WIDA™ RESEARCH REPORT

DISTRICT-LEVEL ANALYSIS OF ELL GROWTH

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MAY 2013

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World Class Instructional Design and Assessment (WIDA) advances academic language development and academic achievement for linguistically diverse students. WIDA was formed as the result of a federal grant to comply with the requirements of the No Child Left Behind Act. It is a consortium of states and districts working together to promote achievement of English language learners. The organization has created a comprehensive system that includes English Language Development Standards, Spanish Language Development Standards, English language proficiency assessments, professional development for educators of ELLs, and research on all aspects of English language learning.

RESEARCH

WIDA's Reseasrch Department seeks to provide timely, meaningful, and actionable research that promotes educational equity and academic achievement for linguistically and culturally diverse students. Its annual research agenda is developed under the guidance of the WIDA Consortium Board Research Subcommittee and includes topics in the areas of academic language, standards, professional learning, and policy.

Introduction

The purpose of this ongoing research project is two-fold: a) to identify school districts within the WIDA consortium where sustainable and relatively higher and lower growth in ELL performance is recorded[1] and b) to find common characteristics and/or practices shared among these "high-flying" and "low-cruising" school districts that are potentially underlying their success (underachievement).[2] As a measure of district-level ELL growth, students' test scores on ACCESS were used to aggregate and derive district-level average Composite Scale Score Gains (CSSG) for all WIDA school districts for the period of 2007-2011 (outcome variable).[3] The total number of districts used in the analysis varied with the cycle, ranging from 570 to 1057. All districts were longitudinally connected for this five-year time period.

Since the primary focus of this research was to find sustained gains in district-level ELL performance, it is important to assess whether such gains are observed within the data (ACCESS). To evaluate whether such gains exist and are indeed sustained from one year to the next, or in other words to make sure that there are school districts that consistently "grow" faster (slower) than others, we first looked at the correlations between district-level CSSGs across the four growth cycles. Table 1 presents the Pearson correlation coefficients across the 2007-2011 time-period.[4] Of particular interest are the numbers in boldface, indicating correlations for adjacent growth cycles.

TABLE 1: Pearson correlation between districts' Composite Scale Score Gains across growth cycles

Growth	2007-2008	2008-2009	2009-2010	2010-2011
2007-2008	1.00	-	-	-
2008-2009	**0.58**	1.00	-	-
2009-2010	0.52	**0.62**	1.00	-
2010-2011	0.57	0.58	**0.65**	1.00

The reported across-cycle correlation coefficients provide preliminary evidence that within this sample of WIDA districts, there are some that are recording consistent and relatively faster (or slower) growth rates. In other words, if within a particular year a school district has performed well in terms of its CSSG growth, we can generally expect it to perform similarly the next year. [5]

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1 An implicit assumption here is that high "ELL growth" is an important and desirable attribute for a district. Since the literature on English language acquisition has yet to test this assumption, examining the relationship between ELL "growth" and other academic outcomes (such as achievement in content) is well outside the scope of this study.

2 This Report focuses on describing the first stage of the research project (a), which has already been implemented. The second stage of the project (b) is currently underway.

3 Smaller districts, (under 30 ELLs), were excluded from the analysis due to small sample considerations.

4 Pearson correlation coefficients range from (-1 to 1) and are a measure of the strength and direction of the (linear) association between two variables. While there are no clear and scientifically established guidelines, conventionally correlations above 0.60 are regarded as moderate.

5 The converse is also true. If a school district has not performed well in a given year, we should be surprised to find high rates of "growth" in the next year.

"Lower is faster, higher is slower"

The literature on English language proficiency assessments has illustrated that it is increasingly more difficult to achieve growth in higher-grade and higher-proficiency ELLs.[6] To put it differently, when it comes to growth in ELL performance, as defined by ACCESS test scores, *"lower is faster, higher is slower"*. A visual confirmation for this principle at the district-level can be found in Figures 1 and 2 below, which respectively depict the distribution of WIDA's districts by their average proficiency level and grade. A general downward-sloping trend in the distribution, which gets more defined with later cycles that include larger numbers of districts and member-states in WIDA, is indication that the starting proficiency level and grade are important factors in evaluating ELL growth at the district-level as well.

