



National Council
on Teacher Quality

Clinical Practice Framework Research Rationale

March 2024

Produced in conjunction with NCTQ's [*Clinical Practice Framework: Six Focus Areas for Effective Student Teaching*](#) and [*Defining Types of Clinical Practice*](#)

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RESEARCH ON STUDENT TEACHING

Clinical practice, or student teaching, has long been considered the most impactful part of teacher preparation.¹ It is the best opportunity for aspiring teachers to put into action the skills, content, and theory they learned on a regular and sustained basis and to infuse those lessons into their instructional “muscle memory.” Teachers who complete a student teaching experience are also more likely to stay in the classroom than those who do not.²

The field has largely reached consensus that clinical practice matters (although some alternative route programs persist in sending teachers into the classroom with minimal clinical practice experience).³ Over the last few years, researchers have shown greater interest in exploring *how* to make that experience an effective one, and the field has yet to coalesce on how to design experiences that align with the research. In many ways, clinical practice has looked the same for decades. NCTQ’s review of teacher prep programs has found little evidence of change in key areas like required qualifications for cooperating teachers between its first analysis in 2013 and its most recent in 2020.⁴

This literature review, aligned to [NCTQ’s Clinical Practice Framework](#), explores various components of clinical practice and how they affect a range of outcomes, including aspiring teachers’ feelings of preparedness, their entry into teaching, their retention in the classroom, and perhaps most importantly, their effectiveness once they are running a classroom of their own. This review primarily relies on published, peer-reviewed research and working papers, but includes some work by prominent organizations and task forces in the field to supplement areas where research is scarce and to provide more insight into the views of the field.

AREA 1: STRONG DISTRICT-PREP PROGRAM PARTNERSHIPS

Governance structure

Clinical practice programs, by their nature, require some level of coordination between teacher prep programs and school districts.⁵ A more formal governance structure with clearly defined goals, roles, and responsibilities may both ease coordination and heighten outcomes. For example, while prep programs and districts may agree that cooperating teachers should be “effective instructors,” they may have different criteria for what that means or may rely on a measure like teacher evaluations in which often nearly every educator is identified as effective. This process can also ensure that prep programs and districts are aligned in terms of their goals, understanding of future hiring needs, and expected outcomes for student teachers. This process may also offer an opportunity for prep programs and school districts to ensure alignment in high-quality curricula and instructional methods used in the district so that student teaching reinforces research-aligned instruction and curricula that candidates learn about during preparation.⁶

There is little research defining the effective elements of a governance structure to facilitate clinical practice, so this section relies on findings from task forces comprising practitioners, experts, and leaders in the field that have explored the issue. The National Education Association (NEA), a national teachers’ union, and the National Council for Accreditation of Teacher Education (NCATE), a former professional accreditor of teacher preparation programs (which has since merged with another accreditor to form CAEP, the Council for the Accreditation of Educator Preparation) both published reports resulting from task forces that outline the following recommendations for these partnerships:

- Work together to either identify needs for candidates’ coursework or to co-design coursework.⁷
- Identify opportunities to share data to support placement identification and continuous improvement.⁸
- Establish criteria for selecting & screening candidates for program admission⁹ and completion.¹⁰
- Establish qualifications, criteria, and training protocols for cooperating teachers, as well as processes to give cooperating teachers feedback and to renew or dismiss them.¹¹
- Collaborate to identify placement sites, especially those that will create coherence between coursework and field experiences.¹²

- Consider structural changes like aligning the prep program schedule with K–12 school calendars.¹³

To help achieve these outcomes, the NCATE task force recommends state policies to incentivize partnerships (including financial incentives) and to remove inhibiting or regulatory barriers.¹⁴ This could include funding sources to reward districts that commit resources to clinical practice programs.

Key takeaway: While research is limited, experts suggest that a more formal governance structure with clearly defined goals may both ease coordination and heighten outcomes.

Shared and independent goals

Researchers speak to the closely related but distinct roles that prep programs and districts play in clinical practice placements and to the sometimes shared and sometimes competing goals they have in this process.¹⁵ For example, in this qualitative study of 15 teacher preparation programs and six schools in Washington State the researchers found that both the district and prep program likely want student-teaching placements to lead to hiring that candidate in the district, but districts may want to place student teachers with a cooperating teacher who they believe would benefit from more support, rather than with a highly effective teacher.

Further, a case study of Monmouth University Partnership details the establishment of primary goals for the partnership between the teacher prep program and six partner districts, including a “comprehensive mission” to increase student learning, as well as four additional goals (e.g., preparation of future educators, professional development). The case study also details the operational structure of the partnership: an articulation agreement, structure (e.g., establishment of advisory councils, a professional development school committee, and a steering committee), formal roles, and dedicated and shared resources.¹⁶ The case study does not include evidence of outcomes.

Key takeaway: While limited, research suggests that shared and separate goals clarify expectations and keep all parties engaged in the clinical practice system.

Frequent check-ins

Establishing clear goals and roles can also help both parties to the partnership provide regular feedback. Several case studies explore how prep programs embed within schools or work closely with schools,¹⁷ noting that through these partnerships, the schools feel more empowered to give feedback to the prep program.¹⁸ However, the case studies offer scant outcome data.

These check-ins should occur between the partners at a higher level (e.g., the person in the teacher prep program who oversees clinical practice meeting alongside the district

leader overseeing clinical practice), as well as between individual cooperating teachers and program supervisors. Education First, a national education strategy and policy organization, recommends identifying point people from both sides of the partnership and establishing frequent in-person meetings.¹⁹ One institution that examined its own clinical practice program learned from surveys that 82% of cooperating teachers “indicated that it was *very important* to confer with the supervisor about the candidates’ progress during weekly visits.”²⁰ This institution reports that part of the goal of these partnerships is to help program supervisors enhance their skills.

Key takeaway: Districts and prep programs need regular and frequent opportunities to share feedback with each other. Feedback can inform course support for student teachers (e.g., identifying weak points of content knowledge or forms of assessment with which candidates are unfamiliar that can be addressed in coursework), as well as inform additional guidance student teachers should receive from cooperating teachers, etc.

AREA 2: STUDENT TEACHER-COOPERATING TEACHER MATCHES

Instructionally effective cooperating teachers

Modeling effective instruction has long been one of the purposes of cooperating teachers.²¹ Cooperating teachers' own effectiveness matters more than any other aspect of clinical practice that researchers have examined.²² The research is less clear-cut on other cooperating teacher characteristics.

