

## Interoffice Memorandum

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To: Sanford Starr, Assistant Commissioner, Division of Family and Community Partnerships

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Date: October 24, 2022

Subject: Development of the School District Needs Index

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### **Purpose**

In support of the NJ Statewide Student Support Service (NJ4S) Network, the goal of this project was to construct a needs index to identify school districts in New Jersey with high needs based on a standardized set of school and community-level indicators.

### **Background**

We analyzed a broad range of school and community need indicators from publicly available data sources spanning student social, economic, and academic outcomes, social determinants of health, community violence, and maternal and infant health. This data was used to construct the School District Needs Index (SDNI), a measurement tool used to identify school districts and charter schools with high needs within New Jersey—modeled after the Community Needs Index (CNI) initially created by the MCH Epidemiology Program within the Department of Health Division of Family Health Services for Early Home Visiting Services.

The CNI combines indicators of premature births, low-birth weight infants, infant mortality, poverty, crime, domestic violence, rates of high-school dropouts, drug-related deaths, unemployment, and child abuse and neglect into one standardized, composite score for each municipality in New Jersey. Positive scores on the index indicate higher levels of need and negative scores indicate lower levels of need.

The SDNI combines indicators of school district (Table 1) and community (Table 2) level characteristics. Indicators at the school-level include, but are not limited to, student enrollment and absenteeism, student reading/language arts and math achievement, academic growth, student socioeconomic status, and violence, harassment, and substance use in the district. Community-level indicators include, but are not limited to, crime rate, child maltreatment rate, drug-related deaths, youth suicide rates, pre-term births and domestic violence incidents.

The SDNI is supported by research suggesting that objective approaches to measuring student needs are valuable to establishing objective, evidence-based practices, maintaining and expanding strength-based resources, and identifying and prioritizing the needs that districts and

schools must address to improve student outcomes, including academic performance (Cuiccio & Husby-Slater, 2018; Huang et al., 2019; Reckien, 2018; Salinas-Miranda et al., 2015; Shadowen et al., 2022; Stoto et al., 2019). In addition, the development of a needs index further helps to identify the root causes that contribute to school districts' areas of need, selecting targeted interventions linked to those areas of need, and evaluating whether those strategies lead to improvements in key metrics and achieve desired results. This is further illustrated by guidelines provided by the U.S. Department of Education (2016), which state in part:

*Ways to strengthen the effectiveness of ESEA [Elementary and Secondary Education Act of 1965] investments include identifying local needs, selecting evidence-based interventions that SEAs [state educational agencies], LEAs [local educational agencies], and schools have the capacity to implement, planning for and then supporting the intervention, and examining and reflecting upon how the intervention is working. These steps, when taken together, promote continuous improvement and can support better outcomes for students. (p. 3)*

## **Methods**

The SDNI was constructed using publicly available data in New Jersey. The file included 903 school districts and charter schools with some school districts repeated multiple times within the file if they overlapped more than one municipality in order to account for varying community-level indicators across municipalities. School district-level indicators (Table 1) were extracted from the NJ Department of Education (NJDOE) website from an Excel data file for statistical analysis and inclusion in the index. The NJDOE file contained a total of 60 unique data tabs (see appendix for hyperlink) and several variables, including school names, addresses, district code numbers, student/teacher/administrator demographics, standardized academic achievement scores, as well as data on Harassment, Intimidation, and Bullying (HIB).

Community-level indicators were extracted at the municipality and county-levels (if municipality was unavailable) from publicly available data sources through the NJ Department of Health, Census Bureau, Office of the Chief State Medical Examiner, NJ State Police and the New Jersey Department of Children and Families. Indicators included crime rate, poverty rate, youth suicide rate, GINI index (a measure of income inequality), premature births, low-birth weight infants, infant mortality, domestic violence incidents, substance-related deaths, unemployment, and rates of child abuse and neglect (Table 2).

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Table 1. School-District Level Indicators

<b>Indicators</b>	<b>Description</b>
Economically Disadvantaged Students	Percentage enrolled: Economically Disadvantaged Students
Students with Disabilities	Percentage enrolled: Students with Disabilities
English Learners	Percentage enrolled: English Learners
Homeless Students	Percentage enrolled: Homeless Students
Students in Foster Care	Percentage enrolled: Students in Foster Care
Military-Connected Students	Percentage enrolled: Military-Connected Students
Migrant Students	Percentage enrolled: Migrant Students
Student Growth Trends	Median Student Growth Percentile Trends for the last 3 years
English Language Arts Median Student Growth Percentile	District median student growth percentile (mSGP)
Math Median Student Growth Percentile	District median student growth percentile (mSGP)
English Language Arts: Met Standard	Indicator of whether or not mSGP Met Standard
Math: Met Standard	Indicator of whether or not mSGP Met Standard
Math Participation Rate	Participation Rate
English Language Arts Participation Rate	Participation Rate
Math Proficiency Rate for Federal Accountability	Proficiency Rate for Federal Accountability
English Language Arts Proficiency Rate for Federal Accountability	Proficiency Rate for Federal Accountability
Math: Met Annual Target	Annual Target Not Met, Met, or Met Goal
English Language Arts: Met Annual Target	Annual Target Not Met, Met, or Met Goal
English Language Arts/Literacy Assessment - Participation and Performance	Data from ELA administration of NJSLA ELA Participation and Performance
Met English Language Arts Expectations	Percentage of students who met or exceeded expectations on each English Language Arts assessment
Met Math Expectations	Percentage of students who met or exceeded Math expectations on each assessment
Graduation Rate Trends Progress	Graduation Rate Trends for the last 3 years
Graduation Rate	Graduation Rate
Dropout Rate Trends	Dropout Rate Trends for Last Three Years
Dropout_ District	District dropout rate
Postsecondary Performance Measure	Percentage of students enrolled in a postsecondary institution
Percent Enrolled in Any Institution	Percent Enrolled in Any Institution
Chronic Absenteeism (Count)	Count of students chronically absent per student group
Chronic Absenteeism (%)	Percentage of students chronically absent per student group
Chronic Absenteeism: Met Target	Met State Average for Absenteeism
Violence Vandalism HIB Substance	Violence, Vandalism, HIB and Substance Incidents by Type
Incidents Per 100 Students Enrolled	Rate of incidents for every 100 students enrolled in the district

