WHAT TEACHER PREPARATION PROGRAMS TEACH ABOUT K-12 ASSESSMENT

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A review of coursework on K-12 assessment from a sample of teacher preparation programs

SUMMARY

Over the past several decades, federal and state governments, school districts and education leaders have invested significant resources to develop assessments and data systems to track student performance. Yet little attention has been paid to the importance of building the capacity of teachers in assessment so that they are prepared to use data on student learning to inform and improve instruction. As part of our *National Review of Teacher Preparation Programs*, the National Council on Teacher Quality (NCTQ) is examining the extent to which teacher preparation programs train teachers to understand assessment data and use that data to make informed instructional adjustments. Our preliminary findings are cause for concern: At best, teacher preparation programs in this preliminary sample are providing limited training to candidates in the field of assessment and data use. As a result, schools end up employing teachers who lack the training necessary to make use of information increasingly at hand.

BACKGROUND

Spurred by state and federal accountability systems, an increasing number of the nation's school districts are working to implement "data driven instruction." Data driven instruction, though lacking a formal definition, has come to represent an organized and collaborative commitment by educators to develop or adjust instruction based on a broad set of data on student learning, demographics, attendance and school climate. The key question in schools and classrooms across the country has shifted from "Was the content taught?" to "How much have our students learned?" and then "How can we help our students understand what they haven't learned?"

Federal and state governments have spent millions of dollars creating the infrastructure that data driven instruction demands. Over $500 million of federal funding has been spent on developing states' technology infrastructure to support data driven decision-making through the Statewide

Longitudinal Data System (SLDS) program.[1] Secretary of Education Arne Duncan made data driven decision-making a national priority by requiring recent Race to the Top investments to address improving data systems and creating high quality assessments. Among organizations, the Data Quality Campaign has been instrumental in marshalling efforts to build educators' data literacy.[2]

But ask teachers, especially new teachers, about their comfort level with applying data in order to make instructional decisions and you're likely to get the same answer: They are not at all comfortable with much of anything about the process.

Reports from those districts that have implemented data driven instruction and made big gains in student performance indicate that developing teacher capacity in the process can take years.[3] Accordingly, it is incumbent upon initial teacher preparation programs to lay the proper foundation for teacher candidates' understanding of data driven instruction. This basic training should focus on data that is derived from assessments of student learning, with "assessment" broadly construed to include a range from informal checks of understanding using classroom exercises to formal, standardized tests.

While other data on students and schools can be useful to teachers, being able to understand and analyze assessment data is essential. Hence our goal in this review: ascertain the extent to which teacher preparation programs are providing new teachers with the foundation in using assessment data that they need to succeed. To date, there has been no systematic examination of teachers' preparation in assessment and the use of assessment data in data driven instruction. Indeed, no framework for conducting such a systemic examination has even been advanced.

This first analysis evaluates all of the coursework related to assessment in a preliminary representative sample of 48 elementary and secondary programs, housed in 29 higher education institutions in nine states. In May 2012 we will expand this initial sample to report on approximately 200 programs housed in 100 institutions in 25 states.

Our findings provide the basis for our recommendations for federal and state agencies, school districts and foundations to help them leverage improvements in assessment course-work in teacher preparation programs.

What foundation must teachers have to begin to practice data driven instruction?

Every day, teachers make a tremendous number of both short- and long-term decisions about instruction. Indeed, it is estimated that teachers make around 11,000 *significant* instructional decisions in any given year.[4] They should base such decisions on evidence of student mastery of content as revealed by any in a wide range of assessments.

To that end, it makes sense that the first thing that a teacher candidate should develop is some degree of ***assessment literacy***. In other words, teacher candidates should understand the taxonomy of assessment (distinguishing between "formative" and "summative," "norm-referenced" and "criterion-referenced" assessments, and so on), the kinds of data produced by each type of assessment, and the uses for such data.

Second, teacher candidates should develop the right ***analytical skills*** to apply to assessment data. In addition to assessment literacy, they need to know how to dissect, describe and display the data that emerges from assessments.

Lastly, teacher candidates need to learn how to use assessment data to make the best decisions about what and how to teach and re-teach: ***instructional decision-making***.

For this memo and the larger review, we evaluated the extent to which required coursework in undergraduate

1 http://nces.ed.gov/programs/slds/stateinfo.asp

2 www.dataqualitycampaign.org

3 Zavadsky, H. (2009). *Bringing school reform to scale: Five award-winning urban districts*. Cambridge, MA: Harvard Education Press.

