

Gallery of Top Submissions for the 2016 Cover Graphic/Data Visualization Competition

Katherine Furgol Castellano
Visuals Editor

Displaying data visually is often done badly. How to do it well is and has been a topic of interest and debate. We are proud to say that the collection here in our *Gallery of Top Submissions EM:IP* showcases examples of how to do it well. Our 2016 Gallery reflects visual representations of a range of topics, including standard setting plots (Figures 1 and 2), student response times (Figure 3), diagnostic and formative assessments (Figures 4, 5, and 6), student growth (Figures 7 and 8), and examinee populations (Figure 9). The graphics, along with the cover graphic described earlier, earned the highest ratings from the *EM:IP* panelists. Judging visuals and graphics often involves some amount of subjectivity and varying interpretations of scoring guidelines. Indeed, even among the members of the Editorial Board, there was at times clear differences in their evaluation of the visuals and

graphics, though in many, many cases at least two of the three panelists were in exact agreement on each criterion score. We hope you enjoy this collection of 2016 winners.

We welcome your comments, reactions, and feedback on these graphics. In addition, we are open to recommendations for changes to the submission call or evaluation process of the *EM:IP* Cover Graphic/Data Visualization competition. We hope to do it again next year, and your comments will help to ensure the competition is even better next time around. Please send us your feedback by emailing me, Katherine Furgol Castellano (KEcastellano@ets.org), or the *EM:IP* Editor, Howard Everson (howard.everson@sri.com).

Congratulations to all the winners, and our sincere thanks to the Editorial Board members who gave of their time and served as reviewers for the 2016 competition.

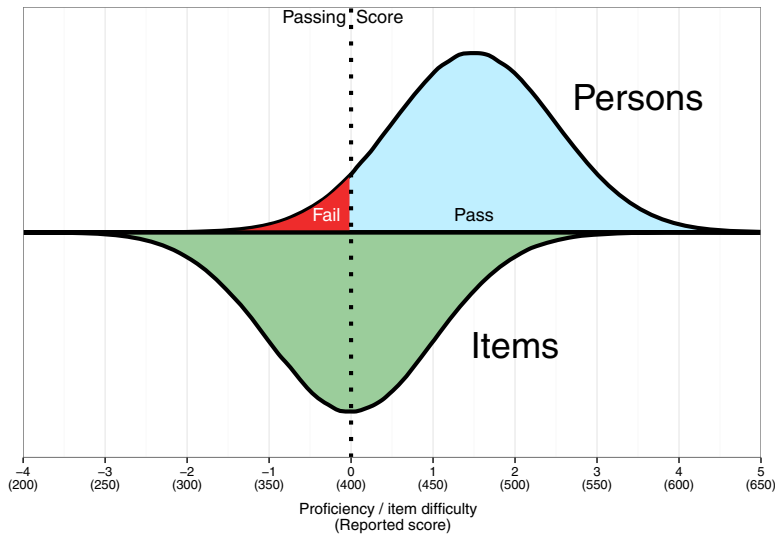


FIGURE 1. Remastered Item Person Map. (Winner) Richard Feinberg and Daniel Jurich, *National Board of Medical Examiners*. The remastered item person map is a useful tool for validating the intended purpose of a test.

