

## Knowledge and Skills Base of Professional Teaching

### Teaching Expertise Dwarfs All Other Variables

Starting in 1995, a series of studies demonstrated conclusively that teaching expertise dwarfs other variables in accounting for student performance. The effect is so significant that having three high-expertise teachers in a row (as opposed to three low expertise teachers) has a cumulative effect equal to 50 percentile points on standardized tests. *This is for students who start equal!* [See attached Graphs]

Tragically, students who lose this much ground almost never catch up!

The answer is to focus resources on the personnel pipeline so it produces expert teachers for all children. We can't settle for a few outstanding teachers and a large body of under-skilled personnel with our children.

The graph above represents the scores of 6<sup>th</sup> graders who started equal at the beginning of 3<sup>rd</sup> grade. They were at the 60<sup>th</sup> percentile in the Tennessee State assessment. The blue bar (44<sup>th</sup> percentile) shows the achievement three years later of students from this group who were assigned to three low-gain teachers in a row. They lost ground. The yellow bar, (96<sup>th</sup> percentile) shows the achievement of students assigned to three high-gain teachers in a row. They soared.

In the next graph, the red line represents the bar graph we've just presented above. The blue line represents the findings when the study was repeated exactly in another major Tennessee city.

Though the numbers are slightly different for the achievement gain and losses of the students with high and low gain teachers, the difference in *effect* between the high and low gain teachers is the same – 50 percentile points. We represent that spread in the next graph.

So in three years, as a result of expert teaching or inferior teaching, students who started the *same* may wind up 50 percentile points apart on standardized tests! That is huge...enough to make the difference between being assigned to Advanced Placement courses or Special Education by the time one reaches high school.

These and similar results have been replicated over and over again in the last 15 years, all over the country, leaving no doubt that the focus of the coming decade *must* pay serious attention to developing high expertise teachers for all our students, not just some. Expertise is hard won. This will not be a quick-fix, but without it, all other well-intentioned and important reform efforts will continue to fall short. Conversely, we need this policy and funding focus on the personnel pipeline to enable all our other reform efforts to work.

See Appendix A for is a list of some noteworthy studies confirming the argument of this preamble.

Teaching well is as complicated as high-level practice in architecture, engineering, or law. You don't get a good teacher just by hiring a bright, motivated person. Successful teachers are distinguished by highly developed knowledge and skill. It is misleading to claim, as some do, that there is no agreement about professional knowledge. There is no disagreement whatsoever about a *treasury* of teaching skills, all supported by deep research. It is just that there is such a wide-range of them (as one would expect of a complex profession) that no one has pulled them all together or laid them out in *sufficient detail* so the map can guide policy. Now is the time to do so, and we can be the first state to accomplish it.

The thrust of the Department of Elementary and Secondary Education (DESE)/WGEE Project is to define this

professional knowledge base in detail, and infuse it into the ten processes that shape the teacher workforce in a measured but required and accountable way. This map of professional knowledge is an absolute requirement for guiding educator quality policy such as regulations, guidelines, and legislation, and giving support and guidance to colleges and other teacher prep programs, and to school districts in their conduct of induction, teacher evaluation, and professional development.

“Infusing” suggests measured pace over time of powerful medicine: the right ingredients at the right time and at the right rate. Certain elements of teaching should be mastered in pre-service programs, others in the intern or apprentice year of beginning employment, others in early career, and still others should be reserved for advanced professionals who are experienced and high-functioning practitioners.

Let’s be clear: the point here is 1) EXPERTISE to teach at a high level, 2) laying out clearly what that is in a way that can guide policy, 3) naming the processes through which teachers acquire this expertise, 4) making these processes operate in concert in an integrated way to ensure continuous learning and accelerated proficiency in the educators we develop. The force of law and policy at the state level is potentially the strongest force we have for upgrading quality teaching; and it must be guided by a clear vision of the complexity of teaching and what high-level skill looks and sounds like. The clear layout of professional knowledge is necessary; and appropriate parts of it must be embedded in every one of the processes that impact teacher quality.

Our theory of action is to create and then bind together previously non-existent or dysfunctional elements of the personnel pipeline with the glue of high-level professional knowledge and skill, and to do so comprehensively and forcefully. Accomplishing this goal requires a map of professional knowledge and skill that is detailed enough to guide the work. That is the project of the 2009-12 DESE/WGEE Partnership.

Below is a list of some noteworthy studies confirming the argument of this preamble:

Sanders, W. L. and J.C. Rivers. “Cumulative and Residual Effects of Teachers on Future Student Academic Achievement.” Knoxville, TN, University of Tennessee 1996.

Mendro, E., H. Gomez, M. Anderson, K. Bembry. “Longitudinal Teacher Effects on Student Achievement and Their Relation to School and Project Evaluation.” Paper presented at Annual Meeting of the American Educational Research Association, San Diego, CA, April 1998.

Babu, Sitha and Robert Mendro. “Teacher Accountability: HLM-Based Teacher Effectiveness Indices in the Investigation of Teacher Effects on Student Achievement in a State Assessment Program.” Dallas Independent School District, paper presented at American Educational Research Association, April 2003.

Rivkin, S.G., E.A. Hanushek, J.F.Kain. “Teachers, Schools, and Academic Achievement.” *Econometrica*. Princeton, N.J. 2005.

Pianta, R.C., J. Belshy, R. Houts, F. Morrison. “Opportunities to Learn in America’s Elementary Classrooms.” *Science*, vol. 315, March 2007.

Schwartz, R., J. Wurtzel. “Teaching Policy to Improve Student Learning: Lessons from Abroad.” The Aspen Institute, published in *Education Week* 2010