Table 2. Community-Level Indicators

Indicators	Description
Crime Rate	# reported crimes per 1000 residents
Unemployment Rate	% unemployed of the civilian labor force
Poverty Rate	% population living below the federal poverty line
Child Maltreatment Rate	# substantiated/established reports of abuse or neglect per 1000 children
Child Abuse Reporting Rate	# reports alleging child abuse or neglect per 1000 children
Drug-Related Deaths	# confirmed drug-related deaths per 1000 residents
Infant Mortality Rate	# of infant deaths by county of residence per 1000 live births
Low Birth Weight	% live births <2500 g
Resident Births	# of births
Preterm <37 weeks	% live births before 37 weeks of pregnancy
Youth Suicide Rate	Youth suicide rate (average over three years; county-level)
Domestic Violence	# of domestic violence reports per 1000 residents
GINI Index	Measure of income distribution across a population wealth inequality
Municipality Population	Total number of residents per municipality
County Population	Total number of residents per county

### *Statistical Analysis*

Preliminary data analysis, including summarizing discreet data with frequencies and numeric data with descriptive statistics, including mean average and standard deviation values, was conducted using Excel pivot tables, Excel data analysis ToolPak extension, SPSS for Windows, and Tableau. We compared school districts on several factors, including student enrollment, attendance and absenteeism, suspensions, and reading and math performance scores on standardized tests. We evaluated outcomes data for key indicators by computing standard scores (z) for schools based on their respective county-level means and standard deviations. We also calculated the difference between schools and state targets/benchmarks and the difference between municipalities and counties as the basis for Z-scores when possible.

### *Principal Components Analysis*

We used principal components analysis (PCA) to evaluate the indicators and determine the variables that should be retained in the final needs index composite score. PCA is a dimension-reduction technique that reduces the number of items or indicators in large data sets to considerably smaller factors that succinctly represent a set of measures (Gewers et al., 2021; Hasan & Abdulazeez, 2021; Jolliffe & Cadima, 2016). More specifically, PCA examines correlations among variables such that highly correlated variables may be combined to form a single composite score that can be used for measurement and analysis. For example, if school violence and domestic violence were highly correlated, one possible solution would be to combine the two variables into one variable called violence. In some circumstances, however, PCA may suggest that a single variable (e.g., violence) be divided into two separate variables because they meaningfully measure two different aspects of violence. Thus, PCA can reduce variables and help identify subscales that should be analyzed separately. Research suggests that

the PCA method is a valid and reliable tool for measuring school district and community needs and resources (Friesen et al., 2016; Huang et al., 2019; Kern et al., 2015; Kotzee & Reyers, 2016; Kraft et al., 2016; Naik & Purohit, 2021), and previous research has used PCA for this purpose.

*Standardization*

A priority school district is defined by a higher level of needs for key indicators compared to schools within the same county. Standardization was used to compare schools on outcomes for county and state benchmarks where available. Standardizing these measures transforms them into the same metric, with a mean value of 0 and a standard deviation of 1. We refer to these as Z-scores where:

$$Z = \frac{\text{School Value} - \text{Mean Average of Schools in County}}{\text{Standard Deviation of Schools in County}}$$

A positive Z-score indicates a value higher than the average of schools in that county, and a negative Z-score indicates a value for that school lower than the average of schools in that county. For example, if a school has a Z-score on a needs measure of 1.2, that means the school is 1.2 standard deviations above the county average of schools for that measure. For most measures, a higher Z-score score indicates higher needs. However, for some of our measures (e.g., teacher education level), a lower score indicates higher needs. To simplify analysis, we coded all scores so that higher scores indicate higher needs. Z-scores greater than +1.00 are considered high needs. A Z-score at or above +1.00 is equivalent to: (1) a standard score of 115; (2) a percentile rank at or above 84 (84th %tile); (3) an ETS standard score of 600; and (4) a T-score of 60.

Data for over 20 measures available at the school district and county level were assembled. Z-scores were calculated for each measure, multiplied by their assigned weights, and summed to create composite measure scores (Bergstrand et al., 2015; Remington et al., 2015). After Z-scores were calculated, they were multiplied by their assigned weight (total number of students at the school) and summed to create summary composite scores.

To construct the SDNI, we used the standardization method guidelines provided by the U.S. Department of Health and Human Services (HHS), developed by the Health Resources and Services Administration (HRSA) and Education Development Center (2019). The method described in these guidelines was used to analyze large-scale data for the Maternal, Infant, and Early Childhood Home Visiting Program Statewide Needs Assessment. The HRSA method is based on identifying areas of need using statewide county-level data. Indicators identify school districts and communities with low to high-need concentrations. A school district is considered high needs when the need domains have a z-score at or above 1.00 standard deviations from the mean. A total needs score is created by obtaining a sum of z values > 1. We then obtained the interquartile ranges of the needs score and created a high-needs, moderate-needs, and low-needs group. The needs index score, the final step of the analysis, is obtained by calculating the proportion of z-scores greater than or equal to 1 based on the maximum number of need indicators.