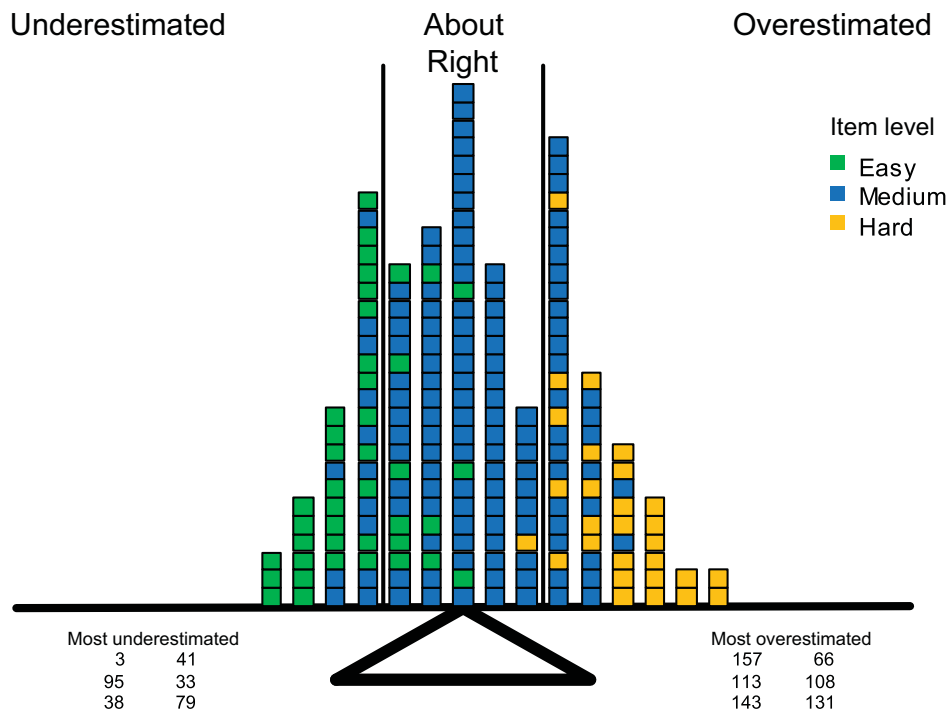


FIGURE 2. Standard Setting Balance Plot. (Winner) Ben Babcock and Adam E. Wyse, *American Registry of Radiologic Technologists*. This figure compares the mean group standard setting ratings on the item level with the items' conditional borderline probability correct.

