

NATIONAL CENTER FOR

TEACHER RESIDENCIES

Drivers of Teacher Preparation

LANDSCAPE
ANALYSIS



Acknowledgments

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The Four Drivers Project

In October 2015, the National Center for Teacher Residencies (NCTR) was selected to be part of the Bill & Melinda Gates Foundation's Teacher Preparation Transformation Centers initiative. In that effort, NCTR's Transformation Center, called the Four Drivers Project, will accelerate the impact of effective teacher residency programs and broaden the adoption of research-based practices in teacher preparation. NCTR will act as a research and evaluation laboratory identifying, testing, and scaling best practices for clinically-based preparation. Partnering with more than 30 residency programs, NCTR's Transformation Center providers will prepare 2,500 new teachers for high need schools. A unique component of the Four Drivers Project will be NCTR's partnership with five Demonstration Sites that will implement and test programming aligned to high quality preparation, act as laboratories of learning and improvement, and serve as models for all of the Centers.

In 1986, the Holmes Group was among the first groups of practitioners to recommend a seismic shift in the preparation of novice teachers from the university to the schoolhouse.¹ Their recommendation came during a period of reform in which states were providing incentives to increase the supply of novices through their support for alternate teacher preparation routes.² The Holmes deans advocated for new forms of teacher preparation, induction, and ongoing teacher development. With the implementation of the *No Child Left Behind Act* in 2001, the federal government equipped states and districts with further knowledge about the high number of teachers in their classrooms who were not “highly qualified.” The act strengthened support for new teacher preparation models focused on preparing teachers to meet the needs of all students. In 2010, the National Council for the Accreditation of Teacher Education (NCATE)³ signaled its demand for an end-to-end transformation of teacher education through clinical practice, calling for turning teacher preparation “upside down”.⁴ In response, dozens of articles and reports⁵ have called for similar transformations in the way teachers are prepared.

As innovative programs across the nation embrace demands to shift novice teacher development to school sites and place practice at the center of preparation, their efforts do not come without challenges. A true shift toward clinical practice requires partnerships among universities, school districts and community organizations, new and shared resource reallocations, and

an integrated approach between coursework and practice to best prepare and develop the next generation of teachers.

The 23 teacher residency providers in the National Center for Teacher Residencies (NCTR) partner network have already begun to implement this shift. Over the next three years and beyond, NCTR will guide these providers as they initiate both transformative changes and smaller adaptations to their programs, with an eye toward continuous learning and improvement. NCTR will use data, research, and examination of exemplar practices to implement **four key drivers of transformational teacher preparation:**

1. Refine provider programming to be competency-based and clinically focused;
2. Collect and use implementation and impact data to improve program design;
3. Improve educator and teacher educator effectiveness; and
4. Ensure graduates are successful in their school systems and communities.

The *Landscape Analysis* grounds NCTR's work on the above drivers of high quality clinically oriented teacher preparation⁶ in a rich research base. This review of the literature serves as a launching point for NCTR's Four Drivers Project,⁷ articulating the extant strengths and opportunity areas outlined in the literature to date around teacher preparation that builds novice competency through practice; uses data for continuous improvement; strengthens

teacher educators; and evolves from inter-institutional partnerships designed to meet the needs of students, schools, and communities.

Methodology/Approach

The first stage of report development aimed to clarify the assumptions, values, and beliefs in the theories articulated by each quality driver:

- Why should teacher preparation focus on competencies learned through practice?
- Why might a continuous learning stance be important for clinically based teacher preparation?
- Who should the teacher educators be in a clinical program, and what are the implications for designing systems and structures to assess and improve their effectiveness?
- What does it mean—and what does it take—to prepare teachers in service to students and communities?

In grappling with these and other questions as a team and with respected researchers and teacher educators in and beyond NCTR’s network of residency programs, NCTR developed a process for gathering evidence related to each driver. In mining evidence from multiple scholarly reports, policy papers, rubrics, and other resources—and by integrating examples of best practice recommendations from Teaching Works and others on the core competencies that novices need for success—the process resulted in this landscape review. The next phase of the report will highlight innovative examples from practice—examples that strengthen the field’s understanding of how the drivers are put to work in practice.

This extensive review of the research has illuminated the critical intersections between and among each quality driver, suggesting that effective clinical preparation programs accomplish multiple goals through the development of new cross-organizational systems and the creation of strategic alliances. The four drivers of quality cannot be viewed as mutually exclusive; they are an intricate and interconnected web existing in service to high-quality, clinically based teacher preparation (see Figure 1).

FIGURE 1
The Four Drivers of High Quality Clinical Teacher Preparation



Building New Teacher Competency Through Practice

According to Lee Shulman,⁸ “classroom teaching is perhaps the most complex, most challenging, and most demanding, subtle, nuanced, and frightening activity that our species has ever invented. . . . The only time medicine even approaches the complexity of an average day of classroom teaching is in an emergency room during a natural disaster. When 30 patients want your attention at the same time, only then do you approach the complexity of the average classroom on an average day.”

The discussion that follows describes the earliest phase of new teacher development, when novices begin to understand and confront the complexities of Shulman’s average classroom. Preparation program designers make myriad choices in how they prepare novices, in their courses of study, in the array of assessments they use, in the feedback and coaching strategies they implement, and in the processes, systems, and places they select to frame, scaffold, and accelerate new teacher learning. The next section provides empirical and theoretical support for grounding these choices in an approach that prioritizes learning from and in practice as championed by scholars,⁹ policymakers,¹⁰ and new teachers themselves.¹¹

What and How to Teach: Defining Teacher Competencies

Zeichner and Gore provide useful analyses for understanding the past 25 years of change and continuity in teacher preparation.¹² Their insights provide numerous considerations as the field shifts to build novice teacher competency through practice.

According to Zeichner, **the process/product research of the 1970s led the teacher preparation field to emphasize behaviors assumed to be effective for raising students’ test scores.** What emerged during this period were detailed lists of best practices, with novices tasked to learn and implement them well. The work of Lemov and advocates of his *Teach Like a Champion*¹³ suggest a return to this focus on specific teacher moves, as proponents argue that small and deliberate changes in teacher words and actions can produce dramatic improvements in student achievement over time.¹⁴ More recently, Teaching Works responded to what it describes as the “uneven preparation of novices” by

providing the field with 19 high-leverage practices to give all new teachers access to quality preparation and support.¹⁵ The central tenet of the Teaching Works strategy is to “ensure that all teachers have the training necessary for responsible teaching” by focusing on *teacher actions* that promote advancements in both student learning and instruction.

