

December 2011 Research Brief – The Alchemy of Effectiveness: The Path from High Potential Candidates to Highly Effective Teachers

The first research brief in our series on teacher effectiveness, *All Eyes on Teachers*, described how and why teacher effectiveness has emerged as a key education reform strategy in recent years. The second research brief in the series, *Getting from Here to There*, examined the research on what makes an effective teacher and whether effective teaching can be predicted. This final research teacher effectiveness brief will explore the question of how best to recruit high-potential prospective teachers and develop them into highly effective practicing teachers.

First things First: The Importance of Recruiting Top Talent

One of the distinct differences between countries and provinces with the highest student performance (e.g. Finland, Singapore, South Korea, Ontario) and the United States is in who is selected to become teachers and how teachers are recruited into the profession. Unlike high-performing countries which have intentional and systematic strategies to ensure that the very best possible teaching candidates enter teacher training programs (e.g., by making entrance to teacher training programs highly selective; recruiting all teacher candidates from the top third of the academic pool; paying for students' teacher education; offering compensation that is competitive with other high status professions), very few such strategies are used in the U.S. and certainly not used systematically at a state or national level. Despite evidence that teachers are the most important in-school factor impacting student achievement, teacher recruitment in the U.S. is, for the most part, haphazard. As one researcher put it, "the decision to become a teacher or administrator is almost always based on a sense of calling rather than deliberate and focused recruitment."¹

Teacher recruitment in the U.S. not only lacks focus, it lacks rigor. While there are many academically accomplished and effective teachers in the teaching force today, on the whole, only 23% of U.S. teachers come from the top third of the academic pool, fewer than 7% of public school teachers graduated from selective colleges and students who intend to major in education as an undergraduate or pursue an education graduate degree have lower SAT and GRE scores than non-education majors.² These statistics are concerning given that the strength of a teacher's academic background and a teacher's verbal and cognitive ability is strongly correlated with student achievement.³ It cannot

The Need to Strengthen the Teacher Candidate Pool:

- Only 23% of U.S. teachers come from the top third of the academic pool
- Only 7% of public school teachers graduated from selective colleges
- Only 14% of education majors had SAT or ACT scores in the top quartile, as compared to 26% of social sciences majors and 37% of math/science majors

¹ Rotherham, A. (2008) *Achieving Teacher and Principal Excellence: A Guidebook for Donors*.

² Auguste, B., Kihn, P. & Miller, M. (2010) *Closing the Talent Gap: Attracting and Retaining Top Third Graduates to Careers in Teaching, An international and Market Research-Based Perspective*. McKinsey and Company; Walsh, K & Tracy, C. (2004) *Increasing the Odds: How Good Policies Can Yield Better Teachers*, National Council on Teacher Quality; Education Testing Service. "Guide to the Use of Scores 2008-09"; College Board SAT "2008 College Bound Seniors Total Group Profile Report"; National Center for Education Statistics (2001). *The Condition of Education, 2001*. Washington, DC: US Department of Education.

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be overemphasized that teaching is an intellectually demanding profession. Teachers are called upon to “to know how and when to use a range of practices to accomplish their goals with different students in different contexts. And given the wide range of learning situations posed by contemporary students—who represent many distinct language, cultural, and learning approaches—teachers need a much deeper knowledge base about teaching for diverse learners than ever before and more highly developed diagnostic abilities to guide their decisions.”⁴ Though high-performing countries like Ontario, Finland and Singapore are not without economic, cultural and language diversity, the huge amount of diversity in the U.S. student population requires an even greater level of teacher skill and knowledge. Considering the complexity of teaching and the depth of knowledge and skill necessary to be an effective teacher, one of the key steps to improving teacher quality must be to strengthen the pool of teacher candidates. Breakthrough does just that by recruiting outstanding students from top colleges and high schools across the country and using an intensive and highly selective application process to choose the best possible candidates.