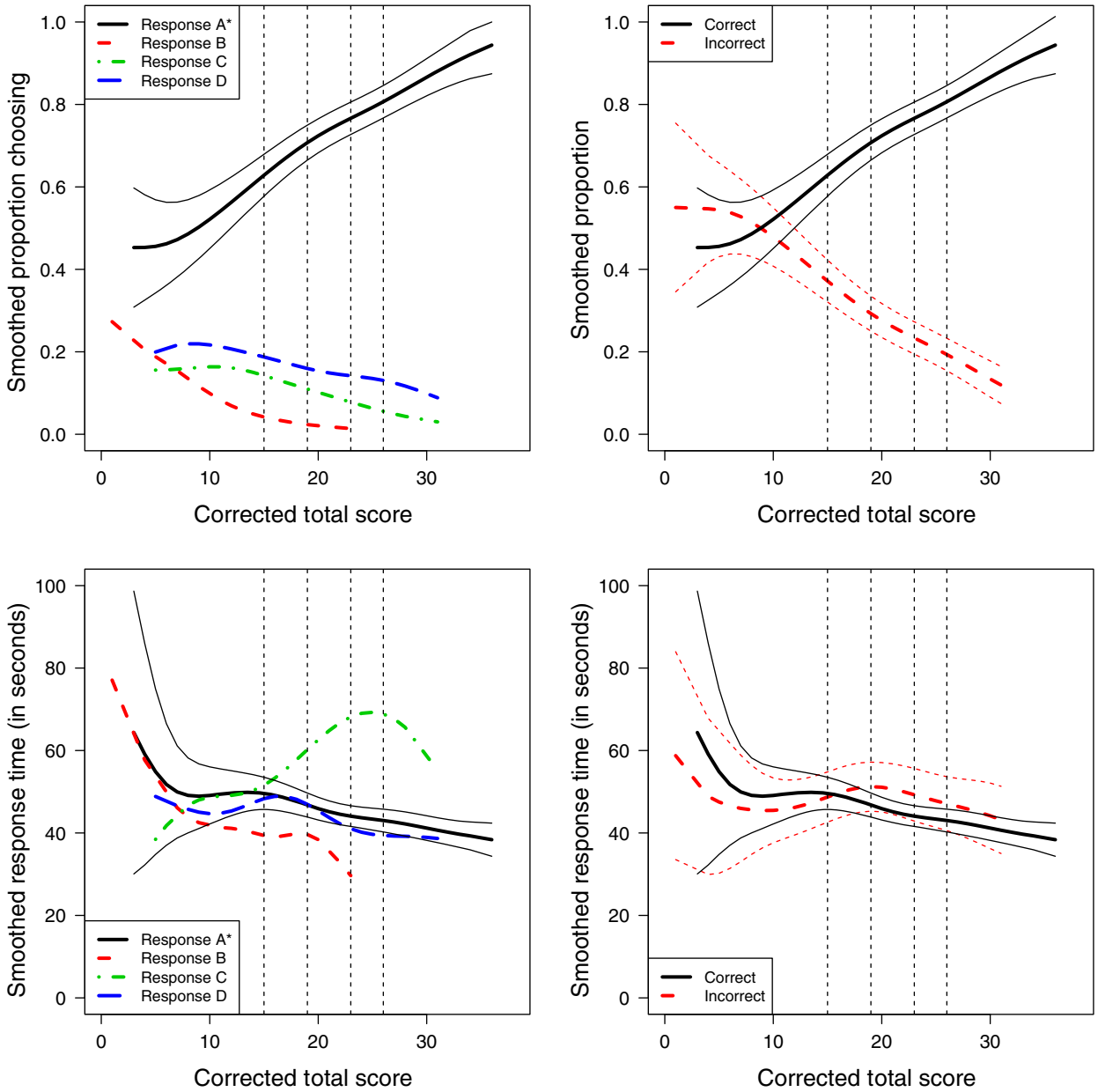


FIGURE 3. Combined Response Option and Response Time Curves for Selected-Response Items. (Winner) Peter van Rijn and Usama Ali, *Educational Testing Service*. These panels show the smoothed nonparametric response option and response time curves for a selected-response item as a function of total score.