The early focus on teacher moves shifted to a focus on teacher thinking with the growing influence of cognitive science and, according to Zeichner, the increased acceptance of qualitative forms of research in education. He cites Shulman and colleagues at Michigan State University as among those leading this phase of reform. With Schon’s *The Reflective Practitioner*, Freire’s *Pedagogy of the Oppressed*, and Habermas’s calls for the creation of public spheres for discussion about important social issues, teacher educators began to focus on how they were preparing novices to be *reflective* teachers.¹⁶ While the shift from teachers who enact practices determined by others to teachers who reflect on practices seemed to offer great promise, Zeichner’s final critique about reflection as an “end” is clear and compelling; he suggests that reflection continued to focus on questions of technique rather than questions of purpose, and to emphasize teachers’ private sense-making about their own teaching rather than the social and institutional contexts in which teaching was taking place.¹⁷

A third significant influence across the teacher preparation field came from researchers who began to examine the relationships between teachers’ content knowledge and their practices. Shulman, his colleagues, and his doctoral students introduced the notion of pedagogical content knowledge (PCK) in the mid-1980s.¹⁸ With the advent of PCK, the conversation moved from the preparation of all teachers to the preparation of teachers with specific skills and knowledge related to their content area.¹⁹ Moving the field to understand the teaching practices most aligned with content or, as Shulman wrote, most germane to its “*teachability*,” PCK prompted teacher educators and novice teachers to examine what made the learning of specific concepts easy or difficult and how students’ own conceptions and preconceptions influenced their learning.²⁰

Others, including Gore and Morrison and Newmann et al.,²¹ contributed a fourth puzzle piece **by encouraging teacher educators to develop their novices' capacity to engage in "authentic" or ambitious pedagogies that would increase P-12 students' learning.** Long before college and career ready standards, these researchers were arguing for increasing the intellectual quality in classrooms, helping students understand the central ideas of the topics and disciplines they were studying, supporting students and their teachers in sustained dialogues about important ideas,²² and helping them recognize the socially constructed nature of knowledge. Lampert and her colleagues continued the focus by asking teacher educators to create opportunities for new teachers to learn to enact the principles, practices, and knowledge entailed in ambitious teaching.²³

A fifth and continuing influence pushes the field from reflection to inquiry, where novices learn to study their own practices in collaboration with teacher educators and peers. Alternately labeled action research, practitioner research, and inquiry in action and on action, today's descriptors are borrowed from the field of improvement science, in which practitioners are engaged in cycles of learning (Plan, Do, Study, Act) in order to learn quickly and implement well. The change suggests how the field has moved from preparing reflective practitioners to supporting the development of action-oriented teachers who study the effects of what they and their students are doing.²⁴ With the current iteration, the focus is clearly on the connection between actions and student learning.

A sixth influence incorporates notions of social justice, social change, and social responsibility into teacher preparation. In her well-read discourse on learning to teach against the grain, Cochran-Smith renewed educators' attention to their responsibility to challenge the inequities deeply embedded in the system of schooling and in society.²⁵ Hooks exhorted educators to transgress,²⁶ and others followed. Yet ten years later, when writing again in 2001, Cochran-Smith suggested that we had not come far enough.²⁷

Where to Learn to Teach: Building Novice Competency with P-12 Students

While discussions about why, how, and what to teach are critical to the development of an effective teacher, thoughts on where this development should occur are equally important. Such thoughts are reflected in the student teaching literature as well as calls for moving teacher preparation to be field-based.

Anderson and Stillman raise important questions in their comprehensive review of the research on student teaching's contribution to pre-service teacher development.²⁸ They suggest that reformers and policymakers tend to emphasize the structural and logistical dimensions of where to learn to teach, but provide few details on how the design of clinically based teacher education connects to learning in the academy and the education of P-12 students. Their meta-analysis offers an additional critique, suggesting that researchers have focused too much emphasis on belief and attitude change while providing relatively little evidence about how learning in the school affects the development of actual teaching practice and whether the belief changes that novices experience are meaningful, enduring, and impact student learning. What Anderson and Stillman have uncovered suggests an agenda for program design that situates new teacher learning in the school because of its potential to serve as a lever for improving candidate and PK-12 student outcomes.²⁹

Two seminal works focused on how students learn in school, McNeill's *Contradictions of Control* and Wasley, Clark, and Hampel's *Kids and School Reform*,³⁰ highlight how students use their presence, their absence, and their voice to influence learning and teaching. These ethnographies, and the lived experience of many others, suggest how novices who are prepared in clinical programs have the *opportunity* to learn daily from student engagement, from students' responses to end-of-class exit slips, and from their demonstrations of learning on weekly, monthly, and annual projects and exams. Findings from student surveys represent new and compelling forms of feedback to candidates,³¹ feedback that often correlates with student performance on high-stakes tests.

Acknowledging and building upon the idea of site-based teacher learning, teacher residency programs provide novices with the daily opportunities to learn from students in the school setting. Residencies are preparation programs that pair a rigorous full-year classroom apprenticeship with master's-level education content tightly linked to the clinical experience—providing candidates (residents) with multiple opportunities to learn with and from students. Early data suggest that these opportunities are helping to move the needle on student achievement during and beyond the residency year.³²

By design, residencies are partnerships between institutes of higher education and school systems that move novice learning to the field, where residents practice and hone their skills and

knowledge alongside an effective teacher. Through a yearlong gradual release of teaching responsibility, residents' instructional responsibilities increase in quality and length over time. What residents actually do in the classroom is tightly linked to performance targets that are predictive of student achievement, and residents have ample opportunity to rehearse, enact, and receive feedback on them in their courses and in the field. The emphasis on performance over proxy measures of capacity and readiness holds residents, and programs, accountable for making an observable impact on student learning.

While preparation in school settings has many advocates, too often the promise of novice learning is not realized. Anderson and Stillman as well as Ronfeldt and Reinger provide ample evidence that clinical placement is a necessary but insufficient condition for new teacher learning.³³ About 25 years ago Britzman warned that practice might only make practice.³⁴ In the academy and in the classroom, teacher educators shifting toward clinically minded preparation have the *opportunity* to use these multiple forms of student feedback as well as their own focused and continuous candidate observations and artifact reviews (e.g., lesson plans) to help novices sense-make, inquire into practice, and take more informed actions. They can help novices “*notice*” their classrooms in new ways,³⁵ broadening the vision that typical novices are challenged to develop in their early days and months.³⁶

How to Measure Readiness: Assessing Novice Teacher Competency

At the end of their teacher preparation programs, novice teachers now engage in competency- and performance-based assessments that determine their readiness to teach. Currently, 655 educator preparation programs in 36 states and the District of Columbia are participating in the performance assessment known as edTPA. While designers built this assessment on clear statements of what was to be measured and why, what data were to be collected and analyzed, how decisions were to be made, and how the intended and unintended consequences of assessment activities would be addressed, the use of edTPA has not yet become routine. Further, edTPA remains somewhat loosely coupled from teacher preparation curricula and other formative learning tasks, resulting in challenges for novices who come underprepared to succeed on this gateway to the profession.