The Key to Unlocking Potential: Teacher Training

Recruiting top talent is a necessary first step, but in order to unleash their potential, even the most talented prospective teachers need high-quality training and support. As was discussed in *Getting from Here to There*, high-quality training for Breakthrough intern teachers begins when they teach with Breakthrough in their high school and college years (through the Intern Teacher Training Initiative). In order to support the development of our teacher alumni after they leave Breakthrough, we have created the Breakthrough Teacher Pipeline Project. The goal of the Teacher Pipeline Project is to develop pathways for Breakthrough’s high-potential teachers to enter strong teacher training programs where they will continue to receive the excellent training and support they need to become effective practicing teachers. So how do we know which teacher training programs are high quality? Aside from looking at quantitative data that correlates specific teacher training programs with impact on student achievement (these data are currently very limited in their availability), there is a significant amount of qualitative research that provides a picture of what an effective teacher training program should look like. One of the more comprehensive recent studies identified seven features that are common among high-quality teacher education programs:

- 1) a common, clear vision of good teaching that permeates all course work and clinical experiences, creating a coherent set of learning experiences;
- 2) well-defined standards of professional practice and performance that are used to guide and evaluate course work and clinical work;

³ Walsh, K & Tracy, C. (2004). *Increasing the Odds: How Good Policies Can Yield Better Teachers*, National Council on Teacher Quality; Wayne, A.J., and Youngs, P. (2003). *Teacher characteristics and student achievement gains*. *Review of Educational Research*.

⁴ Darling-Hammond, L. (2006). *Constructing 21st Century Teacher Education*. *Journal of Teacher Education*, Vol 57.

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- 3) a strong core curriculum taught in the context of practice and grounded in knowledge of child and adolescent development and learning, an understanding of social and cultural contexts, curriculum, assessment, and subject matter pedagogy;
- 4) extended clinical experiences—at least 30 weeks of supervised practicum and student teaching opportunities in each program—that are carefully chosen to support the ideas presented in simultaneous, closely interwoven course work;
- 5) extensive use of case methods, teacher research, performance assessments, and portfolio evaluation that apply learning to real problems of practice;
- 6) explicit strategies to help students to confront their own deep-seated beliefs and assumptions about learning and students and to learn about the experiences of people different from themselves;
- 7) strong relationships, common knowledge, and shared beliefs among school- and university-based faculty jointly engaged in transforming teaching, schooling, and teacher education.⁵

Importance of clinical experience in teacher training:

The National Research Council identifies clinical experience (or “field experience”) as one of the three aspects “that are likely to have the highest potential for effects on outcomes for students,” along with content knowledge and the quality of teacher candidates.

“Clinical experience,” or work in an actual classroom, under the guidance of skilled educators, which explicitly ties theory to practice, is one of the most commonly cited features in the literature on high-quality teacher training.⁶ While clinical experience is included in many traditional university-based teacher education programs, it is a defining feature of teacher residencies, where intensive and extended apprenticeships are the foundation of the program model. Teacher residencies are a model that is promising both in terms of producing well-prepared teachers and retaining teachers longer, which is why Breakthrough is actively pursuing partnerships with teacher residencies as part of our Teacher Pipeline Project⁷. In a 2008 study of urban teacher residencies, researchers found that 95 percent of AUSL (Academy of Urban School Leadership) graduates and 90 percent

⁵ Darling- Hammond, L. (2006). *Powerful Teacher Education: Lessons from Exemplary Programs*.

⁶ See, for example, Boyd, D. et al (2008) *Teacher Preparation and Student Achievement*; Paine, S. & Schleicher, A. (2011) *What the U.S. Can Learn from the World’s Most Successful Education Reform Efforts*; National Council for Accreditation of Teacher Education (2010). *Transforming Teacher Education through Clinical Practice: A National Strategy to Prepare Effective Teachers* and National Research Council of the National Academies; Committee on the Study of Teacher Preparation Programs in the United States (2010) *Preparing Teachers: Building Evidence for Sound Policy*.

⁷ Breakthrough Collaborative is currently partnered with teacher residencies in the Bay Area and Boston and is pursuing partnerships with additional teacher residencies.