**Results**

Table 3 summarize data for need indicators across the state. SDNI scores for school districts and charter schools ranged from 0 to 20. Index scores ranged from 0 to 1. Camden City, Newark, Garfield, and Keansburg school districts had the highest needs. Red Bank, Paterson Science and Technology, and Bergen Arts and Sciences Charter schools had the lowest needs.

<b>Measure</b>	<b>Value</b>
<b>Mean</b>	3.2827051
<b>Standard Error</b>	0.099406943
<b>Median</b>	2
<b>Mode</b>	2
<b>Standard Deviation</b>	2.985520031
<b>Minimum</b>	0
<b>Maximum</b>	20
<b>Sum</b>	2961
<b>Count</b>	902

To combine information about individual need indicators, we computed a sum composite score for the total number of need indicators at or above a z score of 1.00 (84th percentile). We then categorized all schools by low, moderate, and high need, considering their component loadings and standardized need indicator values (Table 4). Two hundred ninety-seven [297] school districts were categorized as “high needs,” 354 school districts were categorized as “moderate need,” and 251 were categorized as “low need.” The number of school districts and charter schools included duplicates for schools that served students from multiple municipalities.

<b><i>Needs Index</i></b>	
<b>Mean</b>	0.164008859
<b>Standard Error</b>	0.004966449
<b>Median</b>	0.1
<b>Mode</b>	0.1
<b>Standard Deviation</b>	0.149241571
<b>Sample Variance</b>	0.022273046
<b>Kurtosis</b>	5.055828067
<b>Skewness</b>	2.004591315
<b>Range</b>	1
<b>Minimum</b>	0
<b>Maximum</b>	1
<b>Sum</b>	148.1
<b>Count</b>	903

Correlations

Table 5. Correlations between student enrollment and all other need indicators are summarized in table 5. Student enrollment was positively correlated with chronic absenteeism, economically disadvantaged students, higher rates of English language learners, student-teacher ratio, and teacher retention. Higher student enrollments negatively correlated with PSAT participation rates.

Total Enrollment PK-12	(r)	Total Enrollment PK-12	(r)
ACT Science	-0.041	Student Teacher Ratio	<b>.203**</b>
Chronic Absenteeism	<b>.075*</b>	Teacher Retention	<b>.159**</b>
Economically Disadvantaged Students	<b>.074*</b>	Domestic Violence	0.015
English Language Learners	<b>.263**</b>	GINI Index	0.078
Homeless Students	0.008	Crime Rate	0.007
Students in Foster Care	-0.059	Unemployment Rate	0.043
Military Connected Students	0.019	Drug Deaths	-0.016
Migrant Students	-0.024	Child Maltreatment Rate	-0.042
Incidents Per 100 Students Enrolled	-0.071	Preterm Births	-0.017
PSAT Math	<b>.107*</b>	Low Birth weight Infants	0.038
Percent Enrolled in 2 Year Institution - 2019	0.012	Birthrate	<b>.239**</b>
Percent Enrolled in 4 Year Institution - 2019	-0.046	Infant Mortality Rate	<b>-.150**</b>
Percent Enrolled in Any Institution - 2019	-0.061	Poverty	<b>.238**</b>
Percent Enrolled In 2 Year Institution - 2018	0.028	SAT Participation	0.06
Percent Enrolled In 4 Year Institution - 2018	-0.027	ACT Participation	-0.032
Percent Enrolled in Any Institution 2018	-0.02	PSAT Participation	<b>-.173**</b>
Percent Enrolled In 2 Year Institution - 2020	-0.01	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	0.016
Percent Enrolled In 4 Year Institution - 2020	-0.027	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-0.065
Percent Enrolled in Any Institution - 2020	-0.045	ELA Growth	-0.057
SAT - Math	-0.057	Students with Disabilities	<b>-.091**</b>
Math Median Student Growth Percentile	-0.074		

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 6. Correlations between chronic absenteeism and all other need indicators are summarized in table 6. Chronic absenteeism was positively correlated with several need indicators, including higher rates of poverty and homelessness, students in foster care, suicide attempts, domestic violence, lower college enrollment, and math/ELA growth.

Chronic Absenteeism	(r)	Chronic Absenteeism	(r)
Total Enrollment PK-12	.075*	Math Median Student Growth Percentile	-.273**
ACT - Science	-.424**	Student Teacher Ratio	.181**
Chronic Absenteeism	1	Teacher Retention	-.193**
Economically Disadvantaged Students	.525**	Domestic Violence	.124**
English Language Learners	.289**	GINI Index	0.078
Homeless Students	.294**	Crime Rate	0.019
Students in Foster Care	.334**	Unemployment Rate	.479**
Military Connected Students	0.008	Drug Deaths	.286**
Migrant Students	.085*	Child Maltreatment Rate	.291**
Incidents Per 100 Students Enrolled	0.051	Preterm Births	.152**
PSAT - Math	-.533**	Low Birth weight Infants	.137**
Percent Enrolled in 2 Year Institution - 2019	.322**	Birthrate	.237**
Percent Enrolled in 4 Year Institution - 2019	-.568**	Infant Mortality Rate	.088*
Percent Enrolled in Any Institution - 2019	-.624**	Poverty	.475**
Percent Enrolled In 2 Year Institution - 2018	.428**	SAT Participation	-.300**
Percent Enrolled In 4 Year Institution - 2018	-.644**	ACT Participation	-.222**
Percent Enrolled in Any Institution 2018	-.691**	PSAT Participation	-.258**
Percent Enrolled In 2 Year Institution - 2020	.254**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	.189**
Percent Enrolled In 4 Year Institution - 2020	-.573**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	.171**
Percent Enrolled in Any Institution - 2020	-.641**	ELA Growth	-.238**
SAT - Math	-.541**	Students with Disabilities	0.029

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).