As edTPA gains national prominence, teacher preparation program designers have begun to link the exam's constructs with

their prioritized teacher competencies and course-embedded assessments. Multiple programs now include formative performance-based measures to capture ongoing candidate progress. Such assessments focus on enactments of practice—for example, candidates' interactions with students—rather than candidates' scores on tests about enacting practice.³⁷ These assessments often align to a set of instructional competencies associated with greater student achievement gains that map onto a program's shared vision of high quality teaching and learning, and that have the potential to facilitate candidate success on high-stakes, summative exams.

Preparation, Practice, and Learning to Teach Now

In the 21st century, learning to teach is both the same and very different from in the past. The non-routine nature of teaching remains the same, with teachers on Day 1, and throughout their careers, making more than 3,000 nontrivial decisions each day.³⁸

While they continue to face endemic uncertainty about who is learning and about how much has been learned,³⁹ the accountability stakes that teachers and their students face are unprecedented, and higher than at any time in the past. Teaching, and preparing for it, is a different opportunity for novices who no longer see teaching as the occupation in which they begin and end their careers. Many, in fact, have already been in and out of other professions, with studies reporting significant changes in the demographics, motivations, and expectations of those becoming teachers.⁴⁰ These novices may want something else from their preparation programs, possibly less patient than their predecessors with learning and preparation that seem too different from what they need to do “*on the job.*”

Upon entry into their preparation school sites, novices will find colleagues who may feel somewhat at sea as they face the demands of new student curricula and different learning standards, with families, reformers, and employers calling for students to be more college and career ready.⁴¹ How will teacher educators and the teacher education curriculum support novices and prepare them for success in an occupation where the most senior and expert practitioners are themselves engaged in changing what they've always done, changing what used to work for them in their roles as “*independent artisans, who work alone, practice alone, and derive their deepest satisfaction with students rather than with peers*”?⁴² The curriculum of learning must change as well, as the most historically underserved student groups become the majority in classrooms throughout the country.

DRIVER 1

In Conclusion

As Feiman–Nemser, Tamir, and Hammerness ask, how will we inspire teaching in the 21st century as the context changes?⁴³ How will high-leverage practices take into account pre-service teachers' own context, prior knowledge, and experience?⁴⁴ How will pre-service teacher biographies, identities, and backgrounds intersect with learning to teach in the clinical setting? How will programs develop assessments that validly and practically capture the impact of novice performance on student learning

when experienced teacher evaluation efforts reflect the limits of extant tools and techniques? And how will teacher educators as researchers develop new inquiry agendas to close the gaps between the university and the schoolhouse?⁴⁵

Teacher preparation program designers, including those based at universities and those in schools, will need to make hard choices as they work to determine how their vision of effective teaching aligns with the learning needs of novices, the schools in which they teach, and the children and families they hope to serve.

Continuous Improvement

In writing about a high school in Brooklyn, New York, Susan Fairchild and her colleagues suggest that “by approaching a school through the dual lenses of design and data, we see that its educators use both mental models and a deep understanding of student performance to create and sustain systems that produce strong results. Their design- and data-driven choices are anything but simple, and their ongoing work is too complex to be labeled, packaged, and passed off as ‘best practice’ in a conventional way.”⁴⁶

Fairchild et al. provide a useful frame for a discussion of what it would take to design clinically oriented teacher preparation programs that reflect and embed the characteristics of continuously improving organizations. The next section examines how preparation program designers might use what has been learned in the broader conversation about teacher evaluation to build systems for collecting, analyzing, and making sense of pre-service and in-service teachers’ growth. Schools and programs that use data to drive change are *designed* to accomplish these goals. Given the connections between new teacher evaluation and the overall culture of improvement, this discussion goes on to describe the practices and mindsets of teachers who are already engaged in systematically improving their practice with peers, suggesting that practitioner participation in continuous improvement might serve as a model for how teacher preparation programs can engage in similar improvement work themselves.

The Complexities of Measuring Novice Teacher Learning

In developing a system for novice teacher assessment, school- and university-based teacher educators need to reach agreements about what matters in teaching, observers need to be trained to see what matters, tools need to be developed to capture what matters, and systems need to be built that support and engage candidates in thinking about what they are doing and learning. Reaching these agreements will not be straightforward, given that teachers, principals, administrators, and teacher educators hold idiosyncratic views of teaching

practice.⁴⁷ Further, as Gitomer and colleagues note, since discussions about teachers’ practice are rarely grounded in actual artifacts of practice, the development of shared understandings would require new decisions about the use of practice-related artifacts. It seems likely that developers of effective candidate evaluation systems will need to engage in sustained inquiries to build new approaches to support and evaluate candidates.⁴⁸

Given the considerable differences in their ways of knowing about and measuring performance, school and university programs will need to set aside time to build mutually agreed-upon systems for assessing formative and summative candidate learning. One promising practice might be their joint participation in instructional rounds at preparation sites where practice is situated.⁴⁹ Without the development of common understandings and a set of aligned competencies, metrics, and tools, candidates will find themselves in a muddle and in the middle, overwhelmed and underprepared to make sense of conflicting qualitative and quantitative messages. There will be plenty of data but not much meaning.

This general discussion of new teacher evaluation needs to be informed by research about the experiences of diverse teacher candidates. Pailliotet’s compelling narrative presents a young Asian teacher candidate who faces many difficulties in learning to teach.⁵⁰ Vivian says of herself, “I’m really quiet,” and she feels challenged by language and communication problems, home/school tensions, financial concerns, social isolation, stereotyping, and prejudice. While Pailliotet does not explore whether the candidate evaluation system exacerbated Vivian’s challenges, it seems fair to conclude that it was not designed to examine them. Newer research⁵¹ raises related questions about diverse candidate outcomes on edTPA, the summative assessment measure described earlier in this paper. Differential edTPA pass rates by candidate subgroup (i.e., Black and Latino candidates perform less well) call to mind the differential pass rates of experienced teachers applying for National Board certification as well as Cochran-Smith’s 20-year-old advice that we must confront the dilemmas of race, culture, and language diversity in teacher education.⁵²

In 2015, NCTR (then called UTRU) published its annual program impact research, highlighting the ways in which partners systematically examine program effectiveness. Among the many interesting findings, it might be most important to note the decisions by partners to employ data collection and reporting practices that were both transparent and comparative, demonstrating their interest in using multiple measures to discover how graduates perform relative to other district- and statewide new and experienced teachers, how students in their classrooms rate their practice, and how standardized test results for their P-12 students compare to results for other students in the school and the district. By using multiple individual, cohort, and longitudinal candidate performance indicators, clinically based preparation programs mirrored the practices championed by many external voices calling for the reform of teacher evaluation, including researchers in the largest cross-district and cross-state study, the Measures of Effective Teaching Project. While some have challenged the MET study's design, it remains a very strong argument for using multiple measures and multiple assessors, including students, for evaluating teacher performance.