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of Boston Teacher Residency (BTR) graduates were still teaching after three years and that principals gave high marks to graduates of urban teacher residencies (UTR). “Administrators report that UTR recruits, compared to both local teacher education graduates and alternative certified teachers, seem to be much better at reflecting on the quality of their teaching and collaboration with their colleagues.”⁸ A study that was just released on the Boston Teacher Residency found that 75 percent of BTR graduates continued teaching for five years, as compared to 51 percent of their peers. This study also provided findings on the impact of BTR graduates on student achievement. The study found that BTR graduates were as effective as their peers in raising student achievement in English and less effective than their peers in raising student achievement in math, but that BTR graduates’ math instruction improves more rapidly in the first five years than their peers such that BTR graduates outperform not only their peers but also veteran teachers within five years.⁹ This evidence of mixed success makes it premature to draw conclusions about the effectiveness of BTR (more research is clearly needed), but the fact that BTR is rigorously measuring their teachers’ impact on student achievement, one of very few teacher training programs to do so, places BTR at the forefront of the nascent movement to use student achievement data to evaluate the effectiveness of teacher training programs.

Building on the Foundation: Effective Support for New Teachers

Learning how to be an effective teacher does not stop once teachers complete their training. In fact, the first several years of teaching are a critical time in a teacher’s development. Research shows that novice teachers are not very effective in their first year, but that they increase their effectiveness in their first five years of teaching, becoming most effective in years three to five.¹⁰ Unfortunately a third of teachers leave the teaching profession by their third year and almost half of teachers leave the teaching profession by their fifth year and it is estimated that the annual turnover rate is 70% higher at urban high-poverty schools than low-poverty schools.¹¹ The cost of turnover is high not only in monetary terms (the Chicago Public Schools estimate that turnover costs them over \$86 million per year¹²), but is most costly to students who must deal with a revolving door of teachers and their schools who must continually direct resources towards rebuilding and stabilizing their teaching staff.

⁸ Berry, B. et al (2008). Urban Teacher Residencies: A New Way to Recruit, Prepare and Retain Effective Teachers in High-Needs Districts.

⁹ Papay, J., West, M., Fullerton, J., and Kane, T. (2011). Does Practice-Based Teacher Preparation Improve Student Achievement? Early Evidence from the Boston Teacher Residency.

¹⁰ Barnes, G., Crowe, E. & Schaefer, B. (2007). The High Cost of Teacher Turnover in Five School Districts: A Pilot Study. National Commission on Teaching and America’s Future.

¹¹ Snipes, J. & Horwitz, A, (2007). Recruiting and Retaining Effective Teachers in Urban Schools. Council of Great City Schools.

¹² Barnes, G., Crowe, E. & Schaefer, B. (2007). The High Cost of Teacher Turnover in Five School Districts: A Pilot Study. National Commission on Teaching and America’s Future.

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There are, however, several strategies that high-quality residency programs, schools, districts and charter management organizations employ that can both stem teacher turnover and support the development of new teachers into effective practitioners. A comprehensive induction program is a critical support for new teachers. Induction programs may be formal or informal and vary in terms of their intensity and comprehensiveness, but often include several of the following features: orientation sessions, professional development opportunities, structured information exchanges between novice and experienced teachers, formative assessments that provide constructive feedback to teachers and being paired with experienced mentors. One study found that just having a mentor in one's field reduced the risk of leaving at the end of the first year by 30%.¹³ Participating in an even more comprehensive induction program results in even greater retention. In high-performing Singapore, "beginning teachers are given two years of coaching from expert senior teachers who are trained by the National Institute of Education as mentors and have released time to help beginners learn their craft. During the structured mentoring period, beginning teachers teach a reduced load (about two-thirds that of an experienced teacher) and attend courses in classroom management, counseling, reflective practices, and assessment."¹⁴ Due to this intensive support, the annual attrition rate in Singapore is 3% as compared to annual attrition rates as high as 20% in some U.S. urban districts.¹⁵