**Table 7.** Correlations between students who experience high rates of social and economic adversity and all other need indicators are summarized in table 7. For example, students who experienced economic disadvantages tended to experience high hospitalizations for suicide attempts, domestic violence, substance abuse, and unemployment as adults.

<b>Economically Disadvantaged Students</b>	<b>(r)</b>	<b>Economically Disadvantaged Students</b>	<b>(r)</b>
<b>Total Enrollment PK-12</b>	.074*	Math Median Student Growth Percentile	-.266**
<b>ACT - Science</b>	-.633**	Student Teacher Ratio	.319**
<b>Chronic Absenteeism</b>	.525**	Teacher Retention	-.357**
<b>Economically Disadvantaged Students</b>	1	Domestic Violence	.151**
<b>English Language Learners</b>	.522**	GINI Index	.084*
<b>Homeless Students</b>	.259**	Crime Rate	0.039
<b>Students in Foster Care</b>	.231**	Unemployment Rate	.565**
<b>Military Connected Students</b>	-0.026	Drug Deaths	.341**
<b>Migrant Students</b>	.109**	Child Maltreatment Rate	.266**
<b>Incidents Per 100 Students Enrolled</b>	0.036	Preterm Births	.214**
<b>PSAT - Math</b>	-.680**	Low Birth weight Infants	.220**
<b>Percent Enrolled in 2 Year Institution - 2019</b>	.324**	Birthrate	.327**
<b>Percent Enrolled in 4 Year Institution - 2019</b>	-.598**	Infant Mortality Rate	.103*
<b>Percent Enrolled in Any Institution - 2019</b>	-.663**	Poverty	.649**
<b>Percent Enrolled In 2 Year Institution - 2018</b>	.359**	SAT Participation	-.407**
<b>Percent Enrolled In 4 Year Institution - 2018</b>	-.606**	ACT Participation	-.227**
<b>Percent Enrolled in Any Institution 2018</b>	-.677**	PSAT Participation	-.482**
<b>Percent Enrolled In 2 Year Institution - 2020</b>	.204**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	.231**
<b>Percent Enrolled In 4 Year Institution - 2020</b>	-.616**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	0.044
<b>Percent Enrolled in Any Institution - 2020</b>	-.727**	ELA Growth	-.225**
<b>SAT - Math</b>	-.713**	Students with Disabilities	-.114**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 8. Correlations between students who experience homelessness and all other need indicators are summarized in table 8. Homelessness correlated with a broad range of social, economic, and health-related need indicators, including low academic achievement and employment, drug-related deaths, and higher rates of out-of-home placements.

Homeless Students	(r)	Homeless Students	(r)
Total Enrollment PK-12	0.008	Math Median Student Growth Percentile	-.166**
ACT - Science	-.352**	Student Teacher Ratio	-0.009
Chronic Absenteeism	.294**	Teacher Retention	-0.01
Economically Disadvantaged Students	.259**	Domestic Violence	.129**
English Language Learners	.186**	GINI Index	0.016
Homeless Students	1	Crime Rate	0.039
Students in Foster Care	.301**	Unemployment Rate	.445**
Military Connected Students	-0.011	Drug Deaths	.382**
Migrant Students	0.062	Child Maltreatment Rate	.295**
Incidents Per 100 Students Enrolled	0.052	Preterm Births	.225**
PSAT - Math	-.357**	Low Birth weight Infants	.218**
Percent Enrolled in 2 Year Institution - 2019	.264**	Birthrate	0.082
Percent Enrolled in 4 Year Institution - 2019	-.449**	Infant Mortality Rate	.261**
Percent Enrolled in Any Institution - 2019	-.482**	Poverty	.384**
Percent Enrolled In 2 Year Institution - 2018	.292**	SAT Participation	-.185**
Percent Enrolled In 4 Year Institution - 2018	-.488**	ACT Participation	-.196**
Percent Enrolled in Any Institution 2018	-.544**	PSAT Participation	-.117**
Percent Enrolled In 2 Year Institution - 2020	.207**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	.078*
Percent Enrolled In 4 Year Institution - 2020	-.438**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	0.061
Percent Enrolled in Any Institution - 2020	-.476**	ELA Growth	-.135**
SAT - Math	-.185**	Students with Disabilities	.136**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 9.** Correlations between student incidents and all other need indicators are summarized in table 9. Incidents correlated with higher rates of disability/neurodiversity, foster care placements, and lower college enrollment.