Novice teachers agree about the importance of cooperating teachers: in a survey of teachers after they completed their first semester as the teacher of record, the relationship they had with their mentor teacher was the aspect of preparation that most prepared them for their first semester of teaching.²³

Instructional effectiveness

Numerous studies found that student teachers whose cooperating teachers have higher value-added model (VAM) scores go on to be more effective.²⁴ One finds that novice teachers who were mentored by highly effective cooperating teachers were as effective as second-year teachers in English language arts (ELA) and third-year teachers in math.²⁵ Another study found a relationship between cooperating teachers' VAM scores and their student teachers' feeling of preparedness²⁶ while another did not.²⁷ One study found a slightly negative relationship between cooperating teachers' VAM scores and their student teachers' improvement during student teaching, but the researchers hypothesize that this may reflect that cooperating teachers with higher VAM scores are also harder graders.²⁸

Research also finds that student teachers whose cooperating teachers have higher observation ratings go on to be more effective.²⁹ One study found that every additional point of a cooperating teacher's observation rating (on a four-point scale) was associated with their student teacher earning higher observation ratings, equivalent to the difference between a first-year and a second- to fifth-year teacher.³⁰

Limiting the selection of cooperating teachers to those who are instructionally effective may benefit that teacher's students. One study found that while hosting a student teacher had no impact on student achievement during the host year, cooperating teachers' students showed greater achievement gains in the following years.³¹

Research also finds that as long as cooperating teachers are effective instructors, hosting student teachers does not hurt their evaluation ratings. A study out of Tennessee found

that cooperating teachers suffered no harm to their ratings or to their students' learning,³² while another study from Washington State found that, on average, only less effective teachers saw their evaluation ratings drop.³³

Notably, not all cooperating teachers *are* effective. A study in Washington State found that more than 40% of mentor teachers were considered ineffective or moderately ineffective based on mean value-added scores.³⁴

Other aspects of cooperating teacher quality may also make a difference.

- **Years of experience:** Research is mixed on whether more experience makes for more effective cooperating teachers. Four studies find some benefit to having more experienced cooperating teachers, although two of these studies include years of experience in a composite measure of cooperating teacher quality.³⁵ Benefits include increased improvement during student teaching, greater teacher effectiveness, and stronger feelings of preparedness for the candidate (which does not always correlate with being better prepared³⁶). One study found no relationship between the cooperating teacher's years of experience and the candidate's future effectiveness,³⁷ and another study found that cooperating teachers' years of experience predicted their student teachers' feelings of being prepared but not actually *being* better prepared (as measured by observation ratings).³⁸
- **Coaching and leadership ability:** In several studies, cooperating teachers' scores on coaching and leadership (from past evaluations or from their student teachers) are associated with their student teachers feeling better prepared³⁹ or having higher VAM scores.⁴⁰
- **National Board Certification:** One new study on cooperating teachers with National Board Certification finds that their student teachers are slightly more likely to be hired but are no more effective (and are slightly less effective in ELA).⁴¹ Another study found that mentor teachers' National Board Certification was unrelated to their student teachers' feelings of preparedness and negatively correlated with their student teachers' first-year observation ratings (though this study could not determine whether having a National Board teacher *caused* their student teachers to be less effective).⁴²

Key takeaways: The research is clear that cooperating teachers should be instructionally effective, based on clearly defined measures of the value they add to student learning and observation ratings. This evidence of effectiveness should be prioritized over other measures like years of experience and National Board Certification.

Teacher selection and recruitment process

While prep programs and districts have been recruiting cooperating teachers for decades, the process often relies on informal connections and may lack attention to or transparency about cooperating teacher quality.

A recent report explored how student teacher placements are made in Washington State.⁴³ The process typically follows five steps:

1. Prep programs conduct a needs assessment to determine how many placements they will need.
2. Prep programs contact school districts (or individual schools) to determine their capacity to host student teachers.
3. School districts (or individual schools) assess their capacity.
4. School districts (and schools) identify potential cooperating teachers. Principals are often consulted at this point, given their knowledge of teachers' workload and ability.
5. Teacher candidate, cooperating teacher, and principal meet.

In the fourth step, identifying cooperating teachers, many prep programs reported an "information asymmetry," sharing that they have little insight into how districts are selecting specific cooperating teachers.⁴⁴ Districts and school leaders reported varied approaches to this selection (sometimes choosing teachers with strong classroom management or evidence of effectiveness, other times choosing teachers who could benefit from added support or allowing teachers to volunteer).

Prep programs and districts also share that they are developing tools to facilitate this process, such as shared electronic spreadsheets and other documents.⁴⁵

Research suggests that a more systematic approach to selection would be beneficial. One experimental study found that providing lists to districts of teachers recommended to host student teachers based on their evaluation scores, value-added measures, and years of experience produced higher-quality placements.⁴⁶ Student teachers in those districts that received the lists of recommended teachers felt much better prepared to teach.

This study was replicated with another cohort of candidates in the same prep program, as well as with three new prep programs that varied in size and location.⁴⁷ In these replication studies, researchers found that student teachers in districts that received recommendation lists again reported feeling more prepared, they received higher clinical assessment scores (although similar rates of employment and observation ratings), and that once again, the instructional quality of the cooperating teachers was again higher when districts received the recommendation list. The study further found that districts

that had previously received lists of more effective cooperating teachers reverted to a “business as usual” approach in subsequent years, indicating that providing this list should be an annual activity.

However, several studies (in Tennessee,⁴⁸ Chicago,⁴⁹ and Washington State⁵⁰) find that cooperating teachers are, on average, more effective than non-cooperating teachers.

To make the work of cooperating teachers more feasible, an NCATE task force recommends providing teachers with time away from their standard classroom responsibilities to work with student teachers, as well as opportunities to “benefit from the expertise of literacy coaches, mentor and induction coaches, and clinical educators who have special expertise in working with teacher candidates.”⁵¹

Key takeaway: Information and collaboration are key to improving cooperating teacher selection. If a state or district can gather information about teachers based on established metrics of quality to identify potential cooperating teachers, that information can lead to selecting more effective cooperating teachers and may also show that there are more instructionally effective cooperating teachers available than was previously known.

Stipends for cooperating teachers

Being a cooperating teacher requires additional work and responsibility, and so it stands to reason that cooperating teachers should be compensated for that work. Additional compensation would serve as recognition of their time as well as an incentive for more teachers to take on this responsibility.