In his recommendations for reconnecting schools and universities to prepare new teachers, Zeichner highlights shared candidate assessment as being essential to developing a “non-hierarchical” partnership among academic, practitioner, and community partners.⁵⁴ Assessments have the potential to support individual and program growth and catalyze positive change; if poorly designed or implemented carelessly, Zeichner warned that they have the power to silence concerns, restrict program focus, and limit candidate development.

In sum, comprehensive novice teacher evaluation in service to continuous candidate and organizational learning must address the following seven components and challenges:

1. Identify Teaching Competencies to Assess. While preparation programs need to define what novices need to know and be able to do (see *Driver 1: Building New Teacher Competency Through Practice*), they must also make choices that align with their state's mandatory program requirements, courses of study, and exit tests for licensure and certification. In clinical teacher preparation, the district's articulated teacher competencies need to drive decisions as well, since preparation is aimed at developing novices' skills and knowledge for working in particular contexts.⁵⁵ In developing their prioritized competencies, programs may want to consider those identified

by the National Board for Professional Teaching Standards and the InTASC Standards. Based on its *Five Core Propositions*, the National Board Standards define what accomplished teachers should know and be able to do in 25 certificate areas. They represent 16 subject areas and four developmental levels, and are applicable to most teachers in U.S. public schools. In 2013, the InTASC Standards added a set of Learning Progressions for Teachers to serve as a support tool to promote and improve new teacher effectiveness and growth.⁵⁶

2. Define Metrics and Benchmarks of Progress. Once programs have determined what to assess, they need to collect evidence of those competencies in teachers' classrooms and in students' work products, including students' results on formative and summative tests. Programs also need to gather evidence on their candidates' knowledge and understanding of teaching. In their description of the challenges of assessing novices, Uhlenbeck, Verloop, and Beijaard explain why this broad array of assessment domains imposes a heavy burden on assessors and designers, creating challenges for selecting and scoring of tasks and activities.⁵⁷ Others have identified additional complications, with Schoenfeld making important distinctions between rubrics for developing theory and improving practice, usually called “*research*,” and rubrics for evaluation.⁵⁸ Danielson's initial Framework for Teaching is an interesting example of how a support and development approach became one of the most widely used “*tools*” for assessing teachers' practice.⁵⁹

3. Aggregate Results. Teachers' capacity to assess and catalyze student learning is core to their role. And yet, while using students' standardized test scores to evaluate teachers is fairly common, and a signature component of the national Race to the Top school reform initiatives of the past eight years, recent research highlights the low correlations between student test results and classroom observational scores. Grossman, Cohen, Ronfeldt, and Brown provide a useful explanation for the low correlations, suggesting that there may be a lack of alignment between the goals of particular teaching practices captured by observation protocols and the kinds of student outcomes measured by many standardized tests.⁶⁰ Nevertheless, despite the complexities of aggregating results or the limits to creating a single candidate “overall score,” programs need data that will allow them to look across candidate results as well as dive deeply into individual performance.

4. Determine Assessors. Vying for practitioner and policymaker attention are the college and career ready standards and the reform of teacher evaluation. In many instances, the two are joined to discussions of impending teacher shortages, hiring practices, and principal preparation and development. Disentangling these strands may not be possible in either the short or long term, but they reflect the need for stakeholders to clarify criteria against which performance will be rated and to determine who should be assessing teachers and how they should be prepared for their role. Students are among the newcomers playing important roles in teacher evaluation following recommendations from the Measures of Effective Teaching study, in which a single administration of student surveys was found to be a reliable measure and predictive of student achievement gains.⁶¹ Although the practice of including students in teacher evaluation has gained considerable currency following this study, other researchers had argued for including students' voices long before.⁶² While most teacher preparation programs do not include student perception surveys about candidates' practice,⁶³ the literature reviewed did not provide an explanation for this absence.

In a related strand of who coaches and assesses teachers, teacher peers have a long history of supporting each other's growth (while not evaluating performance in most instances). The American Federation of Teachers, for example, has argued for peer assistance and review (PAR) programs, with multiple examples of providing assistance to local organizations that want to institute a PAR program. The New Teacher Center has worked with districts across the country to select and develop teacher mentors for novices, building on experienced teachers' skills, knowledge, and expertise developed over time in their own classrooms. In some districts, these mentoring teachers also contribute feedback to the new teachers' annual evaluation. While districts are not yet engaging parents as formal evaluators of teachers' practice, the use of parent perception surveys is part of national efforts to capture their voices, including their beliefs about teachers' practices and commitment to student learning.⁶⁴

5. Articulate Feedback Processes. We need to understand what, when, why, and how much novice teachers are learning in order to support their ongoing development. As written into teacher preparation policy handbooks, candidates expect that their coaches will provide prioritized, highly individualized, and actionable feedback. They also expect to learn how

to self-reflect about teaching and to engage with peers in making sense of what they are seeing, hearing, thinking, and discovering. The development of effective teacher educators is critical to ensuring that candidates receive meaningful and actionable feedback (**articulated in Driver 3, Effective Teacher Educators**). In brief, as defined by Grant Wiggins, "*helpful feedback is goal-referenced; tangible and transparent; actionable; user-friendly (specific and personalized); timely; ongoing; and consistent.*"⁶⁵ Park, Takahashi, and White add considerable texture to Wiggins's list, as they articulate how every feedback process is shaped by individuals, systems, and the context in which those systems operate.⁶⁶ Thus, we may conclude that Wiggins's seven steps are necessary but insufficient to achieving the goal of creating a *system* that supports new teachers' growth.

6. Build Storage Systems. Many programs struggle to collect, store, and efficiently share data for the purposes of transparency and overall program improvement. The development of these systems may require the collaboration of multiple programs acting in concert.

7. Design Program-wide Evaluation Structures, Roles, and Resources. Robust, trustworthy, and valid candidate and graduate evaluation data have the potential to steer program design, increase partner engagement and ownership, and ensure public accountability. While some programs are sharing and using data,⁶⁷ most have not yet designed the systems to scaffold program sustainability and support program scale-up.⁶⁸ This challenge is further addressed below in a more detailed discussion of organizational cultures that reflect commitments, processes, and systems aligned to the goals of continuous improvement.

