KINGSBURY
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State Standards and Student Growth: Why State Standards Don't Matter as Much as We Thought

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Mike joined NWEA in 2007 as a research associate after working as a research analyst for the Oregon Department of Human Services. He has also worked as an adjunct and visiting psychology professor at Pacific University. Mike's recent NWEA work includes extensive research and reporting to examine the effectiveness of the No Child Left Behind Act. His professional affiliations include the American Psychological Association, the American Psychological Society, Society for Research in Child Development, the American Educational Research Association, and the National Council on Measurement in Education. Mike holds a Ph.D. in Developmental Psychology from Pennsylvania State University, a M.S. in Psychology from Western Washington University, and a B.A. in Biology from Pomona College.

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Yun joined NWEA in 2008 after four years of educational research at Boston College. She has also served as a research assistant at Tufts University and an educator at Boston College and Jinnan Collage in Tianjin, China. Yun's recent published works and presentations include a look at ethnic differences in achievement growth, research involving the professional satisfaction of teachers and a comparative study of teacher development. Yun holds a Ph.D. in Educational Research, Measurement and Evaluation and a M.Ed. in Curriculum and Instruction from Boston College, and a B.A. in English Education from Xiangtan Normal University, China.

Sarah Durant – Senior Research Associate

As a Senior Research Associate for The Kingsbury Center at NWEA, Sarah continues in her professional mission of supporting the educational community by providing the data it needs to function successfully, efficiently and equitably. Prior to joining NWEA in 2009, Sarah worked as a Principal Performance Analyst for Multnomah County and as a Research Analyst for the Oregon Department of Education. In addition to policy research and data analysis, her skills include performance measurement, program evaluation, project management, and organizational design. Sarah holds a Masters of Public Policy from the University of California at Berkeley, and a B.A. in Linguistics from Boston University.

John Cronin – Director of the Kingsbury Center at NWEA

John's research interests are wide-ranging, but his recent work has focused on the impact of the No Child Left Behind Act on state standards, equity and the measurement of student growth. In addition to leading the Center and pursuing his own research, John provides consultation related to testing and support to organizations including the Walton Family Foundation, the Thomas B. Fordham Institute, Teach for America and the KIPP foundation. He has broad prior experience in education, serving for 15 years as a high school teacher, coach and school administrator. He also spent nearly 10 years as a consultant to schools in improvement and assessment prior to pursuing his research career. John holds a Bachelor's degree in Communications from Gonzaga University, and a Ph.D. in Educational Studies from Emory University.

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Executive Summary

The goal of the No Child Left Behind Act (NCLB) was to ensure that states set educational standards in core academic subjects, and to hold schools accountable for ensuring that all students meet these standards. Ratified in 2002, NCLB gave schools approximately twelve years, until the end of the 2014 school year, to demonstrate that 100% of students meet their state standards, including students with special needs, those with limited English proficiency, and traditionally academically disadvantaged groups such has high poverty students. Furthermore, NCLB requires schools to demonstrate adequate yearly progress (AYP) towards meeting the 100% proficiency targets in every year between 2002 and 2014.

Given the inflexibility of NCLB's AYP targets and the federal line drawn in the sand for 2014, critics have expressed concern that states, particularly those with high academic proficiency standards[1], must eventually choose between easing their standards to the point that even the lowest performing students can meet them, or face increasing federal sanctions of schools, including loss of funds, forced reallocations of students within districts, and eventually, school closures. There is some justification for this concern. Many states have indeed lowered their proficiency cut scores since NLCB's implementation (Cronin, Dahlin, Kingsbury, Adkins, 2007), including states that had previously maintained some of the highest proficiency standards in the nation (Dahlin and Cronin, 2009).

Other criticisms have focused on NCLB's use of proficiency rates as the school performance metric, since it only holds schools accountable for the performance of students that are below their state proficiency standards. Students whose performance exceeds their state proficiency standards exert no influence on school outcomes, and NCLB does not require schools to ensure that students performing above state proficiency standards make any kind of progress at all (Loveless, Farkas, and Duffett, 2008).

Implicit in these trends are two assumptions. The first assumption is that lowering the proficiency cut scores negatively impacts student performance and growth. The second is that the implied focus of the current accountability system on nearly- or non-proficient (i.e., "bubble") students has negative consequences for higher performing, already-proficient ones.