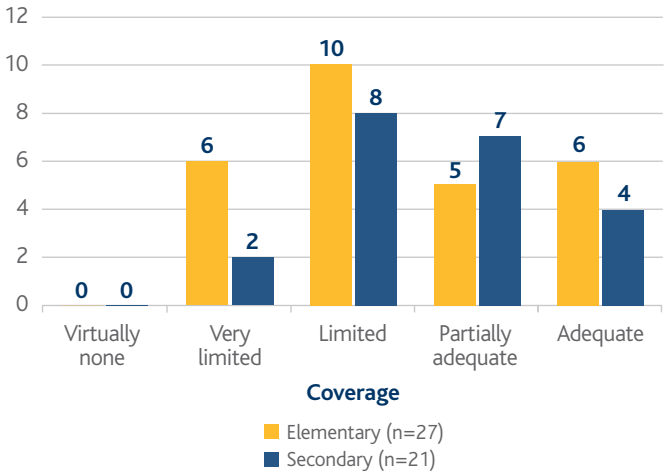
4 Hosp, J. L (December 2010). *Linking Assessment and Instruction: Teacher Preparation and Professional Development. A TQ Connection Issue Paper on Improving Student Outcomes in General and Special Education*. Washington, DC: National Comprehensive Center for Teacher Quality. (Access at: http://www.tqsource.org/pdfs/TQ_IssuePaper_AssessInstruct.pdf)

elementary and secondary programs covers these three critical domains of assessment: ***literacy***, ***analytical skills*** and ***instructional decision-making***.

An important note regarding our ratings methodology: In order to receive the highest rating in any of the three domains, the program would not only have to provide instruction on the topic, but also provide opportunities for practice (in the form of class exercises, culminating projects, or the like).

FINDINGS

How adequate is program coverage of *assessment literacy*, in which the teacher learns and practices the taxonomy of assessment?

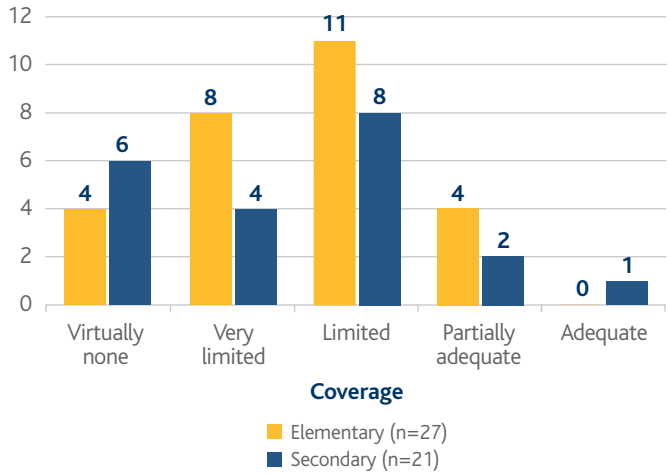


Only 21 percent of the programs in the sample cover literacy topics adequately, with an additional 25 percent doing so with partial adequacy. More than half of all programs have very limited or limited coverage.

One in five programs (21 percent) in our sample earned the highest score on this first domain of assessment literacy because their coursework provides: 1) comprehensive coverage of both classroom and standardized assessment (including key concepts such as validity and reliability), and 2) practice on developing and scoring assessments. However, in just over half of the programs (54 percent), the coverage came up short, usually because courses focus too exclusively on *classroom* assessments and do not build crucial skills in making use of standardized test results. Facility with classroom assessment is an important skill, but an inability to synthesize data from district and state standardized tests with data from classroom assessments can cripple novice teachers and impair their capacity to improve student performance.

The findings are considerably bleaker in the second domain of analytical skills. In general, coursework appears to provide only the most basic tools for analysis of assessment data.

How adequate is teacher preparation program coverage of *analytical skills*, in which teacher candidates dissect, describe and display the data that emerges from assessments?