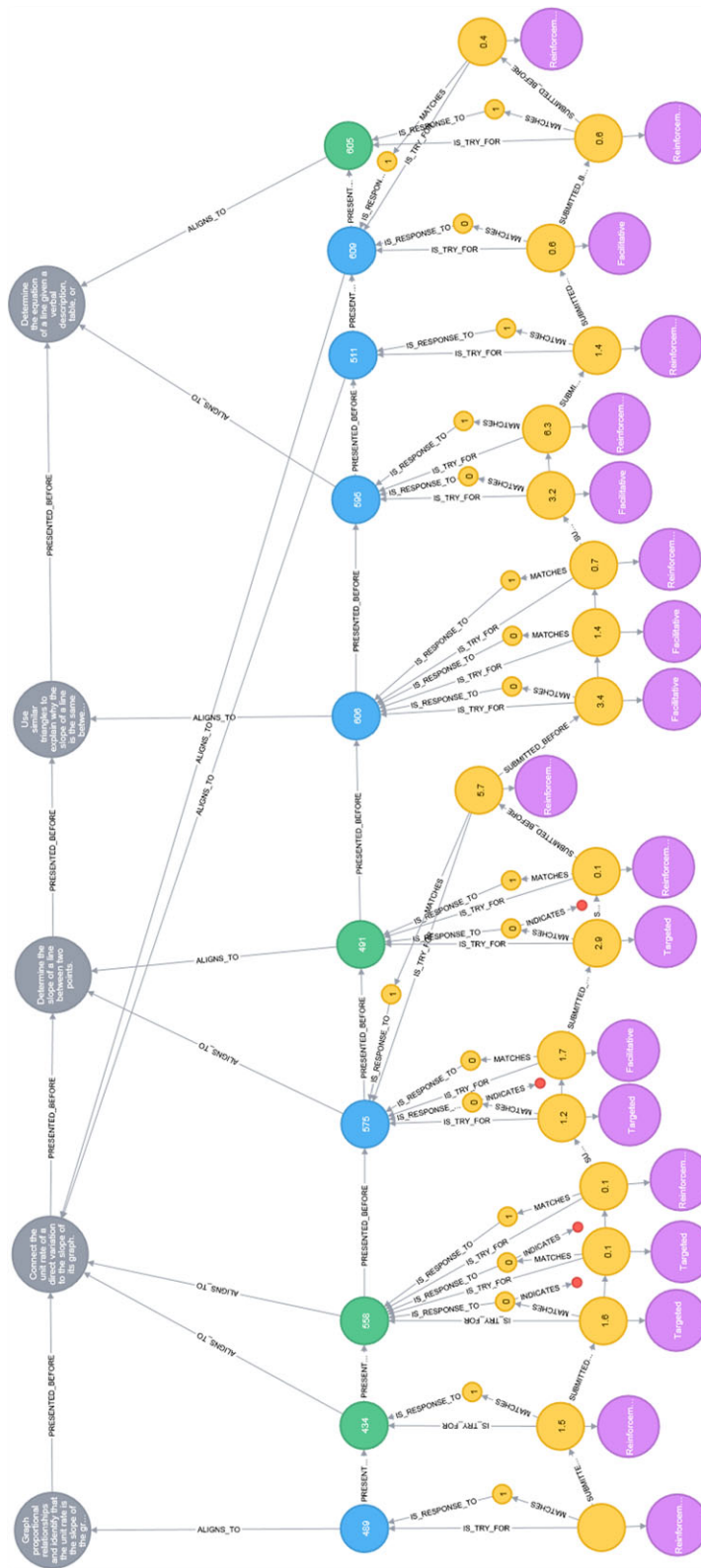


FIGURE 4. Revealing Formative Pathways. Sylvia Tidwell-Scheuring, Arroki, and Karen Barton, *Discovery Education*. This figure shows a visualized path of student response patterns to facilitate qualitative and psychometric analysis of student behaviors.