<b>Incidents Per 100 Students Enrolled</b>	<b>(r)</b>	<b>Incidents Per 100 Students Enrolled</b>	<b>(r)</b>
Total Enrollment PK-12	-0.071	Math Median Student Growth Percentile	0.043
ACT - Science	0.074	Student Teacher Ratio	-.201**
Chronic Absenteeism	0.051	Teacher Retention	-0.001
Economically Disadvantaged Students	0.036	Domestic Violence	0.069
English Language Learners	-0.05	GINI Index	0.031
Homeless Students	0.052	Crime Rate	-0.033
Students in Foster Care	.136**	Unemployment Rate	.138**
Military Connected Students	-0.014	Drug Deaths	0.021
Migrant Students	-0.011	Child Maltreatment Rate	0.077
Incidents Per 100 Students Enrolled	1	Preterm Births	-.092*
PSAT - Math	-0.016	Low Birth weight Infants	-.129**
Percent Enrolled in 2 Year Institution - 2019	.147**	Birthrate	-0.011
Percent Enrolled in 4 Year Institution - 2019	-.103*	Infant Mortality Rate	0.062
Percent Enrolled in Any Institution - 2019	-0.045	Poverty	-0.023
Percent Enrolled In 2 Year Institution - 2018	0.097	SAT Participation	0.015
Percent Enrolled In 4 Year Institution - 2018	-.158**	ACT Participation	-0.043
Percent Enrolled in Any Institution 2018	-.180**	PSAT Participation	.109*
Percent Enrolled In 2 Year Institution - 2020	.166**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	0.019
Percent Enrolled In 4 Year Institution - 2020	-.092*	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-0.001
Percent Enrolled in Any Institution - 2020	-0.018	ELA Growth	-0.004
SAT - Math	0.003	Students with Disabilities	.310**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 10.** Correlations between the number of migrant students served at a given school and all other need indicators are summarized in table 10. Schools that reported higher rates of migrant students also tended to have students who experienced high rates of absenteeism, teachers with higher student-teacher ratios, poverty, and suicide attempts.

Migrant Students	(r)	Migrant Students	(r)
Total Enrollment PK-12	-0.024	Math Median Student Growth Percentile	-0.047
ACT - Science	-0.06	Student Teacher Ratio	.080*
Chronic Absenteeism	.085*	Teacher Retention	-0.003
Economically Disadvantaged Students	.109**	Domestic Violence	0.03
English Language Learners	.115**	GINI Index	0.025
Homeless Students	0.062	Crime Rate	-0.002
Students in Foster Care	-0.001	Unemployment Rate	0.039
Military Connected Students	-0.033	Drug Deaths	0.048
Migrant Students	1	Child Maltreatment Rate	0.063
Incidents Per 100 Students Enrolled	-0.011	Preterm Births	0.06
PSAT - Math	-.096*	Low Birth weight Infants	0.054
Percent Enrolled in 2 Year Institution - 2019	.155**	Birthrate	0
Percent Enrolled in 4 Year Institution - 2019	-.161**	Infant Mortality Rate	-0.055
Percent Enrolled in Any Institution - 2019	-.127**	Poverty	.165**
Percent Enrolled In 2 Year Institution - 2018	.131*	SAT Participation	-.138**
Percent Enrolled In 4 Year Institution - 2018	-.139*	ACT Participation	-0.073
Percent Enrolled in Any Institution 2018	-.112*	PSAT Participation	-.120**
Percent Enrolled In 2 Year Institution - 2020	0.086	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	.092*
Percent Enrolled In 4 Year Institution - 2020	-.157**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	.154**
Percent Enrolled in Any Institution - 2020	-.163**	ELA Growth	0.006
SAT - Math	-0.039	Students with Disabilities	-.078*

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

Table 11. Correlations between the number of military-connected students served at a given school and all other need indicators are summarized in table 11. Schools that reported higher rates of military-connected students also tended to report lower rates of income inequality (GINI index), less SAT participation, and higher teacher retention.

Military Connected Students	(r)	Military Connected Students	(r)
Total Enrollment PK-12	0.019	Math Median Student Growth Percentile	0.045
ACT - Science	0.057	Student Teacher Ratio	-0.023
Chronic Absenteeism	0.008	Teacher Retention	.066*
Economically Disadvantaged Students	-0.026	Domestic Violence	-0.009
English Language Learners	0.012	GINI Index	-.092*
Homeless Students	-0.011	Crime Rate	-0.015
Students in Foster Care	0.056	Unemployment Rate	0.006
Military Connected Students	1	Drug Deaths	-0.005
Migrant Students	-0.033	Child Maltreatment Rate	0.02
Incidents Per 100 Students Enrolled	-0.014	Preterm Births	-0.042
PSAT - Math	-0.015	Low Birth weight Infants	-0.015
Percent Enrolled in 2 Year Institution - 2019	0.019	Birthrate	-0.05
Percent Enrolled in 4 Year Institution - 2019	-0.044	Infant Mortality Rate	-0.037
Percent Enrolled in Any Institution - 2019	-0.052	Poverty	-0.067
Percent Enrolled In 2 Year Institution - 2018	0.028	SAT Participation	-.089*
Percent Enrolled In 4 Year Institution - 2018	-0.05	ACT Participation	-0.026
Percent Enrolled in Any Institution 2018	-0.058	PSAT Participation	0.012
Percent Enrolled In 2 Year Institution - 2020	-0.013	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-0.036
Percent Enrolled In 4 Year Institution - 2020	-0.005	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	0.063
Percent Enrolled in Any Institution - 2020	-0.016	ELA Growth	0.007
SAT - Math	.196**	Students with Disabilities	0.015

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 12.** Correlations between poverty and all other need indicators are summarized in table 12. Poverty positively correlated with enrollment, absenteeism, poor maternal health (e.g., preterm births and low birth weight infant), child maltreatment, homelessness, income inequality, domestic violence, crime, unemployment, and fatal outcomes, including infant mortality and drug-related deaths.

