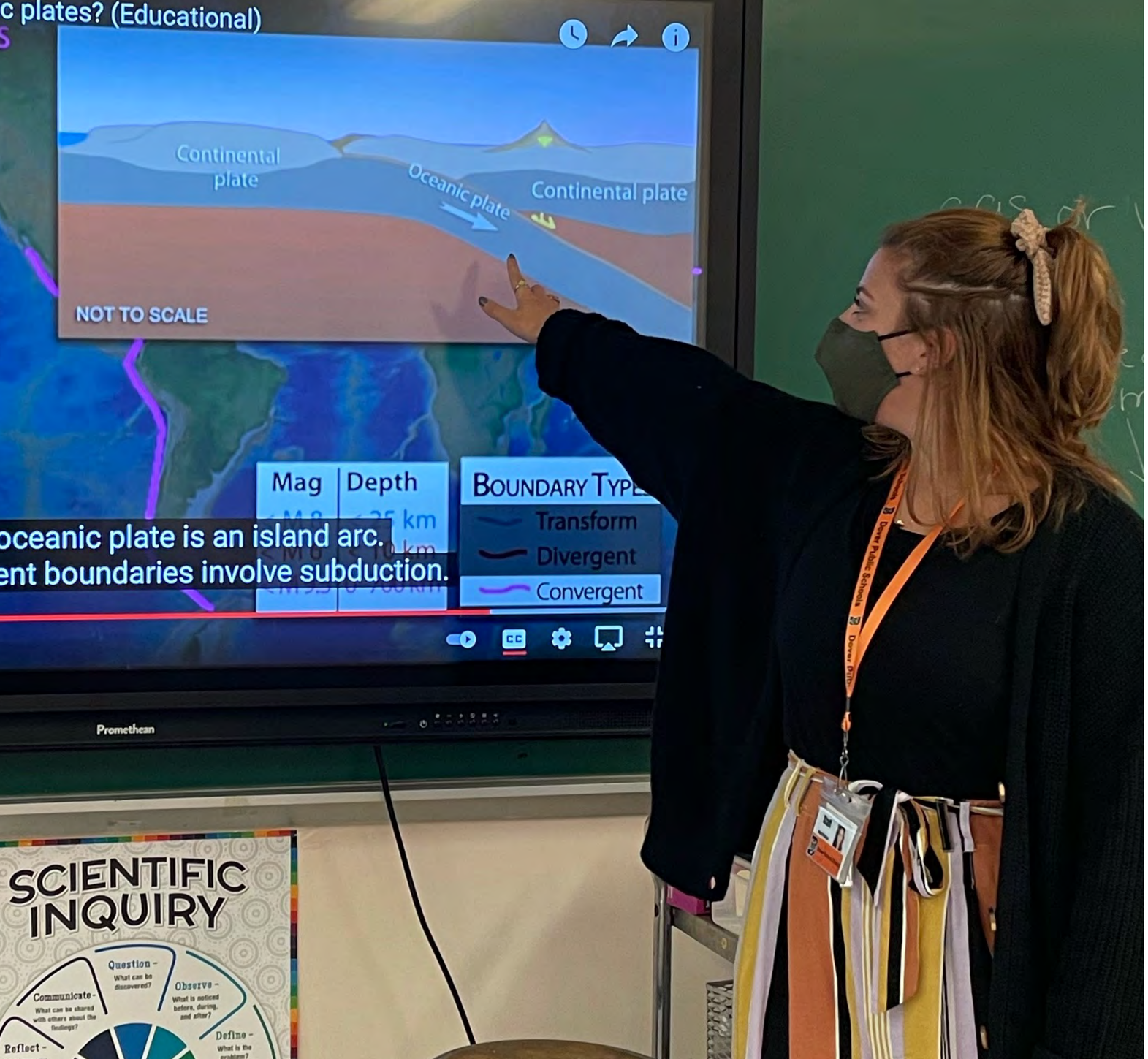
"Job satisfaction" is a catch-all term that has limited explanatory power, and thus is not particularly useful as a theory of worker retention.

(Holtom et al., 2006; Mitchell et al., 2001)



What we know

Making generalizations about teacher retention in the U.S. is a challenge because of the incredible range of policy differences across 50 states and contextual factors across the 18,000+ school districts.



What we know

School and district departments are under-studied in terms of the local knowledge generated there to solve complex problems.

(Sutton & Knuth, 2020)

Our Main Research Question

In districts that have demonstrated comparatively more successful novice science teacher retention, why is this so?