The Kingsbury Center at NWEA is home to one of the nation's largest repositories of information about student academic growth, so we examined these two assumptions using growth data collected from hundreds of thousands of students across the country, a small sample from the millions of student records hosted within the Kingsbury Center's Growth Research Database. Specifically, we examined two questions:

1) After accounting for differences attributable to poverty, race, gender, amount of instruction received, and pertinent level school factors, does the difficulty of a state's proficiency standards bear any relationship to student academic growth?

2) Do students that are above their state's proficiency standard demonstrate less growth, relative to their peers, than do students performing below the level of their state proficiency standards?

We investigated these questions separately for four samples of roughly 100,000 students, one sample each for third and eighth grade students, and for reading and mathematics. Samples included growth information from students living in 32 states. All students in each sample participated in NWEA's Measures of Academic Progress (MAP) test during the fall 2008 and spring 2009 terms, a computerized-adaptive test that reports student performance on an equal-interval cross-grade scale. Student growth was calculated by finding the difference between the fall and spring scores.

To create a comparison group for each sample, every member of the study group was matched with up to 51 students who formed a *Virtual Comparison Group (VCG* for that student. Each student in the VCG closely matched the study group student on the variables of race, gender, starting achievement, the amount of instructional time, and a number of pertinent school characteristics, including school poverty rate. To compare the groups, the growth of each student in the study group was compared to the mean growth of the student's *Virtual Comparison Group* and aggregated. The difference, which is expressed as a *VCG Growth Index* expresses the net growth of the study group students relative to the growth of their collective VCGs.

To evaluate the research questions, a Hierarchical Linear Model was used. The model evaluates two

[1] For our purposes, when referring to a standard or its difficulty, we refer to the proficiency cut score on the state assessment.

independent variables relative to each student in the sample, these being the difficulty of the proficiency cut score and the status of the student relative to that cut score (i.e., whether the student's fall performance was projected to be above or below the proficiency standard). Because student performance varies across states, the model controls for the student's state as a random effect. Differences in student demographic characteristics were not directly controlled in the model, but were controlled through the VCG matching process. The VCG Growth Index is the dependent variable in the model and is used to evaluate whatever influence the difficulty of the standard and the status of the student relative to it might have on growth.

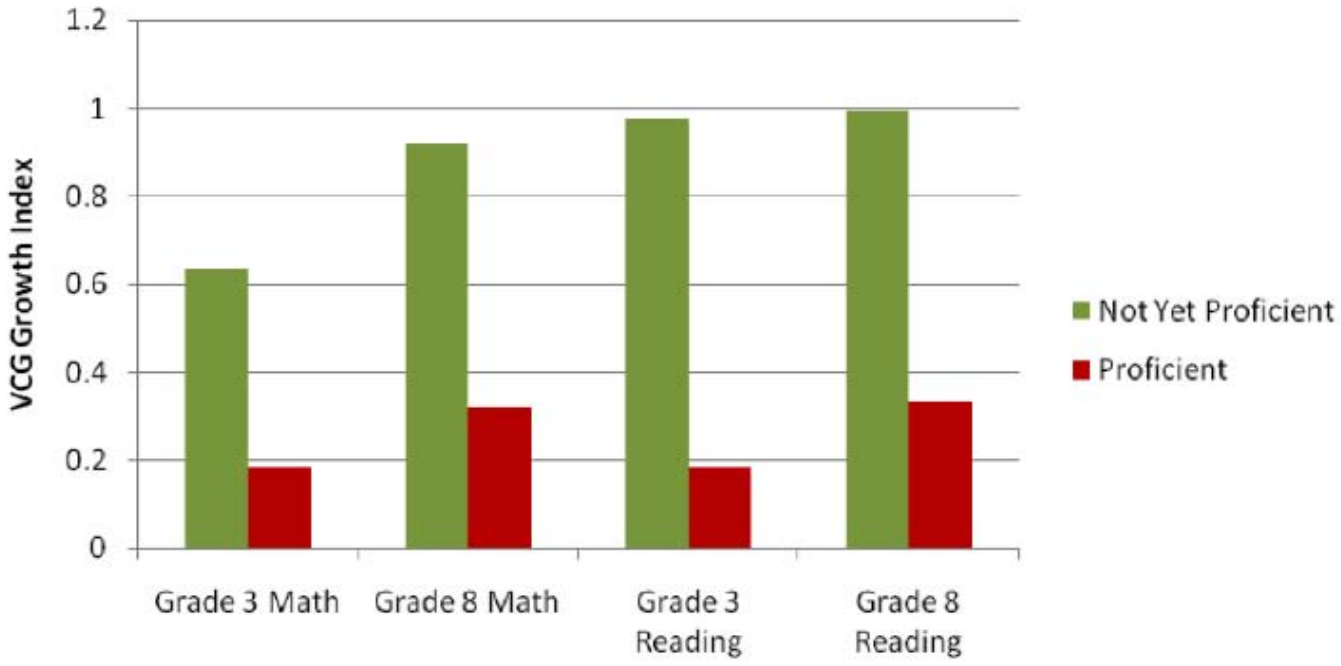
Although our analyses examined each combination of grade and subject separately, our findings were consistent across elementary and middle school students, and across academic disciplines, with only one notable exception as described below.