Poverty	(r)	Poverty	(r)
Total Enrollment PK-12	.238**	Math Median Student Growth Percentile	-.248**
ACT - Science	-.406**	Student Teacher Ratio	0.046
Chronic Absenteeism	.475**	Teacher Retention	0.01
Economically Disadvantaged Students	.649**	Domestic Violence	.118**
English Language Learners	.483**	GINI Index	.176**
Homeless Students	.384**	Crime Rate	.206**
Students in Foster Care	.307**	Unemployment Rate	.535**
Military Connected Students	-0.067	Drug Deaths	.254**
Migrant Students	.165**	Child Maltreatment Rate	.350**
Incidents Per 100 Students Enrolled	-0.023	Preterm Births	.217**
PSAT - Math	-.448**	Low Birth weight Infants	.209**
Percent Enrolled in 2 Year Institution - 2019	.280**	Birthrate	.165**
Percent Enrolled in 4 Year Institution - 2019	-.511**	Infant Mortality Rate	.090*
Percent Enrolled in Any Institution - 2019	-.572**	Poverty	1
Percent Enrolled In 2 Year Institution - 2018	.304**	SAT Participation	-.313**
Percent Enrolled In 4 Year Institution - 2018	-.539**	ACT Participation	-.208**
Percent Enrolled in Any Institution 2018	-.628**	PSAT Participation	-.302**
Percent Enrolled In 2 Year Institution - 2020	.208**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	.181**
Percent Enrolled In 4 Year Institution - 2020	-.503**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-0.001
Percent Enrolled in Any Institution - 2020	-.583**	ELA Growth	-.162**
SAT - Math	-.549**	Students with Disabilities	0.012

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 13.** Correlations between rates of students in foster care and all other need indicators are summarized in table 13. Schools with higher rates of students in foster care also tended to report higher rates of students who experienced homelessness and chronic absenteeism. Foster care placement positively correlated with child maltreatment, poor infant health, domestic violence, and poverty.

Students in Foster Care	(r)	Students in Foster Care	(r)
Total Enrollment PK-12	-0.059	Math Median Student Growth Percentile	-.148**
ACT - Science	-.456**	Student Teacher Ratio	-.115**
Chronic Absenteeism	.334**	Teacher Retention	-.083*
Economically Disadvantaged Students	.231**	Domestic Violence	.149**
English Language Learners	0.018	GINI Index	-0.012
Homeless Students	.301**	Crime Rate	0.033
Students in Foster Care	1	Unemployment Rate	.402**
Military Connected Students	0.056	Drug Deaths	.369**
Migrant Students	-0.001	Child Maltreatment Rate	.265**
Incidents Per 100 Students Enrolled	.136**	Preterm Births	.243**
PSAT - Math	-.489**	Low Birth weight Infants	.245**
Percent Enrolled in 2 Year Institution - 2019	.334**	Birthrate	.122**
Percent Enrolled in 4 Year Institution - 2019	-.575**	Infant Mortality Rate	.243**
Percent Enrolled in Any Institution - 2019	-.622**	Poverty	.307**
Percent Enrolled In 2 Year Institution - 2018	.288**	SAT Participation	-.307**
Percent Enrolled In 4 Year Institution - 2018	-.536**	ACT Participation	-.151**
Percent Enrolled in Any Institution 2018	-.627**	PSAT Participation	-.119**
Percent Enrolled In 2 Year Institution - 2020	.242**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	0.068
Percent Enrolled In 4 Year Institution - 2020	-.580**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	.084*
Percent Enrolled in Any Institution - 2020	-.651**	ELA Growth	-.211**
SAT - Math	-.315**	Students with Disabilities	.400**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 14** Correlations between rates of students with disabilities and all other need indicators are summarized in table 14. Schools with higher rates of students with disabilities also tended to report higher rates of students who experienced foster care placements, behavioral problems (higher incidents), child maltreatment, lower student-teacher ratios, and income inequality.

Students with Disabilities	(r)
Total Enrollment PK-12	-.091**
ACT - Science	-0.087
Chronic Absenteeism	0.029
Economically Disadvantaged Students	-.114**
English Language Learners	-.126**
Homeless Students	.136**
Students in Foster Care	.400**
Military Connected Students	0.015
Migrant Students	-.078*
Incidents Per 100 Students Enrolled	.310**
PSAT - Math	-.207**
Percent Enrolled in 2 Year Institution - 2019	.199**
Percent Enrolled in 4 Year Institution - 2019	-.219**
Percent Enrolled in Any Institution - 2019	-.181**
Percent Enrolled In 2 Year Institution - 2018	.260**
Percent Enrolled In 4 Year Institution - 2018	-.348**
Percent Enrolled in Any Institution 2018	-.341**
Percent Enrolled In 2 Year Institution - 2020	.237**
Percent Enrolled In 4 Year Institution - 2020	-.220**
Percent Enrolled in Any Institution - 2020	-.151**
SAT - Math	.148*

Students with Disabilities	(r)
Math Median Student Growth Percentile	0.073
Student Teacher Ratio	-.410**
Teacher Retention	.090**
Domestic Violence	0.056
GINI Index	-.098*
Crime Rate	-0.021
Unemployment Rate	.223**
Drug Deaths	.120**
Child Maltreatment Rate	.148**
Preterm Births	-0.021
Low Birth weight Infants	-0.041
Birthrate	0.074
Infant Mortality Rate	.097*
Poverty	0.012
SAT Participation	-.218**
ACT Participation	-0.079
PSAT Participation	.147**
Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-0.039
Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	0.04
ELA Growth	-0.046
Students with Disabilities	1

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).



**Table 15.** Correlations between ACT science scores and all other need indicators are summarized in table 15. Schools with lower ACT science scores reported higher rates of chronic absenteeism, foster care, homelessness, child maltreatment, and suicide attempts.

