Institute of Education Sciences

Regional Educational Laboratory Appalachia at SRI International

Using CART Analysis to Inform Education Decisions

What is CART?

Classification and Regression Tree (CART) analysis is a statistical modeling approach that can help identify students and educators who are at risk of not attaining desired educational outcomes. Data analysts with intermediate statistical software programming experience can conduct a CART analysis and support research directors in local and state education agencies and other educators in applying the results. For example, CART analysis can help predict:

Which children are at risk for struggling with reading.

Which teachers are at risk for leaving the teaching profession.

Which high school students are at risk for not meeting college-readiness benchmarks.

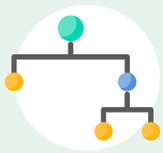
Results from CART analysis can help education decisionmakers target resources and support to those who may receive the greatest benefit.

Why use CART?

Benefits for Decisionmaking

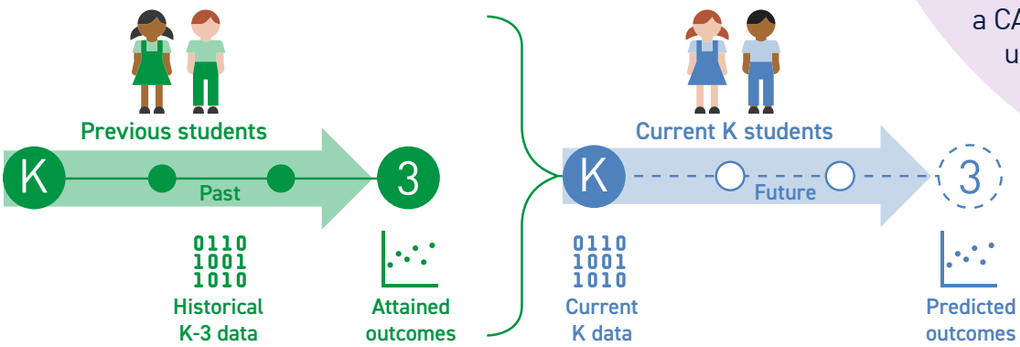
Allows for consideration of different scenarios and tradeoffs for targeting support

Displays results as a set of decision rules that are easy to implement



How does CART work?

Imagine you wanted to know which of this year's kindergarten students are at risk of not learning to read on grade level by grade 3. If this year's students are similar to students from prior years, you could apply CART analysis to the kindergarten and grade 3 data from prior years to identify the predictors of risk for your current kindergarten students.



Learn more

Use the new REL Appalachia guide **Branching Out: Using Decision Trees to Inform Education Decisions** to learn how to conduct a CART analysis and use results to inform education decisions.

Analytical strengths and limitations of CART

Strengths

Can use data that are distributed in any way

Allows for the use of variables that are interrelated

Limitations

Will result in less informative predictions if current students have different characteristics than prior students, or if the relationship between student characteristics and outcomes has changed over time

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