FIGURE 1: District-level Composite Scale Score Gains by Proficiency Level

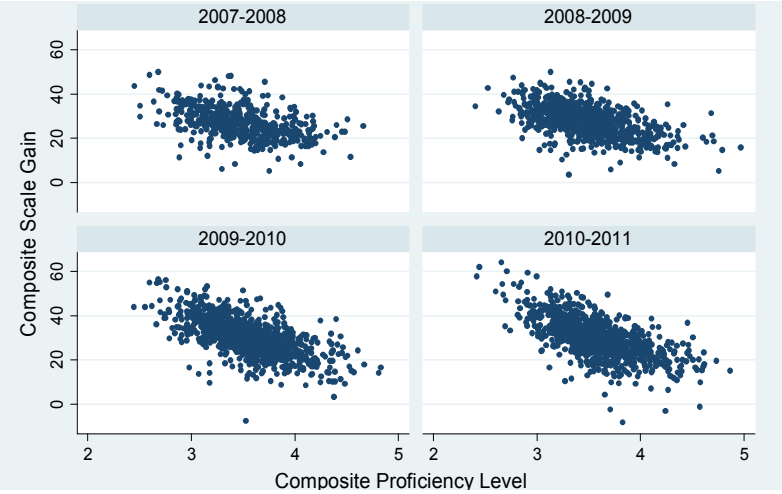

FIGURE 2: District-level Composite Scale Score Gains by Grade

6 Cook, Wilmes, Boals and Santos (2008); Cook and Zhao, (2011); Hakuta, Butler and Witt, (2000).

Therefore, differences in the districts' starting points at the beginning of each cycle, i.e. the districts' ELL composition with respect to their starting *Proficiency Level* and *Grade* cannot be neglected. Otherwise, a simple comparison of district-level average Composite Scale Score growth (CSSGs) would be biased towards districts that happen to serve a higher proportion of lower grade and/or proficiency ELLs. To take into account the proficiency level and grade of ELLs for a given district and year, we turn to statistical methods for analyzing longitudinal data. One of these methods often used in measuring outcomes in repeated-observation frameworks is the *fixed-effects regression model.*[7]

Finding "High-Flying" and "Low-Cruising" Districts

Using the fixed-effects regression model, researchers at WIDA developed a methodology for providing a "fair", apples-to-apples comparison of districts' annual performance in growth (as measured by district-level average CSSGs). After controlling for district-level variation in their ELLs' average starting proficiency level and grade, districts were ranked according to their annual performance and compared across growth cycles, in an effort to identify "high-flying" and "low cruising" districts.[8] The model estimates confirmed that districts with a larger proportion of higher proficiency and higher grade ELLs were indeed "growing" at relatively lower rates.[9] While the criteria for what is classified "high" and "low" for district-level growth is subjective and adjustable (i.e. 75th and 25th percentile), letting the data identify the more and less successful districts enables researchers to search for some common, as well as different factors and/or characteristics that could be responsible for the ELLs' (under)performance in these districts.[10]

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7 For the details behind the estimation of the fixed-effects model please consult Greene (2012), Raudenbush and Bryk (2002), or any standard regression procedure textbook.

8 It can be argued that it may still be "unfair" to compare school districts with different socio-demographic compositions. However, the real power of fixed-effects models stems from their ability to provide unbiased and consistent estimates as long as those differences stay constant over time (Allison, 2005). Any other district-level factors that are changing with time (if measureable and important) can be included and estimated directly by the model (i.e. average starting proficiency level and grade of ELs).

9 The coefficients of district-level average proficiency level and grade were negative and statistically significant at the 1% level, and were estimated at -12.3 and -3.5 respectively. In other words, a one unit increase in the *district-average composite proficiency level* decreases the expected district-level growth by 12.3 CSSGs. Similarly, a one unit increase in the district-average *grade* decreases the expected growth by 3.51 CSSGs.

10 Some potential factors to consider are districts' resource variables, such as teacher/student ratios, administrative and financial support, as well as district-level demographic measures, such as proportion of students receiving free/reduced lunch and other economic variables.

Conclusion

This research project explored the patterns of district-level ELL "growth" for the 2007-2011 time-period and identified the existence of "high-flying" and "low-cruising" districts within ACCESS in terms of ELL growth. The study tested and confirmed prior research on measurement of ELL growth, namely illustrating the "higher is slower, lower is faster" principle at the district-level. Finally and most importantly, it outlined and described a methodology to perform a reliable, apples-to-apples comparison of district-level ELL "growth", conditioned on the school districts' average composite proficiency level and grade. Using fixed-effects regression methods for longitudinal data analysis, the study identified "high-flying" and "low-cruising" districts, thereby completing the first stage of the research project.

In the second stage of the research project, additional data on school districts from the National Center for Educational Statistic's Common Core Dataset,[11] as well as other publicly available data sources will be included to further analyze these factors. The ultimate goal will be to inform educators and policymakers of effective and sustainable practices to support ELL student growth.

References

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11 NCEL. http://nces.ed.gov/ccd/

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