ACT Science	(r)	ACT Science	(r)
Total Enrollment PK-12	-0.041	Math Median Student Growth Percentile	.273**
ACT - Science	1	Student Teacher Ratio	-.179**
Chronic Absenteeism	-.424**	Teacher Retention	.149*
Economically Disadvantaged Students	-.633**	Domestic Violence	-.378**
English Language Learners	-.212**	GINI Index	-.127*
Homeless Students	-.352**	Crime Rate	-.242**
Students in Foster Care	-.456**	Unemployment Rate	-.411**
Military Connected Students	0.057	Drug Deaths	-.194**
Migrant Students	-0.06	Child Maltreatment Rate	-.188**
Incidents Per 100 Students Enrolled	0.074	Preterm Births	-.143*
PSAT - Math	.645**	Low Birth weight Infants	-0.09
Percent Enrolled in 2 Year Institution - 2019	-.243**	Birthrate	-.265**
Percent Enrolled in 4 Year Institution - 2019	.461**	Infant Mortality Rate	0.004
Percent Enrolled in Any Institution - 2019	.588**	Poverty	-.406**
Percent Enrolled In 2 Year Institution - 2018	-.356**	SAT Participation	.220**
Percent Enrolled In 4 Year Institution - 2018	.502**	ACT Participation	-.266**
Percent Enrolled in Any Institution 2018	.534**	PSAT Participation	.145*
Percent Enrolled In 2 Year Institution - 2020	-.208**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-.140*
Percent Enrolled In 4 Year Institution - 2020	.473**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-0.082
Percent Enrolled in Any Institution - 2020	.609**	ELA Growth	0.148
SAT - Math	.682**	Students with Disabilities	-0.087

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 16.** Correlations between SAT Math scores and all other need indicators are summarized in table 16. Schools with lower ACT science scores reported higher rates of chronic absenteeism, foster care, homelessness, child maltreatment, and suicide attempts.

SAT - Math	(r)	SAT - Math	(r)
Total Enrollment PK-12	-0.057	Math Median Student Growth Percentile	.213**
ACT - Science	.682**	Student Teacher Ratio	-0.03
Chronic Absenteeism	-.541**	Teacher Retention	.286**
Economically Disadvantaged Students	-.713**	Domestic Violence	-.262**
English Language Learners	-.456**	GINI Index	-0.041
Homeless Students	-.185**	Crime Rate	-.409**
Students in Foster Care	-.315**	Unemployment Rate	-.505**
Military Connected Students	.196**	Drug Deaths	-.207**
Migrant Students	-0.039	Child Maltreatment Rate	-.226**
Incidents Per 100 Students Enrolled	0.003	Preterm Births	-.178*
PSAT - Math	.810**	Low Birth weight Infants	-.235**
Percent Enrolled in 2 Year Institution - 2019	-.177**	Birthrate	-.266**
Percent Enrolled in 4 Year Institution - 2019	.543**	Infant Mortality Rate	-0.115
Percent Enrolled in Any Institution - 2019	.618**	Poverty	-.549**
Percent Enrolled In 2 Year Institution - 2018	-.210**	SAT Participation	0.1
Percent Enrolled In 4 Year Institution - 2018	.617**	ACT Participation	0.113
Percent Enrolled in Any Institution 2018	.712**	PSAT Participation	.239**
Percent Enrolled In 2 Year Institution - 2020	-0.023	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-0.093
Percent Enrolled In 4 Year Institution - 2020	.557**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	0.106
Percent Enrolled in Any Institution - 2020	.671**	ELA Growth	0.152
SAT - Math	1	Students with Disabilities	.148*

*r* = Pearson Correlation Coefficient  
 \* Correlation is significant at the 0.05 level (2-tailed).  
 \*\* Correlation is significant at the 0.01 level (2-tailed).

Table 17. ELA Growth scores were negatively correlated with chronic absenteeism, social and economic adversity, child maltreatment, and suicide attempts requiring emergency medical treatment and positively correlated with Math Growth scores.

ELA Growth	(r)	ELA Growth	(r)
Total Enrollment PK-12	-0.057	Math Median Student Growth Percentile	.473**
ACT - Science	0.148	Student Teacher Ratio	-0.084
Chronic Absenteeism	-.238**	Teacher Retention	-0.02
Economically Disadvantaged Students	-.225**	Domestic Violence	-0.077
English Language Learners	-0.048	GINI Index	0.02
Homeless Students	-.135**	Crime Rate	-0.077
Students in Foster Care	-.211**	Unemployment Rate	-.232**
Military Connected Students	0.007	Drug Deaths	-.220**
Migrant Students	0.006	Child Maltreatment Rate	-.202**
Incidents Per 100 Students Enrolled	-0.004	Preterm Births	-.163**
PSAT - Math	.297**	Low Birth weight Infants	-.176**
Percent Enrolled in 2 Year Institution - 2019	-.288**	Birthrate	-0.095
Percent Enrolled in 4 Year Institution - 2019	.400**	Infant Mortality Rate	-.180**
Percent Enrolled in Any Institution - 2019	.376**	Poverty	-.162**
Percent Enrolled In 2 Year Institution - 2018	-.298**	SAT Participation	0.12
Percent Enrolled In 4 Year Institution - 2018	.383**	ACT Participation	.208**
Percent Enrolled in Any Institution 2018	.363**	PSAT Participation	.141*
Percent Enrolled In 2 Year Institution - 2020	-.236**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-0.062
Percent Enrolled In 4 Year Institution - 2020	.350**	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-.103*
Percent Enrolled in Any Institution - 2020	.334**	ELA Growth	1
SAT - Math	0.152	Students with Disabilities	-0.046

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 18.** Correlations between Math median student growth and all other need indicators are summarized in table 18. Math growth scores were positively correlated with PSAT/SAT/ACT, college enrollment, and teacher retention and negatively correlated with poverty, suicide attempts, and child maltreatment.