However, the limited available research shows that these stipends are quite low and have been for decades. One study makes the case that cooperating teachers should earn much more than their current stipends (average of \$232 in Washington State) based on the value they add, suggesting that because highly effective cooperating teachers raise first-year teachers’ effectiveness to be equivalent to a second- or third-year teacher, effective cooperating teachers should be paid anywhere from \$375 (representing the lower-end difference of additional pay that second-year teachers make compared to first-year teachers based on an analysis of four states’ salary schedules) to \$3,500 (representing how much more an average third-year teacher is paid compared to a first-year teacher in Washington State).⁵² A survey of 20 prep programs found that stipends ranged from \$0 to \$490, and these ranges haven’t increased since the 1950s.⁵³ Another study found that programs in a California Teacher Residency ranged from \$1,500 to \$5,500 and two-thirds of mentor teachers found these stipends to be sufficient.⁵⁴

A comparison of a study from 1968 with NCTQ's 2009 pilot test for student teaching found that while the field has moved toward longer student teaching, the average stipend paid to cooperating teachers had *declined* (from \$358 in 2009 dollars to \$250), and the number of visits from program supervisors has also decreased.⁵⁵

Key Takeaway: While little research has been done on stipends for cooperating teachers, that research consistently finds that stipends are quite low.

Stipends for student teachers

Research has long found that the process of becoming a teacher is costly,⁵⁶ both in terms of the money paid for tuition and the opportunity cost of being unable to work while student teaching. More than three in four people who trained to teach have student loan debt, and that rate is even higher for Black and Hispanic teachers and aspiring teachers.⁵⁷ Stipends could help mitigate the costs of student teaching, helping more candidates enter the profession—especially candidates of color.

Several organizations suggest innovative staffing models to pay student teachers for working part time. For example, Deans for Impact (an organization that supports teacher prep programs, schools and district partners, and policymakers in strengthening teacher preparation) and Branch Alliance for Educator Diversity (an organization focused on amplifying the contributions of minority-serving institutions in training effective and diverse educators) both suggest hiring teacher candidates to serve as tutors in advance of clinical practice or as part of a residency program.⁵⁸ Branch Alliance also suggests hiring residents to serve as substitute teachers or paraprofessionals, or to supervise parts of the school day like recess or lunch.

Key takeaway: Stipends for student teachers can make the student-teaching experience more feasible, especially for aspiring teachers of color.

Support for student teachers of color

Ample research has found that all students, and especially students of color, benefit from having teachers of color.⁵⁹ However, potential teachers of color are lost at all points along the teacher pipeline,⁶⁰ likely including student teaching. Several strategies can help aspiring teachers of color complete clinical practice and reach the classroom as teachers.

- **Place student teachers of color with teachers of color.** In a recent survey of teachers of color, this was a top non-pay-based hiring strategy for 24% of teachers of color.⁶¹
- **Prioritize placements for student teachers of color.** Some school districts reported that if prep programs have student teachers of color, they find a way to host them

in their district.⁶² A large share of aspiring teachers of color come from minority-serving institutions, so districts can also prioritize clinical placement partnerships with these institutions.⁶³

- **Attend to potential microaggressions in both prep programs and placement sites.** Several studies mention negative and sometimes race-based interactions that student teachers have with students or school teachers and staff, which can reduce their interest in becoming a teacher.⁶⁴ Prep programs and districts should be attentive to these issues and ensure that cooperating teachers and program supervisors are aware and supportive. For example, if a candidate requests a move to a different cooperating teacher, strongly consider supporting this move.⁶⁵
- **Districts and prep programs can collaborate to create a race-conscious support system for student teachers of color.**⁶⁶ For example, this could include establishing guidance for student teachers who face hostility in their placements (including possible outcomes associated with each action), as well as a process for student teachers to report racialized experiences (including prior to completing a cooperating teacher evaluation form at the end of the placement experience).⁶⁷
- **Offer financial support such as stipends, loan forgiveness, or paid positions like tutoring that can be done concurrently with student teaching.** Past research finds that people of color, and especially those who trained to be teachers, have more student loan debt than white college attendees.⁶⁸ In a survey of teachers of color about how best to bring more teachers of color into the field, expanding student loan forgiveness and scholarships was top of the list, supported by 58% of teachers of color.⁶⁹

Key takeaway: To support student teachers of color in entering the profession, prep programs, districts, and states should take multiple steps to create a more welcoming environment, put processes in place to address instances of bias when they occur, and offer financial opportunities to reduce the costs of becoming a teacher.

AREA 3: COOPERATING TEACHER AND PROGRAM SUPERVISOR TRAINING

Training for cooperating teachers and program supervisors on how to effectively mentor adults and give feedback

Research notes the value of facilitating regular information-sharing between cooperating teachers and program supervisors⁷⁰ and of clearly defining the roles and responsibilities for cooperating teachers.⁷¹

The field generally agrees that cooperating teachers and program supervisors play an important role in providing feedback and mentoring more generally.⁷² Giving feedback ideally follows a specific process, outlined as having three basic components: “(a) planning conference, (b) observation and data collection, and (c) feedback conference.”⁷³ In general, receiving feedback and coaching, especially on specific teaching behaviors, is associated with candidates feeling better prepared.⁷⁴

Mentoring, too, is a multi-faceted role. One analysis made the case that cooperating teachers play three roles: instructional coach, emotional support system, and socializing agent (helping aspiring teachers assimilate into the school culture).⁷⁵

A meta-analysis of 14 studies found that when pre-service teachers receive coaching, mentoring, and supervision, these interventions have a “significant and small overall effect” for student teachers’ instructional skills, a “non-significant small overall effect for planning skills,” and a “significant and small-to-medium overall effect for clarity of instruction.”⁷⁶

These roles often require a different skill set from teaching, and so it is quite likely that cooperating teachers and program supervisors will more effectively fulfill these roles if they receive training on how to do so.

Observations and mentoring by cooperating teachers:

A review of decades of research on cooperating teachers concluded that one of the primary roles for this position is to provide feedback to student teachers.⁷⁷ It stands to reason that feedback from cooperating teachers could be tremendously helpful, especially given the frequency with which cooperating teachers observe student teachers in action.

