Minnesota Department of Education

Raw Scores and Scale Scores on the GRAD Retests

Imagine that you are a high school test coordinator and have just handed out the test results from the recent GRAD retest session. Two students compare their scores and one of them comes up to you and says, "This isn't fair! I got 29 of the 40 items right and didn't pass, while Tom also got 29 items right and he did pass. What gives?" What do you tell the student?

The short answer is that the students took different forms of the GRAD retest and the forms varied in overall difficulty. Tom took a form whose items were slightly more difficult, and getting 29 correct on a more difficult form translates into a passing score. (Both the reading and math GRAD retests have multiple forms available in order that a student does not take the same form twice.)

Here's how raw scores and scale scores work together to ensure comparable scores across forms and from year to year.

To deal with slight differences in item difficulty across forms, psychometricians (the specialists who understand the theory behind test development) statistically convert the raw scores for each test to scale scores so the passing score is always at the same level of rigor regardless of which form a student takes. This conversion maintains a consistent metric across test forms and permits comparisons of scale scores across all forms. The process of making the test scores equivalent from one form to another is called *equating*.

Scale scores for the GRAD range from 15 to 85. A scale score of 50 corresponds to the minimum level of achievement necessary to be graduation ready. On some of the Reading GRAD forms, a raw score of 29 is needed to obtain a scale score of 50; on others a raw score of 30 is needed, as seen in this example:

GRAD Reading Retest Raw to Scale Score Tables							
Raw Score	**Scale Score by Test Form**						
	Form A	**Form B**	**Form C**	**Form D**	**Form E**	**Form F**	**Form G**
28	49	48	48	48	49	49	47
29	50	50	49	49	50	50	48
30	51	51	50	50	52	52	50
31	52	52	52	51	54	53	51

Another way to think about this situation is that some of the Reading GRAD forms are slightly harder than the others, so students need to get only 29 items right on the "harder" forms, compared to 30 right on the "easier" forms.

For the Mathematics GRAD, on one form it takes 27 correct items to get a scale score of 50 and on others it takes 28 correct items. View the GRAD raw score to scale score conversion tables on the Technical Reports page at the MDE Website.

Although the raw number correct score is conceptually simple, it can be interpreted only after it has been statistically converted to a scale score. That means that the student's goal is a scale score of 50, not a particular number (or percent) of items correct.

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