Developing a Culture of Continuous Improvement

In writing about data literacy and teacher preparation, Mandinach and Gummer present an important list of skills, knowledge, and dispositions previously identified by others for developing novice teachers' data literacy.⁶⁹ While other lists are useful to consider, Mandinach and Gummer's list is worth looking at closely since it also provides readers with an unusually rich bibliography related to each skill and knowledge base referenced. According to these researchers, new (and experienced) teachers need to be able to do the following:

Skills, Knowledge, and Dispositions for Developing Novice Teachers' Data Literacy

1. Differentiate instruction to meet the needs of all students⁷⁰
2. Formulate hypotheses about students' learning needs and instructional strategies⁷¹
3. Collect and use multiple sources of data⁷²
4. Use formative, summative, interim, benchmark, and common assessments, as well as student classroom work products, to make decisions⁷³
5. Modify instructional practice according to the data collected⁷⁴
6. Drill down to the item level to gain a deeper understanding of performance⁷⁵
7. Use student work, not just tests, and other sources of data⁷⁶
8. Monitor outcomes⁷⁷
9. Focus on all children, not just the "bubble kids"⁷⁸
10. Look for causes of failure that can be remediated⁷⁹
11. Work in data teams to examine data⁸⁰

In 2013, Mandinach and Gummer concluded that the contexts for learning these skills in teacher preparation programs were not well described.⁸¹ More recently, however, researchers from WestEd and the Michael and Susan Dell Foundation identified four preparation programs as "*pioneers in developing data literate teachers.*"⁸² These programs demonstrate five specific components, including strong leadership and vision, clearly defined data literacy practices, highly skilled faculty, and defined outcomes for candidate success. The fifth component, *operational supports for a strong data-use culture*, appears elusive and out of reach for many programs despite their commitment to and clarity of purpose in achieving the other four.

As suggested by Fairchild and her colleagues, cited in the opening paragraphs of this discussion, we need to hard-wire a data-use or continuous improvement culture into the *design* of teacher preparation programs, agreeing to allocate valuable resources to achieving the goal of (to quote the Beatles) "*getting better all the time.*" Programs might consider whether and how to ensure that the skills, knowledge, and dispositions necessary to develop data-literate teachers as summarized above are present in their own organizational cultures. As the section below notes, much can also be learned from the ongoing improvement work that is on its way to becoming normative among in-service teachers in schools every day.

A Look to the Schools

Teacher-led inquiry is no longer anomalous. Whether emerging from the outside in, as a response to their district mandates, or organically developed by department, grade-level, or schoolwide teacher teams, practitioners across P-12 schools are collaboratively looking closely at their classroom practice, at their students' work products, and at high-stakes end-of-year assessment results. Some are engaged in lesson study,⁸³ co-creating, testing, and making small changes in lessons during multiple trials. Their goal is to improve the lesson by testing it in various classrooms, by reflecting with each other on why it worked or not, and by developing deeper understanding through informed practice.

Others are working in strategic inquiry groups, where they focus on developing instructional strategies to help students with specific skills gaps.⁸⁴ Like their lesson study colleagues, inquiry group teachers "*go small*" to achieve a big effect, as they identify students' skill gaps that are small enough to act on. They push their thinking and their students' learning by taking action; their practice does not merely make practice.⁸⁵ And these teachers do not espouse one approach and practice another; instead, they are intent on learning from what they are doing. Consequently, as they engage in lesson study or other forms of collaborative, rigorous, data-driven inquiry, they are able to increase their instructional effectiveness,⁸⁶ expand their knowledge and increase their commitment to teaching,⁸⁷ and facilitate meaningful student achievement growth.⁸⁸

These practices and inquiring practitioners are found in almost all P-12 schools. While teacher inquiry is not yet engaged in by every teacher or reflective of every teacher team, it is quite likely that in all preparation settings it is a lived practice. It will be important for teacher educators to seek out their peers who are already engaged in inquiry as they introduce novices to a process, a practice, and a professional stance so that thinking about teaching and acting to improve it is no longer the responsibility of only the more experienced peers or formal school leaders.

DRIVER 2

In Conclusion

How can we create networked improvement communities among teacher preparation programs, where participants agree to bring their diverse expertise to solving design problems together?⁸⁹ How might such communities facilitate the development of operational supports for a strong data-use culture?

Schools that seek to make it possible for students to grow, develop, and learn at high levels must be committed to the same things for teachers. This commitment is expressed through the creation of cultures, structures, and systems of collegiality, support, and accountability. Holding the individual teacher accountable, however, is a necessary but insufficient

strategy for increasing teacher and student learning. Practitioners and theorists have concluded that little will change at the individual⁹⁰ or institutional⁹¹ level unless it is systemic, collaborative, embedded in practice, inquiry-based, and overseen by organizational leaders who are themselves agents of change.⁹²

Effective Teacher Educators

In a 2014 study on teacher educators, Lynn Goodwin and colleagues conclude that while the context for teacher education is becoming increasingly complex, the field of teacher education has “*focused minimal attention on what teacher educators should know and be able to do, on how they should be deliberately prepared to know it, and on how they must be supported, mentored, and appropriately inducted into the profession as scholar-practitioners.*”⁹³ While Goodwin et al. call much-needed attention to the dearth of literature and systemic lack of focus on teacher educator preparation and development in the field, the authors define teacher educators as university-based, doctoral-prepared faculty who engage in the preparation of pre-service or future teachers. A true shift toward practice, however, commands that the field *expand* this definition and work to redefine the roles, responsibilities, and development trajectories for all those who shape the novice teacher learning experience. This is especially necessary in an era when the distinctions between the teacher education faculty who facilitate coursework, field coaches who provide support in schools, and full-time cooperating or mentor teachers who have long been in charge of the day-to-day development of candidates in the P-12 space are becoming ever more nebulous.

This section articulates an expanded definition of teacher educator roles and responsibilities and the processes, incentives, and structures for increasing the retention of effective and experienced P-12 teachers. It also raises awareness about the systems at schools and universities that need to change in order to realize the vision of clinical teacher preparation—from teacher educator selection to the support, development, and assessment approaches used to strengthen teacher educator capacity over time.

Understanding the Context and Changing the Role

The context for changing the teacher educator role calls for a close look at the organizations in which both school- and university-based teacher educators work. At the university, teacher educators are among the least well paid and generally

have the lowest status. Unlike those in other disciplines, teacher educators are expected to be excellent pedagogues given their discipline, expert researchers, and well prepared to advise on the employment choices of their students. Years ago, one university-based participant observed the challenges resulting from his bi-organizational, boundary-spanning roles, claiming that he told people he was “*working hard at not getting tenure.*”⁹⁴ The culture of his employing organization, the university, had not yet changed its criteria for his success; consequently, by working directly with novice and school-based teacher educators on site, he wondered whether he was sacrificing his long-term career.