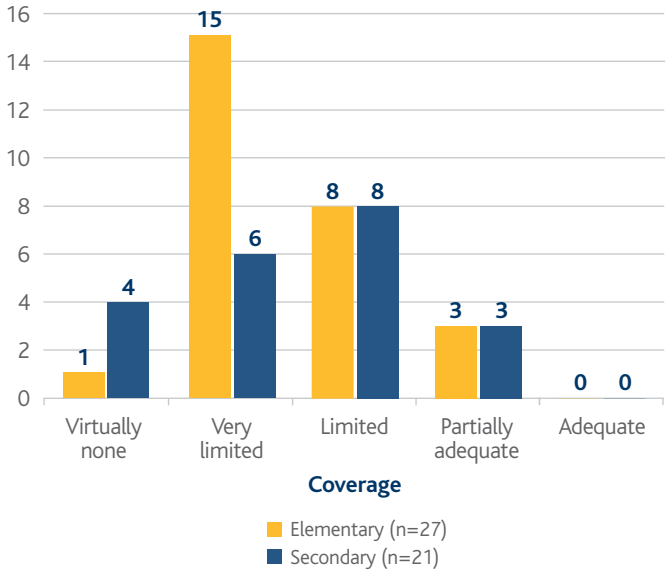


Only 2 percent of the programs in the sample cover analytical skills analysis adequately, with an additional 13 percent doing so with partial adequacy. The vast majority of programs (85 percent) have no, very limited or limited coverage.

Only four programs (8 percent) expose teacher candidates to the process of analyzing data from standardized assessment. Indeed only three of the 48 programs (6 percent) stress in course materials the terminology and concepts that a candidate would find necessary to interpret standardized test scores. In 21 programs (44 percent), teacher candidates analyze classroom assessment data through independent "capstone projects," but this exercise appears to be candidates' only practice in three of four such programs

seeing as how they have no relevant assignments associated with coursework. Moreover, while teachers in schools now routinely engage in *collaborative* analysis, we found evidence of collaboration in only five preparation programs' class assignments (10 percent) and one programs' capstone project (2 percent).

How adequate is teacher preparation program coverage of *instructional decision-making*, in which teachers use assessment data for planning instruction?



No programs in the sample cover instructional decision-making adequately, with 13 percent doing so with partial adequacy. The vast majority of programs (87 percent) have no, very limited or limited coverage.

In this third domain of instructional decision-making, the findings remain bleak, with no program adequately addressing this assessment domain. Many programs do provide at least cursory exposure to the concept of "formative assessment," which constitutes a toehold on how to use assessment data for planning. However, we found that programs generally do not use their methods courses as the vehicles for more nuanced, subject-specific practice addressing, for example, common but subtle misconceptions and misinterpretations that might underlie incorrect answers, or how assessment results might suggest necessary instructional scaffolding.

How adequately *overall* do teacher preparation programs cover all three domains of assessment?

While assessment is addressed to some extent in every one of the 48 programs we examined, only two elementary and one secondary program (6 percent) provide preparation that can be deemed "**adequate**."

Coverage relative to this overall metric can be classified as "**partially adequate**" in another four elementary and six secondary programs (21 percent).

The remaining 21 elementary and 14 secondary programs (73 percent) in the sample proved to contain such substantial weaknesses in one or more of the three domains of assessment that their preparation can only be classified as "**inadequate**."

What is an acceptable program? Our definition has three parts:

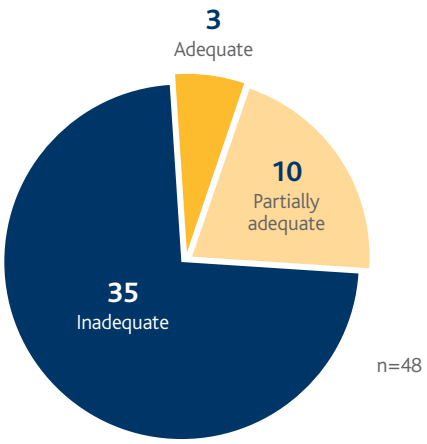
First, it provides the teacher candidate with a strong foundation in assessment literacy, with attention to the instructional role of standardized tests, particularly the program state's standardized tests.

Second it requires the teacher candidate to apply that knowledge, specifically by preparing formative and summative classroom assessments.

Lastly, it gives the teacher candidate a relatively strong foundation in interpreting and applying data, both alone and working with a team, and does so using both standardized and classroom assessments.

These three parts are based roughly on the three domains, but combining them into an overall metric moves us away from a simple aggregation of ratings in each domain. Frankly, this allows us to deem "acceptable" a program that may not have received the highest rating on one or both of the second and third domains, but still provides a "*relatively* strong" foundation in the competencies they address.

Overall coverage of the three assessment domains



Only 6 percent of programs in the sample cover assessment adequately, with 21 percent doing so with partial adequacy. Almost three-quarters of programs (73 percent) have inadequate coverage.

We found that neither differences in state regulations nor the nature of a state's professional standards explains any differences in the adequacy among programs' coverage of assessment. States with explicit expectations regarding teachers' knowledge of assessment were more likely to have an institution with better outcomes, but by no means did this apply to all of the institutions in the sample in any given state. As far as program accreditation goes, the difference points to a *negative* impact of accreditation: Programs in institutions that are *not* accredited by NCATE were more likely to provide adequate coverage of assessment.