What are the factors that relate to such retention?

Induction and Mentoring Programs for the Retention of Science Teachers (IMPREST)

Project Aim: To describe what is being done in districts where novice science teachers are successfully being retained. We looked across a variety of contexts within 4 states (NJ, PA, WI, NC) with an emphasis on:

- Teachers in high-need schools
- Teachers of color
- Recipients of Noyce scholarships




	New Jersey	North Carolina	Pennsylvania	Wisconsin
Population	8.9 Million	10.4 Million	12.8 Million	5.8 Million
Number of Teachers in 2017	116,351	98,590	120,681	60,649
Number of secondary science teachers 2017	~7000	~8000	~9000	~5000
Total School districts/LEAs	562	121	500	420
Number of LEAs with at least one novice high school science teacher between 2007-2018	242 (43%)	85 (70%)	353 (70%)	182 (43%)

A	B	C	F	G	H	I	K	N	Q	R	T	U	Z	AF	A
LarkID	First year	Data Year	PublicID	Last Name	First Name	Middl	Gender	AnnualSalary	YearsInEd	YearsInLEA	AUN	LEAName	School	AssignCd	Assignment Descriptio
2009215	0	2014			STEVEN	F	M	$51,000	5	5	103029403	West Allegheny SD	West Allegheny SHS	8470	Physics, 10-12
2009216	1	2009			BUFFY		F	$88,030	1	1	112671303	Central York SD	Central York HS	8420	Chemistry
2009216	0	2010			BUFFY		F	$89,662	1	1	112671303	Central York SD	Central York HS	8420	Chemistry
2009216	0	2011			BUFFY		F	$93,209	1	1	112671303	Central York SD	Central York HS	8420	Chemistry
2009217	1	2009		A	TONYA	ROCH	M	$69,566	1	1	126515001	Philadelphia City SD	Edison HS/Fareira Skills	8420	Chemistry
2009218	1	2009		K	AILEEN		F	$45,176	1	1	122098202	Pennsbury SD	Pennsbury HS	8405	Biology
2009218	0	2012			Aileen	Marie	F	$44,137	1	1	122092102	Central Bucks SD	Central Bucks HS-East	8405	Biology
2009218	0	2013			Aileen	Marie	F		2	2		Central Bucks SD	Central Bucks HS-East	8405	Biology
2009218	0	2014			Aileen	Marie	F	$47,961	3	3	122092102	Central Bucks SD	Central Bucks HS-South	8405	Biology
2009218	0	2015			Aileen	Marie	F	$48,939	4	4	122092102	Central Bucks SD	Central Bucks HS-South	8405	Biology
2009218	0	2016			Aileen	Marie	F	$51,157	5	5	122092102	Central Bucks SD	Central Bucks HS-South	8405	Biology
2009220	1	2009			SCOTT	R	M	$36,102	1	1	112671803	Dover Area SD	Dover Area Intrmd Sch	8441	Earth and Space Scier
2009220	0	2010			SCOTT	R	M	$41,090	2	2	112671803	Dover Area SD	Dover Area Intrmd Sch	8441	Earth and Space Scier
2009220	0	2011			SCOTT	R	M	$45,042	3	3	112671803	Dover Area SD	Dover Area Intrmd Sch	8441	Earth and Space Scier
2009220	0	2012			SCOTT	R	M	$46,779	4	4	112671803	Dover Area SD	Dover Area Intrmd Sch	8441	Earth and Space Scier
2009221	1	2009		o	Toni Ann		F	$39,805	1	1	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009221	0	2010		o	Toni Ann		F	$42,218	2	2	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009221	0	2011		o	Toni Ann		F	$44,562	3	3	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009221	0	2012		o	Toni Ann		F	$47,014	4	4	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009221	0	2013		o	Toni Ann		F	$49,139	5	5	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009221	0	2014		o	Toni Ann		F	$52,874	6	6	119648303	Wallenpaupack Area SD	Wallenpaupack Area HS	8420	Chemistry
2009222	1	2009			JOHN	D	M	$35,236	1	1	101638803	Washington SD	Washington HS	8420	Chemistry
2009222	0	2010			JOHN	D	M	$37,143	2	2	101638803	Washington SD	Washington HS	8420	Chemistry
2009222	0	2011			JOHN	D	M	$39,760	2	2	101638803	Washington SD	Washington HS	8420	Chemistry
2009222	0	2012			JOHN	D	M	$40,410	4	4	101638803	Washington SD	Washington HS	8420	Chemistry
2009222	0	2013			JOHN	D	M	$41,960	5	5	101638803	Washington SD	Washington HS	8420	Chemistry
2009222	0	2014			JOHN	D	M	$42,100	6	1	101631703	Canon-McMillan SD	Canon-McMillan SHS	8420	Chemistry
2009223	1	2009			AMY	S	F	$41,688	1	1	104107903	Seneca Valley SD	Seneca Valley SHS	8420	Chemistry
2009223	0	2010			AMY	S	F	$44,255	2	2	104107903	Seneca Valley SD	Seneca Valley SHS	8420	Chemistry
2009223	0	2011			AMY	S	F	$46,807	3	3	104107903	Seneca Valley SD	Seneca Valley SHS	8420	Chemistry
2009223	0	2012			AMY	S	F	$49,491	4	4	104107903	Seneca Valley SD	Seneca Valley SHS	8420	Chemistry
2009223	0	2013			AMY	S	F	$52,087	5	5	104107903	Seneca Valley SD	Seneca Valley SHS	8420	Chemistry
2009223	0	2014			AMY	S	F	$54,737	5	5	104107903	Seneca Valley SD	Seneca Valley HS	8420	Chemistry

