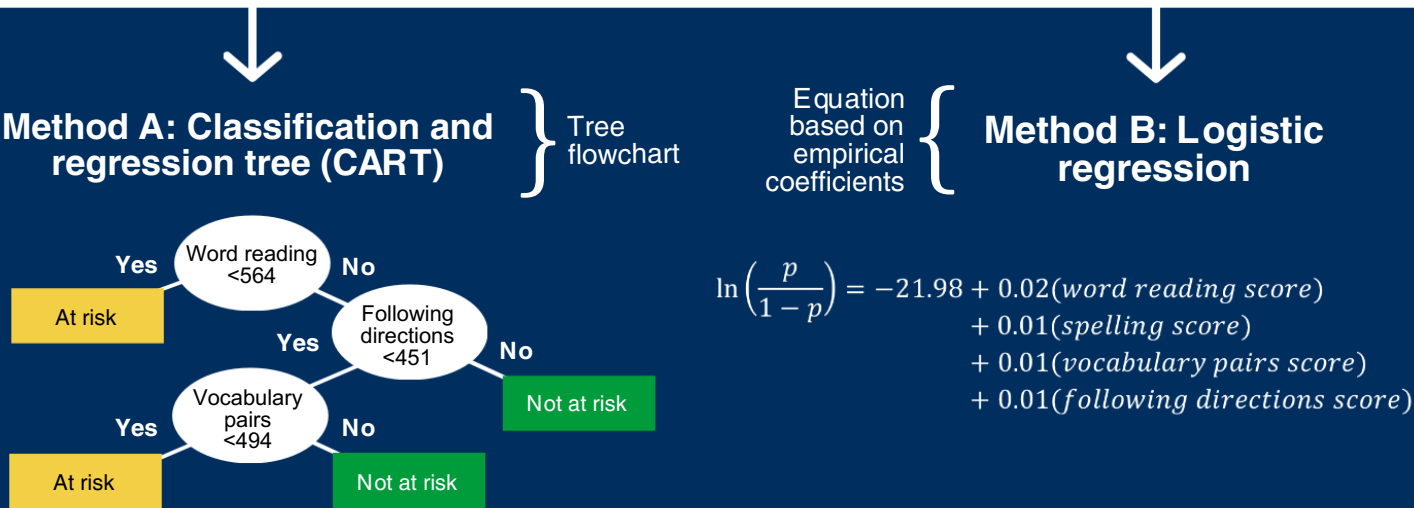


Comparing methodologies for developing an early warning system

The benefits of CART analysis



A REL Southeast study compared two methods of identifying at-risk readers.



CART vs. logistic regression: What did this study reveal?

The CART model may be easier to communicate and use with practitioners. The CART model also has several additional advantages over the logistic regression model.

CART Model

- Displays results using decision trees
- Easily identifies which component skills placed student in an at-risk category
- Not sensitive to the presence of outliers
- Not sensitive to collinearity between variables
- Easier to uncover complex interactions among predictors

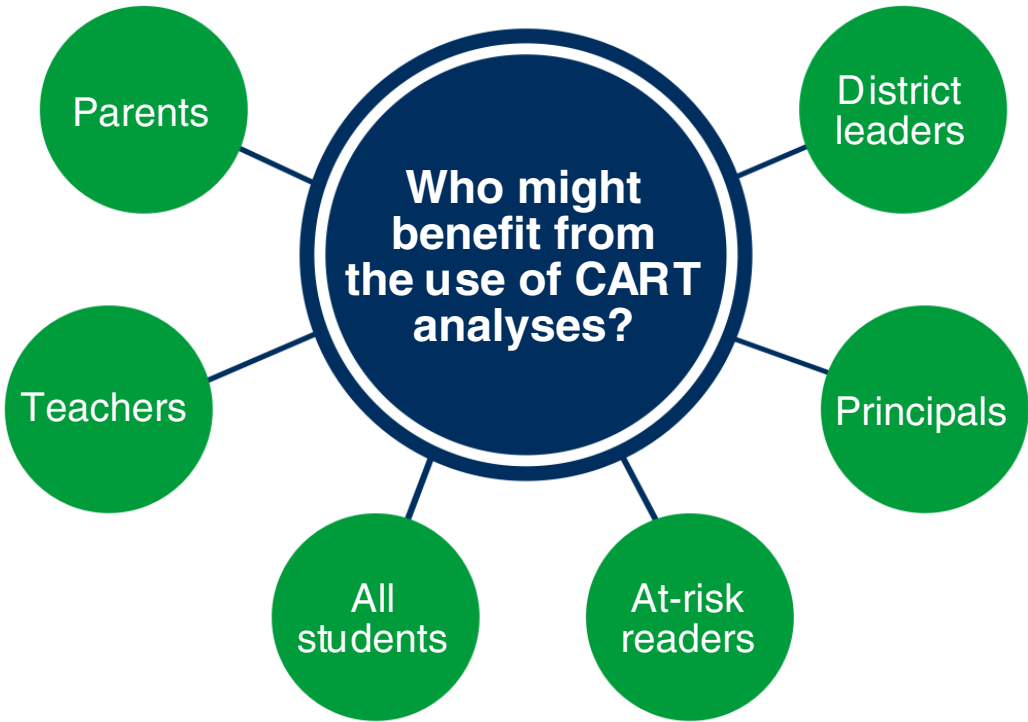


Logistic Regression

- Presents results with coefficients
- Uses a formula to identify a student's probability of being in an at-risk category
- Sensitive to the presence of outliers
- Sensitive to collinearity between variables
- More difficult to uncover complex interactions among predictors

To sum it up: The CART model simplifies decision-making

The CART results were found to be comparable to those of logistic regression, while using fewer or the same number of variables. This means that rather than complicated mathematical operations, decision trees may be used to accurately classify students as at-risk and not at-risk readers. Decision trees have been found to be easier to interpret and use by practitioners in fields where they are often used, such as health care.



The information in this infographic can be found in the full report: Koon, S., & Petscher, Y. (2015). Comparing methodologies for developing an early warning system: Classification and regression tree model versus logistic regression (REL 2015-077). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southeast. Retrieved from <http://ies.ed.gov/ncee/edlabs>.