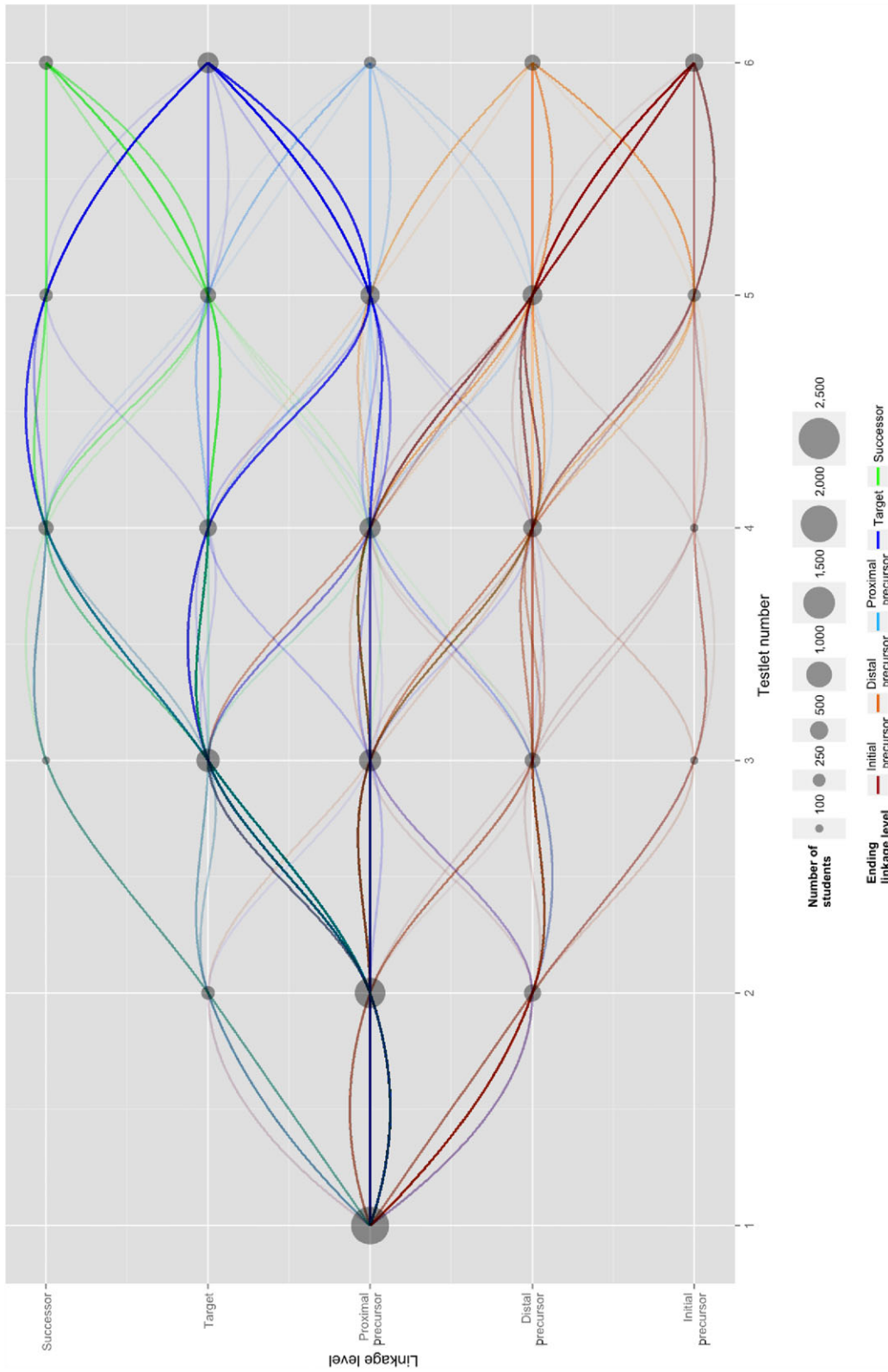


FIGURE 5. Dynamic Assessment Routing. W. Jake Thompson, Brooke Nash, Amy Clark, and Meagan Karvonen, Center for Educational Testing and Evaluation. This graph shows the different adaptation paths of simulated students through the Dynamic Learning Maps® alternate assessment.

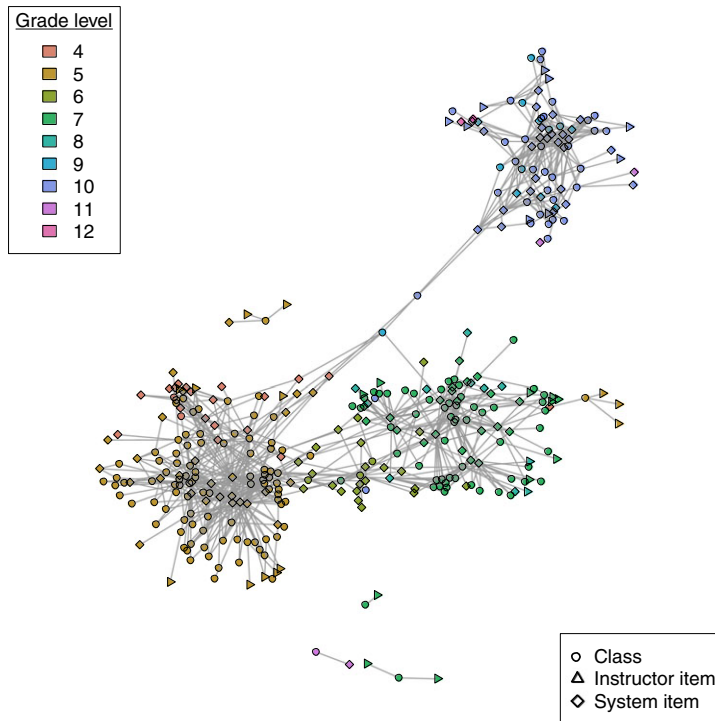


FIGURE 6. Visualizing Teacher Assignment Behavior within a Statewide Formative Writing System. Peter W. Foltz, *Pearson*, and Mark Rosenstein, *University of Colorado, Boulder*. This network diagram makes visible teachers' instructional strategies during an online formative writing instruction system. Data from the students' interaction logs show patterns of writing assignments from approximately 200 classes represented as circles, and prompts that were either created by the instructor (triangles) or selected from the online system (diamonds) with nodes colored/shaded by grade level.