- **Observation frequency:** The research suggests that the frequency with which cooperating teachers provide feedback to student teachers varies widely. In one study, about half of the student teachers reported being observed and receiving feedback daily and a third reported feedback one to three times per week.⁷⁸ One study found that actual frequency of feedback reported by cooperating teachers did not predict feelings of preparedness, but that student teachers felt more prepared when they perceived that they received more frequent feedback and when that feedback included “domain specific instructional support.”⁷⁹
- **Quality of feedback:** Candidates report receiving feedback of varying quality: In one study of 35 student teachers, only 6% reported frequent high-quality feedback (defined as focusing on “specific aspects of teaching practices and prompted pedagogical reasoning rather than providing a simple solution to a problem”) and 77% reported medium-quality feedback (feedback that “mainly focused on teaching behaviors, generic teaching strategies, and classroom management”). A full 17% of candidates reported rarely receiving feedback.⁸⁰ A qualitative study with a small sample found that while cooperating teachers provided daily feedback in most cases, feedback sessions were brief (typically less than five minutes) and often did not occur until the end of the school day (rather than soon after the lesson, which is more likely to be effective⁸¹). Additionally, any written feedback was often in the form of thank you notes, notes on a lesson, or other haphazard forms rather than feedback following a rubric (like the one the program supervisor used), potentially because cooperating teachers “seemed wary of providing more formal, documented feedback.”⁸²
 - **Level of specificity:** Several studies found that feedback from cooperating teachers tended to be very specific and situation focused,⁸³ whereas feedback from supervisors (from the prep program) tended to be more general and “prompted reflection.” It seems that candidates want a mix of specific, objective, and directive feedback that also helps them understand the reasoning behind different teaching decisions (rather than just saying “Do this next time”).⁸⁴
 - **Content expertise:** Because cooperating teachers are likely to be experts in the subject they are teaching (relative to program supervisors, who may oversee student teachers across a range of grades and subjects), their feedback on content may be especially helpful. Several studies have found that feedback on math lessons from specialists was considered more helpful than feedback from non-specialists.⁸⁵
- **Effectiveness of training on providing feedback:** Several studies have found that mentor teachers receive little training on how to mentor and provide feedback to their student teachers effectively,⁸⁶ but training and guidance can help strengthen

the feedback that cooperating teachers provide. Training on how to supervise student teachers is associated with cooperating teachers providing more feedback, promoting “more positive and collaborative internships,” and developing better communication with student teachers compared with cooperating teachers who did not receive this training.⁸⁷ A qualitative study of a small group of cooperating teachers’ feedback concluded that cooperating teachers need training on understanding the clinical supervision model; how to gather and use objective data; how to share feedback, including role-playing pre- and post-observation conferences; and learning a variety of feedback processes.⁸⁸

However, research finds that training cooperating teachers improves their ability to provide effective feedback. A study of 29 student teachers found that training their cooperating teachers on a specific framework of essential teaching skills was associated with their student teachers improving more in several areas, including “communicating challenging learning expectations” and “teaching for student learning.”⁸⁹ A Dutch program learned that student teachers found the feedback from cooperating teachers who had gone through training to be more concrete, specific, and limited to a smaller number of issues.⁹⁰ A study in Tennessee found that when cooperating teachers went through professional development focused on how to coach and support their candidates, they provided more frequent coaching and they themselves became more effective, but student teachers did not feel greater satisfaction or preparedness.⁹¹ In another study, cooperating teachers from five institutions were offered training on content-focused coaching, and cooperating teachers who went through this training were more likely to have pre-lesson conferences with their student teachers and to address important issues like lesson content, lesson goals, and teaching strategies.⁹² Student teachers whose cooperating teachers had gone through this training also found the feedback process to be more collaborative and less directive. Further, cooperating teachers who received training are better able to support their student teachers with classroom management and lesson planning.⁹³

- **Even effective teachers need training on providing feedback:** A study of the effects of giving districts a list of more qualified cooperating teachers (based on criteria like evaluation scores) found that while these lists lead to the recruitment of more effective instructors, student teachers did not report any differences in the amount or quality of mentoring they received.⁹⁴ This finding further emphasizes that cooperating teachers need guidance on how to be an effective mentor even if they are effective teachers.

Observations by program supervisor:

Just as student teachers find feedback from cooperating teachers to be valuable, so too do they find feedback from their program supervisor to be important.⁹⁵

- **Observation frequency:** One study found that receiving at least five observations from their program supervisor was associated with student teachers' having better future outcomes with students (using value-added scores).⁹⁶ Another study found no relationship between the number of observations and student teacher outcomes, although the programs in this study required, on average, a *minimum* of four observations.⁹⁷
- **Level of specificity:** In contrast to cooperating teachers' feedback, university supervisor feedback tends to be more general, less subject-specific, and more reflective (and reflective feedback could not be linked to changes in instructional practice).⁹⁸ Ideally, student teachers seem to want both frequent and direct feedback with specific suggestions *and* questions that prompt reflection.⁹⁹
- **Need for training on providing feedback:** Program supervisors, too, would benefit from training on mentoring and providing feedback to student teachers. A study by a former instructor and administrator at one institution shared that at his institution, program supervisors were often doctoral students who are doing this work as a means of income, and who are committed to effectively supporting candidates but "are often not aware of what is known from research about how to support teacher learning and its transfer to the early years of teaching . . . and they do not necessarily think of themselves as teacher educators."¹⁰⁰ He notes that in other institutions, program supervisors may be recently retired teachers, or the work may be assigned to a "central administrative placement office" rather than being held within the teaching department.

Topics of feedback:

The type of feedback that cooperating teachers and university supervisors provide matters. One study found that candidates felt better prepared when they felt that their cooperating teachers provided stronger "domain-specific instructional support" (defined as "coaching support provided in specific instructional areas").¹⁰¹

- **Balance of positive and corrective feedback:** Some experimental studies find that feedback that is "positive, specific, and corrective" results in positive changes in teachers' behavior, and that feedback needs to be immediate.¹⁰² However, several studies found that feedback tends to be more focused on praise than corrective, growth-oriented feedback,¹⁰³ and one found that growth-feedback most often focused on classroom management (and very rarely on, for example, planning and preparation or instruction).¹⁰⁴
- **Feedback and practice cycle:** According to Deans for Impact's *Practice with Purpose*,¹⁰⁵ candidates need feedback that is immediate and focused on a specific

task or goal. Further, candidates need the opportunity to attempt a similar task again, adjusting for the feedback they received.¹⁰⁶ This feedback cycle works best when “all parties involved in a teacher-preparation program—including the cooperating teachers and teacher-educators—agree on common language and structure for feedback.”¹⁰⁷

- **Mix of feedback on instruction and managing behavior:** An analysis of the qualitative feedback provided by program supervisors to student teachers across three years of student teaching found that supervisors give feedback that could generally be grouped into two categories: instructional development (e.g., lesson cycle, lesson connections, lesson delivery, student comprehension) and monitoring student behavior (e.g., praise, transitions, attention, nonverbal techniques, verbal techniques).¹⁰⁸ Feedback on student comprehension and lesson delivery are the most common overall, while praise and maintaining student attention are most common among the behavior codes. The three feedback sub-areas most associated with observation scores were maintaining student attention, using nonverbal techniques, and lesson delivery, suggesting that program supervisors view these as most important for student teachers’ success. This study also found that supervisors placed a heavier emphasis on feedback on student attention and non-verbal techniques earlier in the placement, whereas later feedback focused more on instruction.

