

Grade Equivalency Distribution Analysis

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The chart below represents a longitudinal layout of the ITBS reading grade equivalency score distributions for each grade/year for which grade equivalency could be gathered with at-or-above grade level and below grade level reading groups identified.

Plots that show dual peaks represent classes with a more significant demarcation between the at-or-above group and the below group. The lack of an identifiable pattern in which these dual peaks occurs suggests that there is not a systemic issue in the school system that causes this bimodality. By following the blue arrows from upper left to lower right, you can track the progress of any one particular class from year to year. Following the classes that start out with bimodality in this manor, the pattern suggests that the tendency is for these two groups to “wash together” over time.

The definition of what “reading below grade level” really means is not clearly identified in terms of grade equivalency scores. Since the IOWAs are typically administered in the eighth month of the school year, an x-grader who scores x.8 would be considered to performing right at the expected level. What’s not clear is where to draw the line to define “below grade level” performance. Is it two months behind? Six months? For the purposes of this exercise, I chose the grade entry level (2.0 for second grade, 3.0 for third grade, etc.) The shaded area on the left tail of each distribution indicates the portion of the population scoring at or below the grade entry point. The percentage values printed near these tails is the percent of the population represented by that shaded area. The trend of these values over time suggests there may be a tendency for greater numbers of students to under-perform as they progress to the upper grade levels.



One might also look at the 04-05 fourth class and argue that no such trend exists. Data from additional classes/years could confirm the existence of this trend on way or the other. And given the possibility of up to a 10 point drop in NPR scores between the 03-04 4th grade class and the 04-05 5th grade class, as revealed by the NPR analysis done in August of this year, it's a worthwhile pursuit to continue to analyze grade equivalency scores in this manner.

One alternative option to waiting for more ITBS data at the end of this year, is to populate the lower left corner of this table with existing grade equivalency scores. We avoided this in the past since it was not possible to segregate this data by reading group level. But by combining the at-or-above and the below scores into one group for each grade level/year and running the analysis again, a similar trend is revealed for the percentage of the populations scoring at or below the grade entry point. While the distributions pictured above may be more accurate and provide insight into where bimodality exists, the below-grade-level trend values are not significantly impacted by combining the two groups into one normal distribution. By doing this, we could get solid confirmation as to the existence of this trend. And by extending the study analysis to the 6th, 7th and 8th grades, even greater understanding of the issue could be obtained for all grade levels.