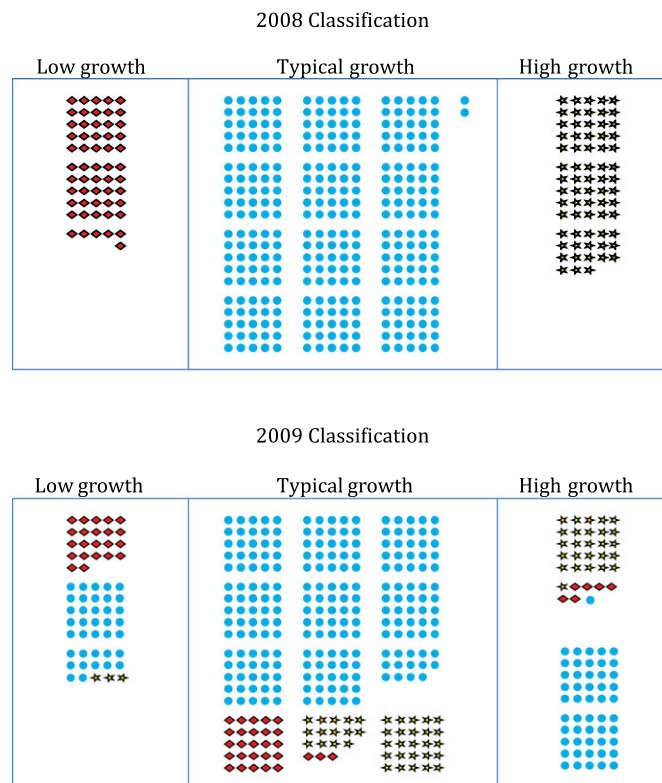


FIGURE 7. 426 Schools Classified by 2008 Growth in Mathematics. Andrea Lash, *WestED*. This figure, showing judgments made about schools based on changes in student performance from one year to the next, helped policymakers think about types of changes that occur, how much of each type would be acceptable, and how measurement error and cut scores may influence decisions about a school.