Key takeaway: Student teachers benefit from frequent feedback. Cooperating teachers and program supervisors need training on how to effectively provide that feedback, building their skills to deliver feedback on the right topics and at the right level of specificity to support candidates’ needs.

Calibrating on observation instrument

Training cooperating teachers and program supervisors on how to use an observation rubric can improve both the validity (how accurate the ratings are) and the reliability (how consistent the ratings are) of observations.

Past research has identified several ways in which observation ratings may not be valid or reliable:

- **Inflated ratings:** Research suggests that observers may be inclined to inflate observation ratings. One study looked at student teachers’ ratings on evaluation rubrics that mirrored those used to evaluate fully licensed teachers in the relevant states. At six weeks into student teaching, 11% of student teachers were being evaluated as “significantly above” expectations, and by the end of the experience (26 weeks), a quarter of student teachers were rated as significantly above

expectations.¹⁰⁹ Given that novice teachers are typically less effective than veteran teachers and improve substantially over time,¹¹⁰ this finding calls into question whether the evaluation ratings were accurate measures of student teachers' ability at the time. Similarly, a study of 42 principals' observation ratings of four videos of teacher teaching found overall agreement of 69%, but for the lowest-rated teacher, the study found agreement of only 52%.¹¹¹ The study concludes that observers may have a better understanding of what constitutes a stronger teacher than a weaker one. This finding is especially relevant for observers of student teachers who, by virtue of being new to the classroom, are likely to rate lower on the observation rubric.

- **Variance due to rater:** An analysis of student teacher observation ratings by program supervisors found that, "over 30% of the variance [in evaluation scores] is explained when controlling for the supervisor and observation time," suggesting that student teachers' ratings vary substantially based on who observes them and when they're observed.¹¹² Another study found that between 9% and 17% of the variation in student teachers' observation ratings could be attributed to the mentors with whom they work, rather than differences in the student teachers themselves.¹¹³
- **Variance due to student characteristics:** Research on observations of in-service teachers has found evidence that these ratings may be biased based on the incoming performance of students¹¹⁴ and students' race.¹¹⁵ Training and calibrating on observation ratings may help mitigate these biases.

Training and having multiple observers (e.g., both a cooperating teacher and a program supervisor) can mitigate these concerns.¹¹⁶

Accurate and realistic observation ratings are useful not only in providing feedback to student teachers, but also in identifying which teachers to hire. A study of student teachers in Chicago Public Schools found a positive relationship between mentor teachers' ratings of teachers when they were student teaching and of their first-year observation ratings (a 0.24 correlation), while there was no relationship between student teachers' ratings of their own preparedness and ratings of them as first-year teachers.¹¹⁷ However, there was no relationship between mentor teachers' ratings of student teachers and whether those student teachers were hired by the district, showing a missed opportunity to use this information.

Key takeaway: Observation ratings of student teachers may be inflated or may vary based on the rater or the characteristics of students in the classroom. Cooperating teachers and program supervisors need training to consistently and accurately rate

student teachers. This rating information can help student teachers improve and can inform future hiring decisions.

Clear expectations for program supervisors

The NCATE task force, representing practitioners and experts in the field, established that

“at a minimum, clinical faculty must be experienced and highly competent teachers, and also have the skills and knowledge to help others learn to be effective teachers. For example, a qualified clinical educator should know how adults learn, know mentoring strategies and how to use them, have a portfolio of assessment approaches, and a complement of personal skills for building trust, rapport, and communication with candidates.”¹¹⁸

This task force also asserts that program supervisors, or clinical educators, should be held accountable for their teacher candidates’ performance.¹¹⁹

Program supervisors should also be expected to conduct a minimum number of observations for each teacher candidate. Studies in New York City find that student teachers go on to be more effective if they received at least five observations,¹²⁰ and they view their field experience as more aligned with their preparation when they receive at least six observations.¹²¹

Key takeaway: While there is little research on program supervisor responsibilities beyond providing frequent observations with feedback, experts in the field agree that program supervisors need the knowledge and skills to support candidate improvement and be held accountable for their student teachers’ performance.

AREA 4: STUDENT TEACHER PLACEMENT SITES

Identification of placement sites, considering future hiring needs

When done intentionally, student teaching can be not only an important step in *preparing* new teachers, but also a pivotal part of the hiring process. While new teachers are likely to take their first job near their home, they're 10 times more likely to take a first job near where they student taught.¹²²

Hosting student teachers with an interest in hiring them may stave off potential teacher shortages. Districts that host more student teachers have fewer teachers with emergency credentials, in a study of Washington sState school districts.¹²³ This relationship held up even after controlling for geography, demographics, and the distance to the local teacher prep programs. While hosting student teachers does take some work for the district, it offers a huge potential upside to securing qualified teachers.¹²⁴

A study of clinical practice in Chicago Public Schools found that student teachers were more likely to be placed in higher-performing, wealthier schools that did not align with the schools where they were more likely to be hired.¹²⁵ This meant that lower-performing and lower-income schools were less likely to have the chance to vet and hire these student teachers, and student teachers missed an opportunity to “learn how to be successful teachers” in the types of schools in which they were more likely to get their first job. Notably, this study found no difference in novice teachers’ effectiveness based on whether they trained in a higher- or lower-performing school.

Another study found that teachers who completed student teaching in an urban school with a high proportion of students eligible for free or reduced-price lunch were almost 12 times more likely to be interested in teaching in high-poverty urban schools compared to their peers who student taught in a different setting—and this interest translated into higher rates of accepting a job in these settings and staying there for at least three years.¹²⁶

Key takeaway: Research suggests that student teaching can be an effective tool for hiring teachers into the schools and districts that need them most. If a school or district anticipates needing to hire teachers next year, they should make sure to host student teachers this year.

Alignment with future teaching position

It is not always a given that someone will student teach in the subject, grade, or even school level they intend to teach, but creating alignment yields benefits for aspiring

teachers and their future students. One study finds that candidates who student teach in the same subject that they are hired into have higher student achievement scores, and another finds that when candidates are endorsed in the same area as their cooperating teacher, they're more likely to get hired.¹²⁷ One study shows that student teaching in the same grade (or school level) as their first job is associated with teacher retention and higher VAM scores in math and reading.¹²⁸ A study of special education teachers found that they had lower attrition when they student taught in a classroom setting that aligned with their job placement setting. This is true when both settings are inclusive settings (where less than half of the class are students with disabilities) and when both are self-contained settings (where more than half the class are students with disabilities).¹²⁹

However, being hired into the same school where a teacher student taught has an unclear relationship with outcomes. Two studies find first-year teachers were slightly more effective when hired into the same school or district,¹³⁰ while one study found no effect on student achievement¹³¹ and another found no effect on retention.¹³²

Key takeaway: Student teaching in the same subject or grade where one is hired is associated with better outcomes.