RECOMMENDATIONS

We fully recognize that assessment and use of assessment data is a sufficiently large and important topic for digestion by teacher candidates that no matter how adequate a program may be in laying a foundation, continued training will be necessary to build and hone knowledge and skills during induction and throughout classroom teaching. But the need for in-service training does not negate the need for strong pre-service preparation. There are numerous levers that should be used to provide both increased pressure on and increased support for teacher preparation programs to lay a better foundation in this area:

Invest in research

There are a number of issues related to data driven instruction that warrant exploration. ***Federal policy*** should support research into the effects of data driven instruction on student achievement, the knowledge and skills teachers need to become expert at data driven instruction, the conditions within schools that are necessary for data driven instruction to have maximum impact, the collection and dissemination of best practices related to pre-service and in-service training, and the compilation and meta-analysis of existing research on assessment, data driven instruction, and related topics.

Build teacher capacity

The ***federal government*** should encourage better teacher candidate preparation in data driven instruction by: 1) amendments to Title II of the Higher Education Act (HEA) to provide suitable incentives to teacher preparation programs to prepare candidates to understand and use assessments and assessment data, 2) requiring that a portion of SLDS funds be used for training on assessment and data skills, and 3) allocating a percentage of funds under Title II of the Elementary and Secondary Education Act (ESEA) for training. Amendments to HEA and ESEA respectively could also: 1) provide states with incentives to ensure that their program approval authority reinforces the importance of teacher data skills, and 2) encourage innovative state and local practices in data driven instruction.

Increase accountability of preparation programs

Two different and potentially complementary approaches might increase the accountability of preparation programs with regard to the quality of their assessment coursework:

- **DISTRICTS**

  Of all the stakeholders in the country's educational system, ***school districts*** have the greatest vested interest in hiring more assessment-capable teachers. Now – of necessity – they must hire new teachers who no sooner arrive at their doorsteps certified to teach than they need to be provided professional development on a variety of assessment tools and tasks necessary for school

improvement. Districts that hire a large share of graduates from any given teacher preparation program might wish to use their bargaining power to bring the program to the table for collaborative work to ensure that its teacher candidates arrive with a better foundation in all assessment domains.

Where such collaboration is infeasible, better screening of all candidates on assessment knowledge in the hiring process would be helpful. We recommend that the ***Council of the Great City Schools*** develop a test of knowledge in all assessment domains that can be used in short order for hiring purposes by school districts.

- **STATES**

  Teacher licensing tests can drive significant change in teacher preparation programs. One possible reason that assessment is addressed so poorly in teacher preparation programs is that it is not covered at any depth in the licensing tests required by most states. As a first step to remedying this situation, the ***Council of Chief State School Officers*** **(CCSSO)** could evaluate the scope of topics addressed in those licensing tests that do include assessment to make recommendations to states about how licensing tests might be improved in this area. If warranted, CCSSO could sponsor a consortium of states who wish to aggressively promote licensing test enhancements.

Develop model exercises and curriculum.

The most sophisticated coursework on data driven instruction offered to practicing teachers and administrators requires that they bring to class their district's student performance data for use in analytical exercises. One of the impediments to creating similar exercises in initial certification program coursework is that no one has easy access to that kind of data inventory. To spur the same kind of exercises for teacher candidates, ***states*** and ***foundations*** should develop "canned" elementary and secondary school data sets that contain fabricated but realistic student performance data from a typical range of classroom, district and state assessments. These data sets could be used by teacher educators to develop a very rich collection of assessment exercises designed to develop teacher candidate capacity in literacy, analytical skills and instructional decision-making in existing coursework or in model course curricula developed by ***foundations*** and their partners.

CONCLUSION

The assessment knowledge that most initial certification programs see as necessary for teacher candidates and the assessment knowledge that district and state personnel see as necessary for teachers are simply not the same. In too many programs, what assessment coursework is required centers only on the classroom, preparing teacher candidates to develop and use assessment data to improve their students' performance in an insular environment. Important as this type of preparation may be, it short-changes teacher candidates because it does not simulate the environment in which they will work. Those candidates who are hired from programs with this highly circumscribed introduction to the three assessment domains will probably find themselves confronting data presentations that use terms and concepts to which they have never been exposed, some as early as their very first faculty meeting. Today's schools demand teachers who can comfortably understand and utilize – both individually and collaboratively – a full range of classroom and standardized data, whether it relates to their own students or all students in their school. Preparing them for anything less is unfair to teacher candidates as well as to the many students they plan to teach.