Dreambox Brief Report

A brief analysis was conducted to determine if there is any relationship between schools using the Dreambox Learning's Math Program used in 31 schools. Of particular interest were four school level variables provided by Dreambox as a measure of success. This analysis examined whether the success in the Dreambox data is related to success on year end assessment, SBAC.

Dreambox data from the 2018-19 school year included four variables of interest; a measure of "growth", the "percent of active students" using the program at the school, the "average minutes" per week (at a school level), and the "average lessons" per week. This data were analyzed in relation to six SBAC variables; School SBAC performance in 2019 (i.e., proficiency, growth, and adequate growth percentile) as well as change in SBAC performance from 2017-18SY to the 2018-19SY (i.e., proficiency, growth, and adequate growth percentile). From this a brief preliminary analysis found some interesting relationships.

Early Analysis Finds the "Percent of Active Students Matters"

A preliminary analysis examined the relationship across all variables. It was determined that one of the four Dreambox variables, "percent of active students" was not directly related to any other variable, however, was found to be a useful control variable. The threshold of more than 10% of "active students" is an important factor. All of the measures that follow will report the relationships among all of the schools, and then report the relationship among the schools who only have more than 10% of active students.

Growth Measure vs SBAC Growth Measure

The first example of how the percent of Active students influences the relationships between the other variables can be seen in the relationship between the growth measures from Dreambox and SBAC. A quick examination of the data indicated that both variables were normally distributed and expected to be linear, therefore the Pearson's r correlation was used to determine there was a small negative correlation between the growth measures from Dreambox and SBAC, $r(31) = .29$, $p = .05$. However, *if you control for schools who have more than 10% of their students active on Dreambox, the relationship is no longer significantly correlated, $r(25) = .20$, $p = .16$.*

Average Lessons

The variable of "average lessons per week" was the variable most highly correlated to performance on SBAC in 2019. All variables were normally distributed and expected to be linear, and as such, Pearson correlations are presented in Table 1.

Table 1
Average Lessons per Week Relationship to SBAC 2019

	All Schools	Schools > 10% Active Students
SBAC Proficiency in 2019	$r(31) = .57$, $p = .00^*$	$r(25) = .62$, $p = .00^*$
SBAC Growth in 2019	$r(31) = .17$, $p = .35$	$r(25) = .14$, $p = .14$
SBAC AGP in 2019	$r(31) = .44$, $p = .01^*$	$r(25) = .58$, $p = .00^*$

Results: The analysis indicates there is a moderate to strong correlation (when controlling for active students) between the average lessons per week and school performance on the 2019 SBAC.

Examination of the average lessons per week was also conducted on the differences between 2018 and 2019 SBAC. Only one of the correlations were marginally significantly related at best, the rest of the analysis indicated no significant relationships between this set of variables (see Table 2).

Table 2
Average Lessons per Week Relationship to Differences between SBAC 2018 and 2019

	All Schools	Schools > 10% Active Students
SBAC Difference if Proficiency between 2018 and 2019	r(31) = -.112, p = .55	r(25) = .042, p = .84
SBAC Difference if Growth between 2018 and 2019	r(31) = -.31, p = .08	r(25) = -.25, p = .22
SBAC Difference if AGP between 2018 and 2019	r(31) = -.05, p = .78	r(25) = .10, p = .65

Average Minutes

The variable of "average minutes per week" was examined. The analysis indicated that this variable was not a strongly related as the "average lessons per week." Table 3 provides the correlations across each of the SBAC variables. All variables are normally distributed and expected to be linear, and as such, it is person's correlations that are presented.

Table 3
Average Minutes per Week Relationship to SBAC

	All Schools	Schools > 10% Active Students
SBAC Proficiency in 2019	r(31) = .31, p = .09	r(25) = .26, p = .20
SBAC Growth in 2019	r(31) = .04, p = .83	r(25) = .14, p = .51
SBAC AGP in 2019	r(31) = .26, p = .17	r(25) = .13, p = .23
SBAC Difference if Proficiency between 2018 and 2019	r(31) = -.02, p = .93	r(25) = .10, p = .31
SBAC Difference if Growth between 2018 and 2019	r(31) = -.17, p = .36	r(25) = -.54, p = .40
SBAC Difference if AGP between 2018 and 2019	r(31) = .02, p = .93	r(25) = .08, p = .36

Results: The analysis indicates there are not any significant relationships (not even marginally significant outside of SBAC Proficiency in 2019) between Average minutes per week and SBAC performance.