Question 1: Do students who fall below the performance level of their state's proficiency standards demonstrate greater growth, relative to their peers, than students who are already proficient?

For this question, the model revealed a consistent pattern across all grades and subject areas. Students who already meet or exceed their state's proficiency standards showed less academic growth over the 2008-09 school year, relative to their peers, than students below their state's proficiency standards. The differences for each grade/subject combination are summarized in Figure 1.

The results indicate that students who meet/exceed their state's proficiency standards at the beginning of the school year prior to receiving any instruction (roughly one half of each of our samples), receive less benefit from their instruction than do their lower performing counterparts. On average, the differences in the VCG growth index for the proficient and not-yet-proficient students were between 0.4 scale score points and 0.8 scale score points. These differences, while not extraordinarily large, are statistically significant and would typically represent between about two weeks and four weeks of instruction.

Figure 1. VCG Growth Index for Proficient/Not Yet Proficient Students



Question 2: Do students in states with difficult proficiency standards show more academic growth than students from states with lower standards?

Differences across states with respect to school curricula, geography, poverty levels, and other factors all have an impact on academic growth. But our analytical approach (hierarchical linear modeling) permitted us to tease out differences that might be attributable to the difficulty of the state proficiency standard and to examine the potential impact from high or low state standards separately. For three of the four samples, we found no significant relationship between the difficulty of the proficiency cut score and the growth of our study group relative to their VCG. We did find that 3rd grade math students showed a modest increase in academic growth related to the difficulty of state math standards (see Figure 2). In other words, setting higher third grade math proficiency standards was associated with greater growth in math skills. But this pattern was not found in the middle school grades evaluated (Figure 3). The effect of the proficiency cut score is modest; a ten point increase in the difficulty of the cut score (which would increase its difficulty by about one grade level) would improve student growth by 0.4 scale score points or roughly two weeks of instruction.

As can be seen in Figures 4 and 5 for grade 3 and grade 8, respectively, no relationship at all was seen between growth in reading and state standards. In other words, students from states with difficult reading standards showed neither more nor less growth in reading than students from states with easy standards.

Implications

Two major criticisms of NCLB were examined and justification for one of these concerns was substantiated. Across all four samples, we found that a student's status relative to his or her state proficiency bar had an effect on growth, and that students below the proficiency bar showed greater growth than those above it. This tends to validate concerns that NCLB may be focusing the energy of educators on "bubble" students, or students below the state proficiency cut score who might help the school meet its Adequate Yearly Progress requirement if they were to become proficient during the school year.