We used 11 years of state staffing data to identify districts that were doing an exemplary job in retaining science teachers. We then selected a subset of districts for further case study.

A	B	C	D	E	F	G	H	I	L
ID	District Name		Retention Index	Actual number of Retained Novice Science Teachers in 2007-2012 cohorts	% new science teachers retained	Equivalent retention of novice science teachers in a 6000 student district (NC avg=12,271, med = 5791)	Retained Teachers of Color (TOCs)	Total student population	Percentage of children from families below poverty line
[redacted]	[redacted]	1	5	7	91%	5	1	8119	22%
[redacted]	[redacted]	2	4	14	70%	4	8	21591	40%
[redacted]	[redacted]	3	3	28	52%	2	12	70775	24%
[redacted]	[redacted]	4	4	6	89%	16	0	2279	24%
[redacted]	[redacted]	5	4	7	64%	8	3	5544	35%
[redacted]	[redacted]	6	2	5	51%	2	1	12281	12%
[redacted]	[redacted]	7	3	5	61%	6	0	5493	37%
[redacted]	[redacted]	8	4	3	77%	10	0	1847	26%
[redacted]	[redacted]	9	4	6	68%	4	2	8614	26%
[redacted]	[redacted]	10	4	3	100%	2	1	7806	30%
[redacted]	[redacted]	11	2	10	69%	3	1	23551	19%

We used 11 years of state staffing data to identify districts that were doing an exemplary job in retaining science teachers. We then selected a subset of districts for further case study.

Case study research sites (n=13)

District	Description	Feature(s) of Interest	Approx. Enrollment	~% FRL	~% LEP
 **Aspen School District**	Regional secondary school district with 1 high school.	Very high teacher retention (pilot study district)	3,000	10%	2%
 **Birch Charter School**	Urban charter school affiliated with a local university.	Charter school with high teacher retention	500	75%	0%
 **Chestnut School District**	Large suburban district with 2 high schools. Non high-need LEA.	Very high teacher retention	11,000	20%	<5%
 **Hickory Island School District**	Small district with 1 high school, seasonal population.	Small district with high teacher retention	1,000	70%	20%
 **Mulberry School District**	Urban school district with 3 high schools High-need LEA.	Success in retaining teachers of color.	9,000	60%	5%
 **Granite County Technical School**	Regional vocational school with an academic program. Non high-need LEA.	Vocational school with high teacher retention	1,500	5%	<5%
 **Sandstone School District**	Regional suburban school district with 1 high school. High-need LEA.	Large English learner student population.	13,000	40%	15%
 **Wallago Area School District**	Rural regional school district with 1 high school.	Rural school	3,000	40%	5%
 **Rivuline Regional School District**	Very large urban district with 25+ high schools.	Very large urban school district	70,000	85%	10%
 **Pompano School District**	Large urban district with 5 high schools. High-need LEA.	Large urban district	16,000	66%	10%
 **Egret School District**	Large regional district with 15+ high schools. High-need LEA.	County-level school district	70,000	25%	5%
 **Linnet School District**	Medium-sized district with 2 high schools. Non high-need LEA.	Municipal-level school district	12,000	12%	<5%
 **Kingfisher School District**	Large regional district with 5+ high schools. High-need LEA.	Success in retaining teachers of color.	20,000	40%	<5%

Selected questions from the Retained Science Teacher Interview

3. You were asked to participate in this interview because you've taught in this district for 5 years or more. What are some of the most important factors that have contributed to your decision to remain in this district during this time?