The redefinition of the cooperating teacher role seems to align well with current calls for differentiating teachers’ jobs and increasing teacher collaboration. To keep teachers teaching, and to keep them in the schools that need them the most, reformers have called for reinventing the flat teaching career structure identified by Lortie.⁹⁵ Hoping to increase teacher commitment in their early, middle, and later careers, with the commitment of those in their later careers more at risk,⁹⁶ the clinical preparation of novices seems to offer increased opportunities for school-based teachers to grow as they share responsibility for new teacher development. While the opportunity to raise the next generation is a powerful incentive for teachers, they also need strong leaders who commit to their expanded roles, resource-ready environments with regular opportunities to work with peers, and access to learning opportunities that promote their own development.⁹⁷ Supporting novices is a necessary but insufficient incentive to stay, especially if the responsibility promotes contrived collegiality⁹⁸ and role strain.⁹⁹

Defining Teacher Educator Roles and Responsibilities

Meeting the overall needs of the school district as well as accelerating the achievement of P-12 students is the central proposition of clinically based teacher education. **Yet most of the research literature continues to dichotomize the teacher**

educator role as either school- or university-based, suggesting that the development of professionals is uniquely tied to the organization in which they spend most of their time or from which they receive their paychecks.¹⁰⁰ In contrast to this

literature, the model teacher educator standards proposed by the Association of Teacher Educators and the Teacher Leader standards released by the National Education Association do not define roles in relation to organizational affiliation.¹⁰¹ These sets of standards suggest a framework for defining the roles of all teacher educators in a clinically oriented preparation program. Like the Professional Development School Standards before them, they describe teacher educators as individuals who use research to improve practice in the service of adult and student learning and who facilitate improvements in student learning and teacher instruction through their systematic engagement in inquiry and assessment, including the assessment of teacher educators' own practice.¹⁰²

Finally, both sets of standards argue that teacher leaders/teacher educators engage in ongoing collaboration with multiple stakeholders to improve teaching, research, and student learning. While theoretical and empirical research studies provide ample support for preparing teacher educators for their new roles, research studies on how to do that well are limited. Some, like Kazemi and her colleagues and Gardiner, have begun to identify the practices that teacher educators might engage in to hone their own skills.¹⁰³ Yet, at the same time, the pedagogy for teaching them *how* to learn the moves they need to make and the systems for supporting their development remain unexplored.

While in their meta-analysis Clarke et al. continue to describe the school-based teacher educator in the language of “*cooperating teacher*,” these authors provide the field with a useful typology for expanding earlier and very narrow descriptions of the roles played by individuals who support new teacher development.¹⁰⁴ Clarke and colleagues propose 11 categories that seem to reflect many of the same roles and beliefs articulated by ATE and in the Teacher Leader NEA standards; their additions, however, illuminate the need for teacher educators to be purveyors of organizational context and culture, suggesting that these individuals need to come to their new role with well-developed understandings of and commitment to the students and families being served and to the teaching competencies valued by the school and district. Having demonstrated their own effectiveness as teachers of children and adults, they serve as models of strong practice.

These authors include specific definitions and competency

descriptions evidenced in the broad categories listed below. Their descriptions are likely to expand the conversation about the roles and responsibilities of all professionals who support novice teacher growth in clinically oriented teacher preparation.

TABLE 1

Teacher Educators	
Providers of Feedback	Gatekeepers of the Profession
Modelers of Practice	Supporters of Reflection
Purveyors of Context	Conveners of Relation
Agents of Socialization	Advocates of the Practical
Gleaners of Knowledge	Abiders of Change
Teachers of Children	

Teacher Educator Selection and P-12 Students' Learning Needs

Clinically based teacher preparation programs engage experienced teachers in the development of their own skills and knowledge as teachers, as coaches to novices, and as collaborators with school leaders, peers, and university-based partners. Providing teachers with the opportunity to grow and enhance their skills through a formal role that is compensated, recognized, and built into their daily work ensures that experienced P-12 teachers are less likely to stagnate, burn out, and leave. Building on Kennedy's¹⁰⁵ conceptualization of teaching as a professional practice, teacher preparation programs need to recruit, select, support, and help to develop teacher educators who have the knowledge and skills to portray the curriculum, enlist student participation, expose student thinking, contain student behavior, and accommodate their own personal needs. **In effective programs that support P-12 student learning, novices reason as they practice, make sense of student learning through a close study of student work and classroom performance, and implement theory-based instructional and assessment decisions in collaboration with teacher educators who are actively engaging in the very same set of tasks.**¹⁰⁶ Novices who engage in thinking about and rehearsing these practices in their formal courses and in their everyday activities at the school begin to learn to teach from the very beginning of their preparation.

The research related to improving outcomes for P-12 students suggests that effective teachers and, therefore, effective teacher educators need to demonstrate that they have honed their “*collaboration chops*,” that they have the knowledge, skills, and

dispositions to accelerate student learning through collaboration with peers and with relevant community stakeholders.¹⁰⁷ By partnering in sustained and strategic inquiry, they come to their role of novice teacher developer as professionals experienced in using specific learning standards to diagnose students' skill gaps in order to help them bridge the gaps and meet increased demands for performance.¹⁰⁸

Teacher Educator Development and Assessment

P–12 schools have turned to mentoring to address the needs of beginning teachers, increase retention of quality teachers, individualize professional development for in-service teachers, and improve instruction to students. **Research is consistent when suggesting that the effectiveness of mentor support rests on the qualities of the mentor.** Where and how mentors or teacher educators develop their skills and knowledge seems to vary, but overwhelming evidence supports the notion that effective mentors are trained for their job¹⁰⁹ so that they are able to provide developmentally appropriate professional support to their novice colleagues. Mentors to novice teachers, or teacher educators, need to be skilled in communication, consultation, problem solving, and feedback.¹¹⁰ Since learning to mentor is also developmental,¹¹¹ Maynard and Furlong recommend that, like their novice colleagues, teacher educators flourish when they, too, receive specific and actionable feedback on their practice.¹¹² As described in the early work on cognitive apprenticeship and in Avalos's more recent summary of the situated nature of teacher professional learning, moving teacher preparation from the academy to the schoolhouse will have little effect on the profession or on the P–12 students served unless there are systematic opportunities for less expert teacher educators to learn with those who have deeper knowledge and skills.¹¹³

Just as teacher educators need to develop and implement valid and reliable performance tasks for teacher candidates, teacher preparation programs need to design and implement teacher educator assessments aligned to the standards for each teacher

educator role and to the program's shared vision of high quality teaching and learning. Creating effective assessment tasks for adult learners will prompt program leaders to work backward from the teacher educator standards to create the learning curriculum, the venues for learning, and the roles for coaching teacher educators.¹¹⁴

While Gitomer and colleagues reflect specifically on the evaluation of classroom teachers' effectiveness, it seems likely that their recommendations apply equally well to the evaluation of teacher educators.¹¹⁵ They recommend that evaluation designers need to decide what is important and then find or create measures that will yield concrete evidence about performance on what is important. Given the underdevelopment of teacher educator role definitions and competency expectations, especially for faculty teaching in institutions of higher education,¹¹⁶ and the dearth of research-based teacher educator evaluation tools, it is quite likely that programs will need to create multiple measures to provide valid and reliable information about the work and effectiveness of the array of participants who support novice teacher development.

