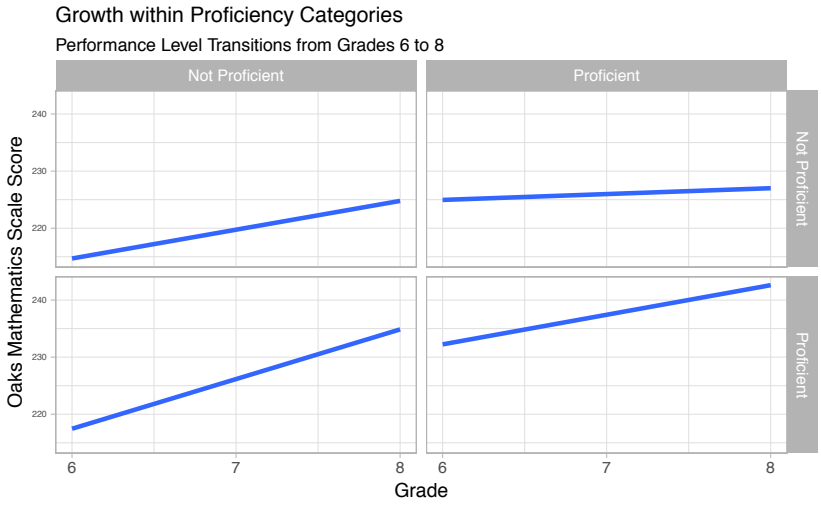
Did You Know? MATHEMATICS

Research Note No. 9 –March 2018

States regularly report student performance and progress in several ways, such as percentile ranks, normal curve equivalent scores, scale scores, and proficiency status. When states do not use a vertically scaled test that ensures scores are comparable from grade to grade, change can only be detected when students move from one proficiency category to another (e.g., from 'below proficient' to 'proficient').[1]

The good news: Even when students do not show enough improvement to move up in proficiency categories, achievement growth may be evident on a vertically scaled test as shown in the figure below.

The challenge ahead: Because proficiency categories are broad, student growth within a category may be masked. We need to focus on additional ways to show growth using vertical scales so change in proficiency status can be used more appropriately.



In the figure above, (a) the top left quadrant shows students who were Not Proficient in Grade 6 and Not Proficient Grade 8, (b) the top right quadrant shows students who were Proficient in Grade 6 and Not Proficient in Grade 8, (c) the bottom left quadrant shows students who were Not Proficient in Grade 6 and Proficient in Grade 8, and (d) the bottom right quadrant shows students who were Proficient in Grade 6 and Proficient in Grade 8. Within each quadrant, the blue line represents the linear growth from Grade 6 to Grade 8 on the vertically scaled test score on the Oregon Assessment of Knowledge and Skills (OAKS) in mathematics.

- All students showed positive slopes (improvement in the scale scores) whether they began as not proficient or as proficient in Grade 6 and whether or not they ended up proficient or not in Grade 8. For example, the upper left quadrant represents students who were not proficient in Grade 6 and Grade 8, and shows increasing linear growth on the scale score from Grades 6 to 8.
- The lowest amount of growth was for students who began as Proficient in Grade 6 and ended up as Not Proficient in Grade 8 (see upper right quadrant).

[1] **For more information, see:**
Tindal, G., Nese, J. F. T., & Stevens, J. J. (2017). Estimating school effects with a state testing program using transition matrices. *Educational Assessment, 22*(3) 189-204. http://dx.doi.org/10.1080/10627197.2017.1344093 or visit our website: www.ncaase.com

Acknowledgement: This research was funded through the Institute of Education Sciences (IES) (http://ies.ed.gov) through a Cooperative Service Agreement establishing the National Center on Assessment and Accountability for Special Education NCAASE (PR/Award Number R324C110004). The findings and conclusions expressed do not necessarily represent the views or opinions of the U.S. Department of Education.

NCAASE
NATIONAL CENTER ON ASSESSMENT AND ACCOUNTABILITY FOR SPECIAL EDUCATION