Figure 2. Impact of State Standards on VCG Growth Index For Grade 3 Math

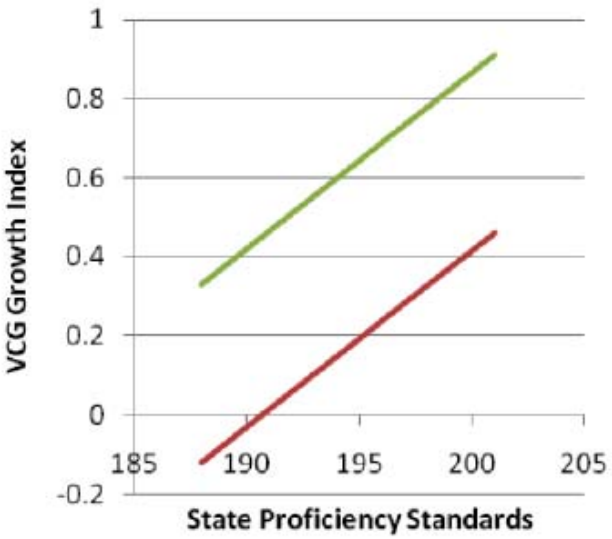
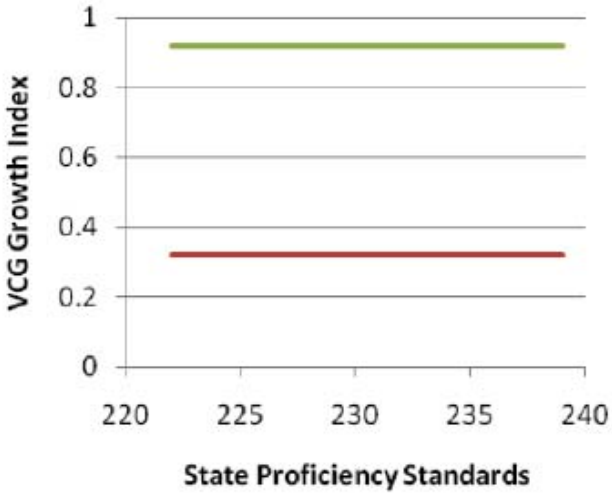


Figure 3. Impact of State Standards on VCG Growth Index For Grade 8 Math



However, the prevailing wisdom that lower proficiency standards lead to poorer student outcomes was observed in only one of four conditions. In the case of third grade mathematics, lower state standards did indeed predict modestly poorer growth. However, this relationship did not persist into middle school, and it was not seen at all in reading. In other words, in three of the four cases examined, student growth bore no relationship to whether states set their academic proficiency standards high or low.

What did impact growth was not whether state proficiency standards were high or low, but whether a student was above or below that arbitrary proficiency line, wherever it was. Students above that line received less benefit from their instruction, relative to peers, than did students below that line.

This finding is consistent with the concerns by NCLB critics who claim that measuring only whether students exceed state proficiency thresholds means that high performing students, whose performance is well above proficient, won't impact school accountability outcomes. And since these students don't impact school outcomes, growth opportunities for these high performing students are missed.

Alternatives to proficiency rates such as growth metrics that require all students to demonstrate improvement, may be a more equitable approach to school accountability, and may do more to ensure that all kids are reaching their fullest potential.

References

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Figure 4. Impact of State Standards on VCG Growth Index For Grade 3 Reading

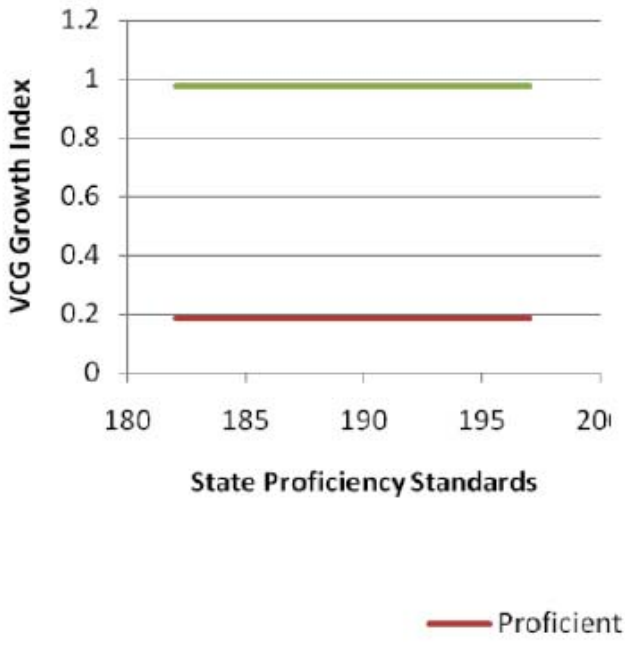

Figure 5. Impact of State Standards on VCG Growth Index For Grade 8 Reading