Probe for the following if not mentioned:

- What makes you want to remain a teacher? *(benefits, schedule, calling, the students)*
- What makes you want to remain in this district? *(pay, tenure, community or staff commitment)*
- Are there any other reasons you've stayed in teaching that you think we should know?

11. We are here because your school/district was able to retain teachers well above the state average between 2007-2017, and we are interested in your thinking about this. What is your sense of the reasons why this might be?

Follow up if time permits:

- Sometimes teachers think about taking a position elsewhere or leaving the profession altogether. For a teacher in this district who might be considering such options, what do you think are the reasons to stay?
- For districts that are not as successful in retaining teachers, what suggestions do you have to improve the retention of science teachers?

Construction of the District Case Studies

- Interviews were transcribed and data was coded using NVIVO (and later Taguette)
- Themes were analyzed
- Case studies were discussed by the team and then written by one lead author with team editing/proofing.
- Drafts were shared with participants, and feedback was incorporated into the final draft.
- Final versions were posted on the IMPREST project website: www.montclair.edu/IMPREST

Teaching and Learning

- About the Department
- Academic Programs
- Faculty and Staff
- Frequently Asked Questions
- Clinic for Evidence-Based Practices in Schools
- Critical Urban Education (CUE) Speaker Series
- **Induction and Mentoring Programs for the Retention of Science Teachers (IMPREST)**
  - About Us
  - Project Summary
  - Resources for Participating Districts
  - **Publications and Presentations**
  - Frequently Asked Questions
  - Contact Us
- Reclaiming Me: Muslim Educators Research Collective
- Students
- Inclusive Education in Teaching and Learning

District Case Studies

- The Case of Aspen School District (#NJ-01)
- The Case of Birch Charter High School (#NJ-02)
- The Case of Chestnut School District (#NJ-03)
- The Case of Egret Public Schools (#NC-01)
- The Case of Granite County Technical School (#PA-01)
- The Case of Hickory Island School District (#NJ-04)
- The Case of Kingfisher School District (#NC-02)
- The Case of Linnet Public Schools (#NC-03)
- The Case of Mulberry School District (#NJ-05)
- The Case of Pompano Regional School District (#WI-03)
- The Case of Rivuline School District (#WI-02)
- The Case of Sandstone School District (#PA-02)
- The Case of Wallago School District (#WI-01)

The Framework of Teacher Embeddedness

(adapted from Holtom et al., 2006; Kiazad et al., 2015; Mitchell et al., 2001)

	Organization	Community
Fit		
Links		
Assets		

(Larkin et al, 2022)

What Factors Relate to Teacher Retention?

Results from the Cross-Case Analysis of the IMPREST project

What Factors Relate to Teacher Retention?

Results from the Cross-Case Analysis of the IMPREST project

1. Support from departmental colleagues
2. School/district-level systems and culture of support
3. Compensation
4. Teacher autonomy and agency
5. Specialness of place
6. Resources for teaching from school and community
7. Opportunity and agency for professional growth
8. District and school-level race-consciousness
9. Affordances related to school size
10. Personal satisfaction & rewards

1. Support from departmental colleagues

- Collaborative and supportive colleagues
- Identity as a department
- A collegial network of support
- A large department of “top notch” science professionals
- Caring colleagues
- Having strong relationships with and feeling supported by coworkers
- A close-knit science department

2. School/district-level systems & culture of support

- Systems for socializing new teachers into the school/department
- Shared materials for teaching
- Helpful induction programs that are more than “onboarding”
- Tangible socio-emotional support/feeling valued by school administration.
- Protecting new teachers in various ways, administration & teachers unions.
- Some districts showed evidence of a “culturally protected” environment for teachers and students of color

3. Compensation

(Note: There were significant differences in how compensation was determined across different state and district contexts)

- Salaries perceived as sufficient, keeping pace with cost of living
- In NJ, WI, and PA case study districts were perceived as higher than surrounding districts.
- NC Salary supplements and bonus opportunities.
- Stipends for being mentors to new teachers
- Pay for professional development
- One district–lower pay but well-resourced classes seen as tradeoff.