Another essential support for all teachers, and especially novice teachers, is job-embedded professional development (i.e., professional development that is interwoven with teachers' daily work) and opportunities for collaboration. High-quality job-embedded professional development not only supports the learning and growth of teachers, but research shows that "large gains in [student] achievement have been found when teachers experience sustained professional development focused on learning to teach specific subject matter in the context of practice."¹⁶ Time for collaboration is a critical support that enables teachers to make sense of what they're learning and apply it in their context. One of the leading researchers on human capital in education describes effective collaboration as teams of teachers who "review student assessment data, plan instructional approaches, implement those instructional plans, discuss the results, determine which teaching strategies were the most effective, which were not, and modify the strategies so that next time they are more successful."¹⁷ Teacher collaboration, particularly collaboration that is characterized by high levels of collegiality, trust and frequent interactions, has been

¹³ Smith, T. & Ingersoll, R. (2004). What are the Effects of Mentoring and Induction on Beginning Teacher Turnover? *American Educational Research Journal*, Volume 41, Issue 3, September 2004

¹⁴ Darling-Hammond, L. and Robert Rothman, R. eds., (2011). *Teacher and Leader Effectiveness in High-Performing Education Systems*. Alliance for Excellent Education and Stanford, CA: Stanford Center for Opportunity Policy in Education.

¹⁵ Ibid; Barnes, G., Crowe, E. & Schaefer, B. (2007). *The High Cost of Teacher Turnover in Five School Districts: A Pilot Study*. National Commission on Teaching and America's Future.

¹⁶ The Forum for Education and Democracy (2008). *Democracy at Risk: The Need for a New Federal Policy in Education*.

¹⁷ Odden, A. & Kelley, J. (2008) *What is Strategic Management of Human Capital?* Consortium for Policy Research in Education.

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shown to be correlated with improved student achievement.¹⁸ In one study, researchers found that “peer learning among small groups of teachers was the most powerful predictor of improved student achievement over time.”¹⁹

Of course whether teachers receive high-quality induction, effective professional development and opportunities for collaboration is often determined by the capacity and priorities of the district in which they work and the principal at their school. On the whole, school leadership greatly impacts teacher effectiveness and retention, as well as student success. Teachers report that having an effective principal significantly influences their decision to stay at a school and research shows that “school leadership is second only to teaching in its effects on student learning.”²⁰ It’s not surprising that school leadership has such a big effect on student learning. Researchers and practitioners are finding that we “cannot improve student academic achievement just with talented people, high expectations and random acts of good practice. To be effective top talent must be professionally managed around a well-designed educational improvement strategy so that talented educators turn their aspirations and talents into instructional practices that boost student learning to high levels.”²¹ Ultimately teachers have the greatest impact on student achievement, but in order for teachers to have the greatest impact possible they need to be situated in high-functioning systems that are intentional and strategic in their educational strategies and vision, and comprehensive in their systems of teacher development and support. As Breakthrough expands the Teacher Pipeline Project and increases the number of pipeline partners, it will be important to consider the extent to which potential partners embody the features of a high-functioning education system and incorporate the strategies and best practices for effective teacher recruitment, training and support that are outlined in this research brief.

¹⁸ Leana, C. (2011) The Missing Link in School Reform. Stanford Social Innovation Review, Fall 2011.

¹⁹ Jackson, C. K., and Bruegmann, E. (2009). Teaching Students and Teaching Each Other: The Importance of Peer Learning for Teachers. National Bureau of Economic Research.

²⁰ Darling-Hammond, L. and Robert Rothman, R. eds., (2011). Teacher and Leader Effectiveness in High-Performing Education Systems. Alliance for Excellent Education and Stanford, CA: Stanford Center for Opportunity Policy in Education; Beteille, Tara, Demetra Kalogrides, and Susanna Loeb. 2009. “Effective Schools: Managing the Recruitment, Development, and Retention of High-Quality Teachers.” CALDER Working Paper 37. The Urban Institute.

²¹ Odden, A. & Kelley, J. (2008) What is Strategic Management of Human Capital? Consortium for Policy Research in Education.

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