DRIVER 3

In Conclusion

At a time when calls for shared responsibility and cross-organizational connections appear strongest, most university-based research and the researchers who produce it continue to remain disconnected from schools and teachers. In his compelling summary and critique, Schneider makes two related arguments that are relevant to discussions of teacher educator development. He argues that despite the gap in research use by practitioners, researchers continue to keep their distance from schools and, consequently, research often reads like the work of outsiders, with classroom teachers represented as the objects of reform or as the receivers of wisdom created by others.¹¹⁷ In a preparation field that is expected to turn itself upside down, the use of research and the producers of research will need to be rethought as well.

Partnership in Service to Students, Schools and Communities

In a 2011 report on reforming the infrastructure of educational research and development (R&D), Bryk, Gomez, and Grunow of the Carnegie Foundation for the Advancement of Teaching suggest that real improvements to the system will require answers to “three seemingly straightforward questions: First, what problem(s) are we trying to solve? Second, whose expertise is needed to solve these problems? And third, what are the social arrangements that will enable this work?”¹¹⁸ While directed to the field of educational R&D, the questions these authors raise have broad implications for the work of universities, districts, schools, and other organizations partnering to transform how teachers are prepared for their contexts.

In order to realize teacher preparation that is in service to students and communities, universities and school systems must work to develop authentic inter-institutional collaborations where new teachers learn a context-specific curriculum in practice, are coached by an array of teacher educators with knowledge, skills, and authority to scaffold their growth and learn alongside them, and in which organizations reallocate resources to advance their shared mission and goals.¹¹⁹ They must take time at the start of the partnership to define the type of relationship they want—not just what they will do, but how they will interact.¹²⁰

For universities, authentic partnering necessitates that members commit to and share responsibility for *P–12 student learning* during the early (pre-service) and later (induction) phases of new teacher preparation and development. Likewise, schools and school systems must work to develop new structures, roles, and resources to integrate novice teacher development into their primary goal: the education of children and youth. And, at the same time, each partner must further current commitments to continuously improve and to use cycles of inquiry to inform teaching, learning, and leading, because that is the heart of their joint work.¹²¹ With support from the research literature and policy reports, the following section describes the challenges and opportunities faced by universities and school systems that partner to prepare teachers as they hold themselves mutually accountable to the students and communities they serve.

Organizational Partnering for Initial Teacher Preparation

John Dewey’s Laboratory School at the University of Chicago, James Conant’s clinical school designs, and Robert Schaefer’s “schools of inquiry” present early examples of clinically based teacher education in partnership.¹²² Dewey proposed and initiated several laboratory schools that were jointly administered by schools and colleges to serve as sites for research as well as for preparing new teachers. The lab schools ultimately proved too costly, did not offer the time or rewards for sufficient university faculty involvement, and were too far removed from the mainstream of school life to be credible.¹²³ While subsequent experimental schools peaked in the 1960s without having catalyzed significant teacher preparation change, the professional development schools (PDSs) of the late 20th century emerged to take their place. As institutions designed to integrate new and experienced teacher development through inquiry, the PDSs called for the simultaneous reform of schools and universities.¹²⁴ While hundreds of PDSs developed across the country, participants faced the challenge of high costs, uneven commitment, and conflicting organizational priorities. **In many ways, the PDSs laid the conceptual and practical groundwork for the partnerships that school systems and universities endeavor to implement in clinically based teacher preparation programs today through teacher residencies and similar high-impact models.**¹²⁵

For example, the Boston Teacher Residency launched in 2003 in response to a call to action by the superintendent of the Boston Public Schools (BPS), who was frustrated at the quality and diversity of teachers entering the district as well as the number of teachers leaving. Calling for novices to be trained by effective teachers in the schools and with students whom they would eventually be hired to teach, BPS partnered with its local education fund, the Boston Plan for Excellence, and the University of Massachusetts–Boston to develop a student-ready pipeline of teachers for BPS. The program places candidates in classrooms of effective mentor teachers for a full-year residency while they

complete a master’s program that is tightly linked to the clinical experience. Federal, state, local, and philanthropic investments in similar partnerships between districts, universities, and other community organizations have grown in size and scope over the past 13 years,¹²⁶ and the National Center for Teacher Residencies launched in 2007 with the explicit mission to support such partnerships to launch residency programs that prepare teachers in service to school systems and their students.

Sustaining Complex Organizational Partnerships

Significant research on cross-institutional collaboration provides a framework for examining the challenges and benefits to partnering between complex and multifaceted organizations. As described by Hall and colleagues, individuals and institutions choose to work together to exchange goods, services, or knowledge that would otherwise be out of reach.¹²⁷ For the collaboration to be successful and to endure, the cost of producing services collaboratively must be less than the cost of doing so independently; further, partners need to perceive their benefits as proportional to their investment. Yet, even when individuals see these benefits, organizations generally seek to maintain their autonomy, preferring not to enter into cross-organizational relationships unless they are compelled to do so because of scarcity, specialization, or because they fear that they might not meet their larger goals and go out of business.¹²⁸ As Kanter once described, it is not simple for giants to learn to dance.¹²⁹

Models of organizational collaboration vary, but all depend on increased interactions within the partners as well as between them. As visibility and common activity increase, so does the likelihood of role conflict, inter-staff disagreement, and a heightened sense of participant vulnerability.¹³⁰ Successful organizational alliances navigate and actively leverage significant differences between partners’ strengths and operating styles. They emphasize deep and ongoing discussion about the kind of relationships desired on behalf of all partners—how decisions will get made, how resources will be allocated, how information will be shared, how differences will be managed, and more. They measure performance against ends measurements, like impact goals, as well as means-measurements, such as the speed of decision making, the development of new ideas, and the nature and degree of conflict. And they prioritize program stakeholder satisfaction as well as relational satisfaction among partners.¹³¹

Partnering institutions in which relationships are built on trust tend to look more like jazz ensembles than symphony orchestras.¹³² While all structures cannot be planned in advance, with all systems running smoothly from the very start, participants need to “*build common vision, strong commitments, multiple personal connections, increasing support [from] people in positions of power, and a willingness to consider and move toward higher stakes joint decision making.*”¹³³ With clearly articulated written agreements, partners design for the present and build for the future.