School and class characteristics

Student teaching in a school that has a track record of raising student outcomes *may* lead to greater effectiveness for that student teacher. Several studies looked at the achievement or growth of schools in which candidates conducted student teaching. Two focused on North Carolina found positive associations: one found that student teaching in a school with a high VAM score was associated with greater VAM scores,¹³³ and another found that student teaching in a higher value-added school alongside a cooperating teacher with higher evaluation earnings was associated with the student teacher earning a higher score on a performance assessment.¹³⁴ Another found weak evidence that student teaching in a school with more low-performing students was associated with a higher VAM score.¹³⁵

Aspiring teachers also benefit from student teaching in a more diverse (based on students' race or socioeconomic status or proportion of English learners) school, based on their VAM scores,¹³⁶ their preferences for teaching underserved students,¹³⁷ and their feelings of preparedness.¹³⁸ Several other studies find benefits to student teaching in a school whose demographics match where they get their first job; benefits include higher effectiveness,¹³⁹ reduced attrition,¹⁴⁰ and preference to teach underserved students.¹⁴¹ One study found no relationship between demographics of the school and student teachers' later effectiveness or retention.¹⁴²

However, this alignment does not always happen. For example, while novice teachers are more likely to be hired into schools serving more students living in poverty, a study of student-teaching placements in Chicago found that student teachers were more likely to be placed in schools serving students from higher-income backgrounds and schools with fewer Black students.¹⁴³

Several studies find that student teaching in a school with a more positive school climate (based on measures like high staff retention, high levels of collaboration, and high student growth) were associated with increased effectiveness¹⁴⁴ and retention.¹⁴⁵

Key takeaway: Student teaching in a school with greater student growth, greater student diversity, and a positive school climate is typically associated with better outcomes.

Range of settings

Numerous studies have found that student teachers go on to be more effective when they student taught in schools that are demographically similar to their first teaching position. But while new teachers are more likely to work in schools serving more students of color and students living in poverty,¹⁴⁶ there is no guarantee that they will be hired in schools similar to where they student taught. Because new teachers could take their first job in any number of schools with various characteristics, including in some cases virtual settings,¹⁴⁷ they would benefit from student teaching in a range of different settings. Experts in the field agree: TeachPlus identifies offering multiple placements across a variety of learning environments to be a best practice.¹⁴⁸

Key takeaway: Student teaching in a range of settings increases the likelihood that candidates will have the opportunity to practice teaching in a setting that resembles their first teaching position.

AREA 5: STUDENT TEACHER SKILL DEVELOPMENT

Field experiences that increase in difficulty and specialization, culminating in full-time student teaching, and are accompanied by frequent feedback

Teaching is a complex job that requires practitioners to plan carefully for instruction well in advance and also to respond to students on the spot based on the needs of the moment. One oft-cited statistic is that teachers make upwards of 1,500 decisions a day.¹⁴⁹ Learning how to successfully plan ahead and respond in the moment requires that teachers have ample experiences that grow in difficulty until they mirror the real challenges of teaching.

Field experiences throughout teacher preparation are an opportunity to reinforce and practice lessons learned in coursework. A study of teachers in New York City examined whether different prep program courses required related field experiences, finding that simply adding more hours of fieldwork did not necessarily increase candidates' feelings that their coursework and fieldwork were in alignment, indicating that the quality of fieldwork matters too.¹⁵⁰

An NCATE task force exploring teacher prep asserted that these experiences should be embedded throughout the preparation program, including in coursework. They stated, "The core experience in teacher preparation is clinical practice. Content and pedagogy are woven around clinical experiences throughout preparation, in course work, in laboratory-based experiences, and in school-embedded practice."¹⁵¹

Teachers, too, argue for the importance of this increase in complexity. A report from TeachPlus authored by classroom teachers found clinical experiences should "move from simple to complex tasks" so student teachers "gradually acquire responsibility for teaching and learning."¹⁵²

Deans for Impact identifies five principles of deliberate practice that are relevant to preparing novice teachers:

1. Push beyond one's comfort zone.
2. Work toward well-defined, specific goals.
3. Focus intently on practice activities.
4. Receive and respond to high-quality feedback.
5. Develop a mental model of expertise.¹⁵³

Meeting these principles requires “improving a particular aspect of teaching rather than working toward broad, general improvement,” and working on goals that are “sequenced, starting with basic skills and progressing to more sophisticated ones.”¹⁵⁴

Engaging teacher candidates in field experiences prior to full-scale student teaching can be beneficial for everyone. Deans for Impact asserts that by allowing candidates to provide paid tutoring to students (one-on-one or in small groups), candidates would have the opportunity to connect what they learned in teacher prep to real classrooms, to confirm whether they want a career in the classroom, and to earn some money, therefore making teacher preparation more financially viable. Students and districts would benefit from having this source of tutors to support student learning.¹⁵⁵

Key takeaways: Experts in the field assert that aspiring teachers need ample time in the classroom to observe effective teachers at work, teach practice lessons aligned with their content coursework, and evaluate and give feedback on student work. Allowing student teachers to take on greater responsibility, working toward teaching full lessons and potentially for the entire school day, helps them to become more adept at the complexities of teaching.

Grade-level work and high-quality curricula

The curricula that a district uses matters a great deal. Higher-quality curricula increases student outcomes,¹⁵⁶ eases the burden on teachers so that they are not scrambling to find or create their own lessons,¹⁵⁷ and offers a cost-effective strategy for districts to improve student outcomes.¹⁵⁸ While districts and even schools within districts may use different curricula, many states are moving toward recommending or requiring a limited set of reviewed and vetted curricula, especially in core subjects like reading or ELA, in an effort to align instruction and curriculum with the research on effective teaching.¹⁵⁹

It stands to reason that teaching candidates how to use some of the curricula they are likely to encounter in the classroom would be beneficial—and research bears that out. A 2009 study of New York City teachers found that candidates’ introduction to the city’s math curriculum while in preparation was positively and significantly related to their value-added scores in math; the study found a similar relationship in ELA when limited to college-recommended teachers.¹⁶⁰

Further, research suggests that prep programs should make an effort to place student teachers in districts that are using methods (e.g., scientifically based reading instruction) that align with the research and with what student teachers have learned in preparation.¹⁶¹ Otherwise, “student teachers are likely to abandon evidence-based practices in favor of the cooperating teachers’ instructional practices regardless of instructional efficacy or student outcomes.”¹⁶² Moreover, teachers are *more likely* to use high-quality curricula and *less likely* to think that it’s too challenging for their students if

they've received professional learning on how to use the curricula, suggesting a role for prep programs to play in preparing candidates on partner districts' high-quality curricula.¹⁶³

Other studies have found that teachers often give students work that is too easy for their grade level¹⁶⁴ and that teachers are granting grades that seem higher than warranted given students' lower standardized test achievement.¹⁶⁵ Both easy assignments and easy grades deprive students of learning opportunities and feedback, whereas higher grading standards benefit students.¹⁶⁶ Preparing aspiring teachers to assign grade-level work is especially important because students of color and students living in poverty are, in general, less likely to be in classrooms with grade-appropriate assignments, compared with white and higher-income students.¹⁶⁷

Key takeaways: Clinical practice should familiarize candidates with both how to implement high-quality curricula as well as what grade-level assignments and student work should look like.

