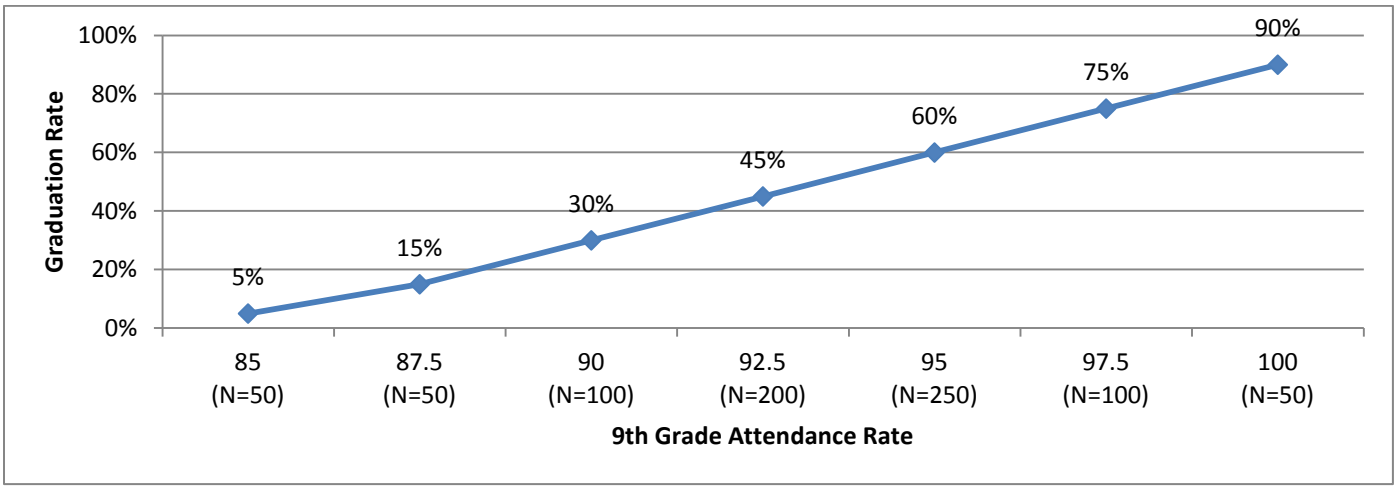
The Role of Cut Scores

What is a Cut Score?
A cut score is a point on a scale that determines whether a student falls into one category or another. For example, the cut score for earning a letter grade of A is usually 90%; a student with an 89% average in the course earns a grade of "B" instead. Cut scores can be used to highlight positive behavior (e.g., students who earned an A mastered all of the material) or negative behavior (e.g., all students with less than a certain number of credits are off-track for graduation).

Cut scores are usually determined by either (a) targeting an specific outcome or (b) targeting a specific proportion of the student population. Many times organizations will examine both approaches before determining a final cut score.

Early Warning System High School Graduation Example
A hypothetical school district has 800 high school students with a graduation rate of 50%. The district analyzes the attendance rate (rounded to the nearest 2.5 points) by graduation rate and finds the following:



1. <u>Targeting a specific outcome:</u>

   a) *Case 1* - The district decides it wants to intervene with a group that has a specific outcome: students who had an expected graduation rate of 25% (i.e. students who were one-half as likely to graduate as the district average). The district could choose to group all students with an attendance rate of 85% or 87.5% as these groups had graduation rates below 25%. Combining these two groups would result in a group of 100 students (50+50) with an average graduation rate of 10%.

   b) *Case 2* - A related approach is to group students together until an expected graduation rate of 25% is met. Grouping all students with an attendance rate between 85% and 90% results in 200 students with an average graduation rate of 20% (specifically, $\frac{50*5\% + 50*15\% + 100*30\%}{50+50+100}$). Grouping all students with an attendance rate between 85% and 92.5% results in a rate higher than 25%; the graduation rate of this combined group is 32.5%. Hence, the cut point would remain at 90% and not 92.5%.

2. Targeting a Specific Proportion of Students: The district determines that there are sufficient resources to target the bottom 15% of the class; this translates to 120 students. This is more than Case 1 (100 students) and less than Case 2 (200 students). The data above would need further refinement, though the final attendance rate cut score will obviously lie somewhere between 87.5% and 90%.

Considerations

- For these exercises, research makes clear that a district should use data on its local population instead of national data or data from other districts. As a result, specific thresholds will vary from district to district.

- Cut scores should be linked to a specific outcome that is of interest to the school district (e.g. graduation rate, acceptance to a postsecondary institution without requiring remediation) or to a specific strategic policy goal (e.g. helping the bottom 10% of students)

- Setting an indicator at a more stringent level (e.g., attendance rate of 85% or lower; 50 students) will result in a highly accurate identification strategy, but may not capture enough students to significantly affect district-level outcomes. Conversely, setting an indicator at a less stringent level (e.g., attendance rate of 92.5% or lower; 400 students) will generally identify more students who need help, but has a higher "false positive" rate (i.e. more students who are likely to graduate will be identified) and requires more resources. Final decisions about cut scores depend as much on strategic goals as empirical data.

- As illustrated above, cut scores are in some senses arbitrary. Though a high "A" grade likely means something different than a low "B", there might not be much difference right at the cut, between students who score 89 and 90. One approach to help remedy this issue is to rely on more than one indicator to more accurately identify students in need.

- Some important information will be based on a simple "yes/no" approach, instead of a scale; this is especially common among indicators that focus on college-knowledge (e.g. Has the student taken the SAT?). As a setting-level indicator, many individual-level "yes/no" indicators can be aggregated to provide a more nuanced approach: What percentage of students (or a specific subset of students) have taken the SAT?