Organizational Partnering for Diversity Recruitment, New Teacher Hiring and Retention

From TNT¹³⁴ and research by Lankford, Loeb, and Wyckoff as well as Liu,¹³⁵ we know that hard-to-staff schools attract and hire fewer high-quality applicants from typical new teacher pools. Teacher preparation partnerships that link candidate learning to the district’s prioritized goals for student learning can interrupt this cycle. By situating preparation in schools, opportunities for early and information-rich hiring practices increase the likelihood that novices will seek out and find good matches in the districts in which they have been prepared. Aligning what candidates learn to what the students they will teach need to know and do can also mitigate the effects of an additional cycle—one where teachers of non-white, low-income, and low-achieving students are less qualified than their peers.¹³⁶

Partnerships that serve local communities respond to the oft-cited trend that the nation’s teaching force does not mirror the diversity of its students.¹³⁷ While this trend is the result of numerous structural factors that are economic, cultural, and academic in nature,¹³⁸ universities and districts that partner to prepare teachers can leverage organizational resources and provide financial and structural incentives to improve the diversity of the teaching corps. New research demonstrates how teacher residencies and similar models are increasing the number of diverse candidates prepared to teach in subjects, in grades, and with student populations that frequently see shortages and high turnover.¹³⁹

Turning to issues of retention, early studies found between 40% and 50% of new teachers leave within the first 5 years of entry into the occupation.¹⁴⁰ Moreover, related literature suggested a significant negative correlation between a teacher’s likelihood of retention and scores on exams such as the SAT; as defined by these authors, the “*best and the brightest*” appeared to be those most likely to leave.¹⁴¹

The more recent research paints a brighter picture, demonstrating how factors such as salary, induction support, strong instructional cultures, and teacher preparation foci contribute to the retention of new teachers; the Institute of Education Sciences 2015 Beginning Teacher Longitudinal Study discovered clear retention differences for new teachers earning more and less than \$40,000.¹⁴² The same study found that with each follow-up year, the percentage of beginning teachers who remained in teaching was larger among those who were assigned a first-year mentor than among those who did not receive this specific support. Although the effect of student outcomes associated with the new teacher mentor was not addressed, and has been challenged in some research,¹⁴³ the self-reports from the IES new teachers suggests that the mentors mattered to them. In its 2012 Greenhouse Schools study, TNTP found that working in schools with strong cultures of learning and collaboration was, above all else, the factor keeping the most effective teachers in their study in the classroom.¹⁴⁴

In his continuing inquiry into new teacher retention, Ingersoll recently reported on the significant correlation between the substance and content of new teachers' pedagogical preparation.¹⁴⁵ He reported that those with more training in teaching methods and pedagogy, especially practice teaching, observation of other classroom teaching, and feedback on their own teaching, were far less likely to leave teaching after their first year on the job. Recent data from NCTR further affirm the relationship between intensive, high-quality clinical preparation and teacher retention, reporting 3-year retention rates of 80% and 5-year retention rates of 70% for the 3,300 residency program graduates in its network.¹⁴⁶

Attrition is expensive; roughly half a million U.S. teachers either move or leave the profession each year, costing the United States up to \$2.2 billion annually.¹⁴⁷ Most significantly, the Alliance for Excellent Education analysis, and earlier studies focused on attrition rates by school type,¹⁴⁸ show that high teacher turnover disproportionately affects high-poverty schools. As argued here, new teachers will be more likely to leave if they are not paid well, are not given meaningful opportunities to learn in and through practice, and are left "lost at sea" when they join the profession as teachers of record.¹⁴⁹ There is an opportunity now to do things better and not just do them differently.

To realize the promise of clinical preparation, partners need to focus on building "deep and consequential" change in the classroom (described by Coburn and reflected in the research of Cohen, Elmore, and Kennedy, 2004).¹⁵⁰ If clinical preparation is only about a change of place and pace, limited to structures and calendars,

then transformation will remain out of reach. Instead, if change is deep and ownership shared, the field will witness new forms of adult and student interactions, new examples of curricula and pedagogy, and new forms of public engagement in which novices and teacher educators reason about practice in order to confront, but never resolve, the endemic uncertainties of teaching.¹⁵¹ By weaving preparation into the mission of school systems and universities, new teacher development becomes part of what each organization expects to do, moving the work from a project to the core of the institution's success. Policymakers need to do their part as well to ensure that the transformation of teacher preparation does not depend on tuition dollars and philanthropic largesse. Instead, as with the reformation of medical education, the financial responsibility for clinical preparation needs to rest with federal, state, and local governments as they hold schools and universities mutually responsible for delivering outcomes that matter: the acceleration of student learning and the retention of new and experienced *responsible* teachers.

DRIVER 4

In Conclusion

Best practices in teacher preparation have shifted over time based on new understandings of the competencies novice teachers need to be most effective in the classroom. **Today, a consensus has emerged among policy-makers, practitioners, and higher education faculty that a clinically based teacher preparation model provides beginning teachers with the skills required to do the job of teaching well, starting on day one.** The research within this literature review offers compelling evidence as to why programs are shifting towards this clinically based approach in teacher preparation, and more specifically, why the four quality drivers that comprise NCTR's Four Drivers Project are so critical to teacher preparation program success.

As NCTR works closely with the teacher preparation providers in its network over the next two years and beyond to further strengthen and hone their skills across these drivers, the research in this report will help us to study these programs based on a shared understanding of successful practice and help to ground our recommendations in proven methodology and approaches. Given the will and skill of the programs in NCTR's network, we also look forward to developing new evidence that can add to this research base in the future, for our own network's edification as well as the larger teacher preparation audience.

END NOTES

1. The Holmes Group, a consortium of deans and a number of chief academic officers from research institutions in each of the 50 states, is organized around the twin goals of the reform of teacher education and the teaching profession. Members of the group represent colleges of teacher education that are the leading research institutions in their respective states and regions. **See: Holmes Group. (1986).** *Tomorrow's teachers: A report of the Holmes Group.* East Lansing, MI: Holmes Group, Inc.
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3. The National Council for the Accreditation of Teacher Education (NCATE) represents a variety of perspectives, from policymakers to university deans and teacher educators.
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6. **The Bill & Melinda Gates Foundation. (2015).** *Teacher Preparation Transformation Centers: RFP-RFI Overview.* Seattle, WA: BMGF.
7. National Center for Teacher Residencies' (NCTR) Transformation Center, called the Four Drivers Project, will accelerate the impact of effective teacher residency programs and broaden the adoption of research-based practices in teacher preparation. NCTR will act as a research and evaluation laboratory identifying, testing, and scaling best practices for clinically-based preparation. Partnering with more than 30 residency programs, NCTR's Transformation Center providers will prepare 2,500 new teachers for high need schools. A unique component of the Four Drivers Project will be NCTR's partnership with five Demonstration Sites that will implement and test programming aligned to high quality preparation, act as laboratories of learning and improvement, and serve as models for all of the Center's providers.
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