Frequent observations with strong observation instruments

A key component of clinical practice is not only practicing teaching but also receiving feedback to guide improvement. A 2009 study of New York City teachers found that teacher prep programs requiring program supervisors to observe student teachers at least five times during the semester was associated with student teachers going on to become more effective.¹⁶⁸

A survey from TeachPlus Colorado found that the majority of teachers surveyed (70%) reported they received frequent observation and feedback and felt better prepared as a result.

Receiving feedback on observation forms similar to those used by the district or state may help student teachers understand the expectations they will face as a teacher of record; this is a practice in use by some states and some teacher prep programs (and research studies).¹⁶⁹ One study found that when student teachers received feedback from cooperating teachers aligned with the district's observation rubric, they tended to have higher observation ratings their first year of teaching.¹⁷⁰

Student teachers may benefit from additional, more specific feedback on areas like content knowledge and instruction. For example, a study of feedback provided to elementary student teachers in prep programs housed in five large institutions found that in a third of instances, the feedback provided did not include any comments about mathematics, and when mathematics feedback was given, the focus and depth varied widely.¹⁷¹ In contrast, a different study found that when program supervisors were given a "field guide" for observing math lessons, their candidates scored much higher on

knowledge of numbers and operations.¹⁷² Another study found that providing student teachers with specific feedback about storybook reading was associated with improved lesson quality.¹⁷³ Providing more explicit guidance in the observation instrument about the topics of feedback can reduce variability in whether student teachers receive feedback specifically about how well they are teaching content.

Key Takeaway: Student teachers are more likely to be effective as new teachers when they receive at least five observations from their program supervisor. Regular observations with written feedback at regular intervals throughout the placement, from both the program supervisor and the cooperating teacher, give student teachers more opportunities to improve their teaching. Observation instruments can be designed to align with those in use in the state or district and can include content-specific areas on which student teachers need feedback.

Clearly defined learning outcomes for student teachers

Effective teachers need to be steeped in a wide range of knowledge, skills, and dispositions. Some of these are based in research and are consistent across settings (e.g., reading instruction), while others will be specific to the state or district in which the candidate student teaches (e.g., the state's standards for student learning or the district's curricula or behavior systems). Prep programs, states, and school districts should use this information to jointly determine the knowledge and skills candidates need to attain both in advance of and during clinical practice.

While a great deal of research indicates what some learning outcomes should be in certain areas (see, for example, the Practice Guides from What Works Clearinghouse), there is little research on the process to jointly define these outcomes for clinical practice. Some national organizations that work with teacher prep programs have focused on *coherence* between clinical practice and the teacher prep program. TPI-US, an organization that performs inspections of hundreds of teacher prep programs, identifies coherence and consistent expectations as both deeply important and difficult to achieve because of the various actors (e.g., program supervisors, cooperating teachers) and actions (e.g., training for cooperating teachers, feedback processes) involved. TPI-US defines consistency as, "the degree to which central ideas regarding teaching and learning are shared by all the individuals involved in educating teachers and the degree to which learning opportunities are organized both conceptually and logistically toward those goals."¹⁷⁴ Similarly, US Prep (The University-School Partnerships for the Renewal of Educator Preparation National Center, which provides technical assistance and services to university-based teacher preparation programs) identifies "integration of coursework and clinical experiences" as a key attribute associated with teacher effectiveness,¹⁷⁵ and TeachPlus identifies "concurrent coursework that complements clinical experience" as a best practice in student teaching.¹⁷⁶

This process of defining learning outcomes should take into account typical abilities of student teachers. Some research on student teachers has found that they tend to have some areas of strengths and some areas of weakness with regard to instructional decision-making. For example, a 2008 study of 150 student teachers counted among their strengths, “noting a specific difficulty with student learning and making an on-the-spot adjustment in their instruction.”¹⁷⁷ However, they struggled more with formative assessment strategies and making instructional changes based on the results (and explaining the rationale behind those changes), as well as teaching students to use “learning or cognitive strategies.” Identifying these weak points and addressing them in aligned coursework could help strengthen student teachers’ instruction.

While it seems likely that additional support through prep program coursework could help student teachers become more effective while student teaching, research on this seems too limited to draw any broad conclusions. Four different studies looked at four different approaches: a seminar during student teaching had no effect on achievement;¹⁷⁸ a weekly school-based seminar led by school personnel led to anecdotal positive experiences;¹⁷⁹ a listserv in which student teachers could ask questions, provide ideas, and offer each other encouragement produced a better understanding of topics to focus on in seminars;¹⁸⁰ and a lesson study program was associated with improved candidate efficacy and views of feedback quality.¹⁸¹

Key takeaways: Common practice and research suggests that prep programs, districts, and states should develop a coherent set of learning outcomes for student teachers and should reinforce them throughout the preparation experience.