Growth in mathematics
From the 2014–2015 to the 2015–2016 school year

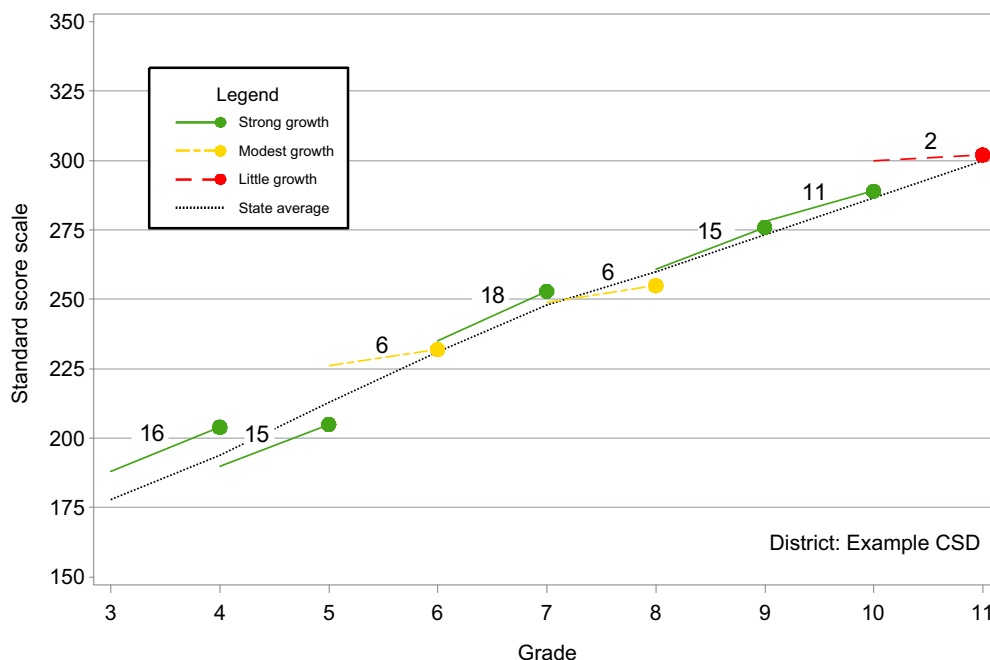


FIGURE 8. Putting Growth in Perspective. Anthony Fina, *Iowa Testing Programs, University of Iowa*. Illustration of a district-level growth report summarizing the amount of growth in mathematics achievement attained over the last year, represented by the numbers above the line segments, for each grade-level cohort.

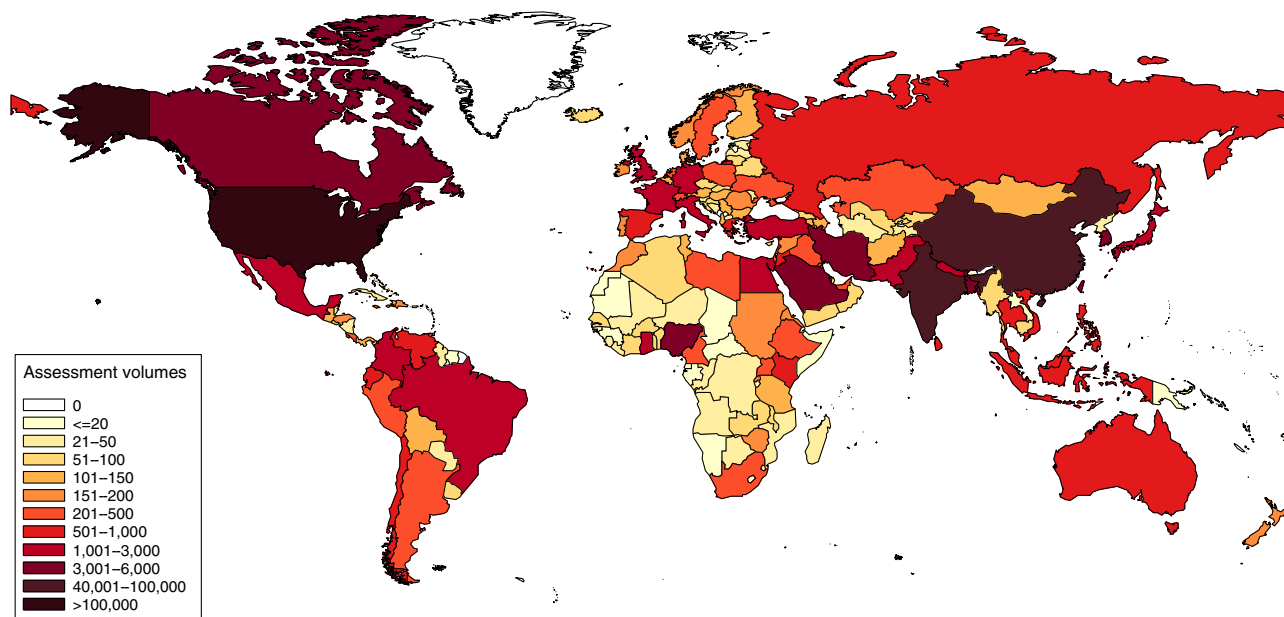


FIGURE 9. A Distribution of Examinees for an Educational Assessment. Wenju Cui and Duanli Yan, *Educational Testing Service*. This figure displays a distribution of examinees, across the world, of an international assessment in higher education between July, 2014 and June, 2015.