4. Teacher autonomy & agency

- Teachers did not feel micromanaged, had agency over their teaching
- Teachers with dedicated classrooms valued this highly as an essential part of their autonomy
- Flexibility in their teaching decisions
- Teachers felt that they had a “voice” in school decision-making; sometimes this included hiring new faculty
- Freedom to collaborate with other teachers as professionals.

5. Specialness of place

- Proshansky (1978) defines place-identity as: “those dimensions of self that define the individual's personal identity in relation to the physical environment by means of a complex pattern of conscious and unconscious ideas, feelings, values, goals, preferences, skills, and behavioral tendencies relevant to a specific environment,” (p. 155).
- Physical geography
- Home town or family/community networks
- District commitments (e.g. to equitable education)
- Community partners, university towns

6. Resources for teaching from school and community

- Having the necessary supplies to teach students without having to reach into their own pockets.
- Resources also came from partnerships with the community (e.g. businesses, higher education, families, former students)
- Substitute coverage to attend professional development
- Having adequate resources reduced stressors of teaching
- Included resources for students (e.g. counselors, social workers)
- Admin understood the unique needs of teaching science, and budgeted accordingly.

7. Opportunity and agency for professional growth

- Access and support for professional development, additional certifications, graduate study
- Science teachers had leadership roles in *providing* professional development in and beyond the school/district.
- Encouragement and opportunities for advancement along professional pathways.

8. District and school-level race-consciousness

- Policies and practices to support both students and teachers of color
- Intentional efforts to hire teachers and administrators who reflected the demographic profile of the student body
- Novice teachers of color appreciated being matched with experienced teachers of color as mentors
- In some schools/districts that were mostly White, teachers and admins recognized responsibility and importance of anti-racism efforts.

9. Affordances related to school size

- Smaller schools emphasized “close-knit” nature of the staff and students, and lower teacher-to-student ratios.
- Larger schools noted that more colleagues meant a greater opportunity to find someone to connect with
- Larger districts offered opportunities to shift schools for a better fit without leaving one’s employer.

10. Personal satisfaction & rewards

- Satisfaction & self-efficacy from teaching specific populations of students:
  - Students in high-need schools
  - “Interesting” and “invested” students
- Giving back to home town / community
- Qualities inherent to the teaching profession as a stable and fulfilling vocation.

Factors Relating to Retention for Teachers of Color

Results from the Cross-Case Analysis of the IMPREST project

- The commitment of the district to the education of children of color was cited by participants as the most significant factor in retaining teachers of color.
- Supportive environment for teachers of color
- Ongoing active recruitment of teachers of color from other places
- Presence of administrators of color.
- Connection to home and family (e.g. as in Kingfisher)

The Role of Mentoring and Induction in Retention

Results from the Cross-Case Analysis of the IMPREST project

- State policy and guidance varied greatly, as did district adherence and practices
- Official mentors were typically selected to pair with a single novice teacher and compensated. Sometimes same subject area but often not.
- Some but not all districts had mentor training.
- In many (but not all) districts, onboarding was conceived as a separate process from induction and mentoring programs.
- There were a wide range of induction programs, including coaches beyond year 1.
- Though many people described mentors and induction programs as helpful, most teachers noted that it was the informal mentorship they received that influenced their decision to stay.

	Organization	Community
Fit		
Links		
Assets		

Teacher Embeddedness

What Factors Relate to Teacher Retention?

Results from the Cross-Case Analysis of the IMPREST project

★ 1. Support from departmental colleagues

★ 2. School/district-level systems and culture of support

3. Compensation

★ 4. Teacher autonomy and agency

5. Specialness of place

★ 6. Resources for teaching from school and community

★ 7. Opportunity and agency for professional growth

★ 8. District and school-level race-consciousness

9. Affordances related to school size

10. Personal satisfaction & rewards

★ Factors within the control of administrators and colleagues

Takeaway messages from the IMPREST project about retaining novice science teachers

- Colleagues are incredibly important – the whole science department serves to mentor to the novice teacher. Making structures where informal interactions and connection can occur is likely to strengthen links.
- Fit, especially for teachers of color, included a sense of belonging and safety signaled by the school, district, and community. Hometown teachers likely have a stronger sense of this fit before accepting a position.
- Mentoring and induction programs were valued by novice teachers, but were not really cited as reasons for why teachers stayed.
- Adequate compensation, access to resources, professional growth, and autonomy were all key features of the focus districts

Learn more by scanning this QR code to visit the IMPREST website publications page:

Or email me at Doug Larkin: larkind@montclair.edu

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