For consideration: Length of placement

While the field has trended toward longer clinical practice placements, the research on the benefits of longer placements is inconclusive, finding some evidence of gains in teacher retention but little impact on effectiveness. Preparation programs have found success with a range of durations for their student-teaching placements. The duration of a student-teaching placement should be dictated by its ability to achieve hallmarks of quality, including (but not limited to) providing student teachers with an instructionally effective cooperating teacher, a range of placements in diverse schools with positive school climates, and frequent observations with feedback from the program supervisor

Research on the length of clinical practice placement finds:

- **Effectiveness:** Four studies found no relationship between length of clinical practice and measures of teacher outcomes like first-year observation ratings,¹⁸² ratings of classroom management,¹⁸³ or student achievement.¹⁸⁴

- **Feelings of preparedness:** Most studies found that more time spent in clinical practice was associated with greater feelings of preparedness,¹⁸⁵ while several found no difference in perceived preparedness based on the length of clinical practice.¹⁸⁶ One study found that the length of student teaching was unrelated to feelings of *preparedness* (based on questions about how prepared teacher candidates feel to do various instructional tasks), but that longer student teaching was associated with greater feelings of efficacy (based on questions about whether candidates feel that they are able to effectively address various instructional situations),¹⁸⁷ and one study found that candidates in a yearlong internship were more likely to perceive their time spent in schools as adequate compared to candidates who only did a semester internship.
- **Hiring into teaching positions:** A study of teacher preparation in Indiana found an unclear relationship between length of student teaching and whether candidates ever taught in the state’s public schools.¹⁸⁸ Completers from programs with both *low* (490 hours or less) clinical practice requirements and those with *high* (640 hours or more) requirements had similar rates of ever teaching (73%), while completers from programs with *medium* requirements had lower rates of teaching in the state (63%). This study also found no relationship between length of student teaching and teachers’ evaluation ratings in their first three years in the classroom.
- **Retention in the classroom:** Most but not all research finds a relationship between length of clinical practice and retention in the classroom. For example, one found that an additional week of student teaching increased the odds of staying in teaching by 5 to 10 percent, and more for science teachers and teachers in urban schools.¹⁸⁹ Another found that first-year teachers who had at least a semester (12 weeks) of student teaching were three times less likely to leave than those with no practice teaching, and they were somewhat less likely to leave than those with less than a semester of practice.¹⁹⁰ Another found that at least eight weeks of student teaching was associated with teachers being twice as likely to stay in the classroom compared with those with no practice teaching.¹⁹¹ On the other hand, one study found no relationship between length of student teaching and planned persistence in *teaching*, although it did find weak evidence of a relationship with planned persistence *in the district*.¹⁹² Another study found no relationship between length of student teaching and retention in teachers’ first school of employment.¹⁹³
- **Knowledge of schools:** There’s some limited evidence that candidates who spent more time in clinical practice have greater knowledge of their school,¹⁹⁴ greater content knowledge, and stronger “active-learning beliefs” than candidates who spent less time in clinical practice.¹⁹⁵

Key takeaway: The research on length of clinical practice suggests that a longer experience translates into better retention outcomes, but not greater effectiveness. The

length of the experience should be dictated by how much time programs need to provide student teachers with a high-quality experience with an instructionally effective cooperating teacher rather than making length the driving consideration.

AREA 6: DATA AND OUTCOMES

According to the NCATE task force, teacher candidates' progress and elements of preparation programs should be continuously judged on the basis of data (including student outcome data on assessments and structured observations by cooperating teachers and faculty).¹⁹⁶ Further, many states are implementing accountability systems that require prep programs to collect outcome data on their program completers, based in part on the theory that programs "can use pre-service teachers' [PSTs] data to provide more targeted support based on PSTs' needs, as well as adjust programmatic experiences."¹⁹⁷ Therefore, collecting outcome data can help inform decisions about individual candidates as well as drive a continuous improvement cycle for the clinical practice experience as a whole.

Feedback from student teachers

Student teachers can offer feedback that can inform many aspects of teacher preparation, including indicating areas in which they did or did not feel well prepared. Further, student teachers can provide valuable insights into the quality of their cooperating teachers; some prep programs report surveying candidates about their experiences to inform future placement decisions.¹⁹⁸ NCTQ's past analysis found that surveying candidates once they became teachers is a common practice: over 80% of programs do so.¹⁹⁹

Student teachers' *feelings* of preparedness are a common measure used in much of the research outlined above.²⁰⁰ However, this may not be a valid proxy for actual preparedness. One study of Chicago Public Schools found a scant relationship between student teachers' own feelings of preparedness and either their cooperating teachers' views on their preparedness or their observation ratings in their first year of teaching.²⁰¹

Key takeaway: Student teachers' feedback about their experience can be a valuable source of information for ongoing program improvement, but feelings of preparedness are not a strong indicator of student teachers being more prepared for the classroom.

Feedback from cooperating teachers and placement schools

Because cooperating teachers often observe student teachers on a daily basis,²⁰² they gain invaluable insight into the strengths and needs of individual student teachers. They can provide this data back to programs for consideration of whether the student teacher should earn a teaching license, as well as to provide insight into additional support that student teachers need, both in that semester (e.g., through a concurrent symposium

course) and for future cohorts (e.g., devoting more attention to certain classroom management strategies in coursework).

Gathering cooperating teacher observation data and sharing it back with districts can also be a useful tool in making hiring decisions, as a study of clinical practice in Chicago Public Schools found that these ratings were somewhat predictive of novice teachers' performance.²⁰³

Key takeaway: Cooperating teachers' feedback about student teachers and observation ratings can be a useful information source for ongoing program improvement and may also indicate which student teachers are better prepared for the classroom.

Hiring metrics

Novice teachers perform better in their first year of teaching if they student taught in schools similar to their first classroom.²⁰⁴ It stands to reason, then, that programs should track information about where their program completers are hired, including subject areas, districts, and school demographics, to inform future placement decisions.

Key takeaway: Information about whether and where student teachers are hired should be used to inform future student-teaching placements.

Classroom performance metrics

The ultimate goal of student teaching is to prepare novice teachers to be as prepared as possible when they have a classroom of their own. Numerous studies, detailed above, have identified characteristics of clinical practice that are associated with classroom effectiveness (e.g., cooperating teacher effectiveness, alignment of the placement site with novice teachers' classrooms, school climate of the placement site). Tracking classroom performance metrics (e.g., evaluation ratings, measures of student learning such as value-added measures, administrator surveys) can identify novice teachers' strengths and weaknesses, informing continuous improvement processes. Moreover, as more states track this data, it will facilitate future research into how to craft even more effective clinical practice experiences.

Key takeaway: Tracking data on student teachers' performance once they become teachers of record provides insight into whether the approach to clinical practice used by the program and district is effectively preparing its candidates.

Future learning

While this literature review described a wide range of research on clinical practice, there is much that the field still does not know. Remaining questions include, but are not limited to: How do we measure a teacher's mentoring ability? What other factors make someone

an effective mentor teacher? What are the optimal activities in which student teachers should engage in clinical practice and in what sequence?

Further research in these and other aspects of clinical practice could better inform the preparation of aspiring teachers moving forward. Prep programs, districts, and states can work together to create opportunities for more research, mirroring the studies described above. This may take the form of conducting experiments (like with the Mentors Matter recruitment study²⁰⁵) or making data sets available for researchers to study (like research on the relationship between hosting student teachers and filling vacancies²⁰⁶).

Key takeaway: There is much still to learn about how to best design a clinical practice experience; the field can work together to build more opportunities for research.

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