<b>Math Median Student Growth Percentile</b>	<b>(r)</b>
Total Enrollment PK-12	-0.074
ACT - Science	.273**
Chronic Absenteeism	-.273**
Economically Disadvantaged Students	-.266**
English Language Learners	-.110**
Homeless Students	-.166**
Students in Foster Care	-.148**
Military Connected Students	0.045
Migrant Students	-0.047
Incidents Per 100 Students Enrolled	0.043
PSAT - Math	.476**
Percent Enrolled in 2 Year Institution - 2019	-.272**
Percent Enrolled in 4 Year Institution - 2019	.409**
Percent Enrolled in Any Institution - 2019	.403**
Percent Enrolled In 2 Year Institution - 2018	-.312**
Percent Enrolled In 4 Year Institution - 2018	.479**
Percent Enrolled in Any Institution 2018	.502**
Percent Enrolled In 2 Year Institution - 2020	-.272**
Percent Enrolled In 4 Year Institution - 2020	.400**
Percent Enrolled in Any Institution - 2020	.379**
SAT - Math	.213**

<b>Math Median Student Growth Percentile</b>	<b>(r)</b>
Math Median Student Growth Percentile	1
Student Teacher Ratio	-.111**
Teacher Retention	.136**
Domestic Violence	-0.072
GINI Index	0.03
Crime Rate	0.008
Unemployment Rate	-.236**
Drug Deaths	-.118*
Child Maltreatment Rate	-.222**
Preterm Births	-.163**
Low Birth weight Infants	-.131**
Birthrate	0.014
Infant Mortality Rate	-.194**
Poverty	-.248**
SAT Participation	.249**
ACT Participation	.121*
PSAT Participation	.196**
Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-.103*
Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-.111**
ELA Growth	.473**
Students with Disabilities	0.073

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 19.** Correlations between PSAT Math and all other need indicators are summarized in table 19. PSAT Math scores were positively correlated with Math and ELA Growth, college enrollment, and ACT/SAT scores.

PSAT Math	(r)
Total Enrollment PK-12	.107*
ACT - Science	.645**
Chronic Absenteeism	-.533**
Economically Disadvantaged Students	-.680**
English Language Learners	-.267**
Homeless Students	-.357**
Students in Foster Care	-.489**
Military Connected Students	-0.015
Migrant Students	-.096*
Incidents Per 100 Students Enrolled	-0.016
PSAT - Math	1
Percent Enrolled in 2 Year Institution - 2019	-.582**
Percent Enrolled in 4 Year Institution - 2019	.762**
Percent Enrolled in Any Institution - 2019	.732**
Percent Enrolled In 2 Year Institution - 2018	-.638**
Percent Enrolled In 4 Year Institution - 2018	.784**
Percent Enrolled in Any Institution 2018	.743**
Percent Enrolled In 2 Year Institution - 2020	-.522**
Percent Enrolled In 4 Year Institution - 2020	.768**
Percent Enrolled in Any Institution - 2020	.760**
SAT - Math	.810**

PSAT Math	(r)
Math Median Student Growth Percentile	.476**
Student Teacher Ratio	0.023
Teacher Retention	0.057
Domestic Violence	-.163**
GINI Index	0.048
Crime Rate	-.324**
Unemployment Rate	-.548**
Drug Deaths	-.360**
Child Maltreatment Rate	-.273**
Preterm Births	-.269**
Low Birth weight Infants	-.229**
Birthrate	-.251**
Infant Mortality Rate	-.178**
Poverty	-.448**
SAT Participation	.389**
ACT Participation	.416**
PSAT Participation	0.075
Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-.227**
Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-.159**
ELA Growth	.297**
Students with Disabilities	-.207**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 20.** Correlations between teacher retention and all other need indicators are summarized in table 20. Teacher retention positively correlated with college enrollment rates and academic performance. Teacher retention was higher when schools reported lower student-teacher ratios.

Teacher Retention	(r)	Teacher Retention	(r)
Total Enrollment PK-12	.159**	Math Median Student Growth Percentile	.136**
ACT - Science	.149*	Student Teacher Ratio	-.294**
Chronic Absenteeism	-.193**	Teacher Retention	1
Economically Disadvantaged Students	-.357**	Domestic Violence	0.045
English Language Learners	-.131**	GINI Index	-0.047
Homeless Students	-0.01	Crime Rate	0.001
Students in Foster Care	-.083*	Unemployment Rate	0.071
Military Connected Students	.066*	Drug Deaths	.094*
Migrant Students	-0.003	Child Maltreatment Rate	0.065
Incidents Per 100 Students Enrolled	-0.001	Preterm Births	0.037
PSAT - Math	0.057	Low Birth weight Infants	0.017
Percent Enrolled in 2 Year Institution - 2019	.099*	Birthrate	0.039
Percent Enrolled in 4 Year Institution - 2019	-0.027	Infant Mortality Rate	0.046
Percent Enrolled in Any Institution - 2019	0.036	Poverty	0.01
Percent Enrolled In 2 Year Institution - 2018	.128*	SAT Participation	-0.078
Percent Enrolled In 4 Year Institution - 2018	-0.045	ACT Participation	-0.063
Percent Enrolled in Any Institution 2018	0.04	PSAT Participation	.120**
Percent Enrolled In 2 Year Institution - 2020	.140**	Non-fatal suicide attempts/self-inflicted injuries resulting in hospitalization - Rate	-0.02
Percent Enrolled In 4 Year Institution - 2020	-0.018	Non-fatal suicide attempts/self-inflicted injuries treated in ER & released - Rate	-0.004
Percent Enrolled in Any Institution - 2020	0.069	ELA Growth	-0.02
SAT - Math	.286**	Students with Disabilities	.090**

*r* = Pearson Correlation Coefficient

\* Correlation is significant at the 0.05 level (2-tailed).

\*\* Correlation is significant at the 0.01 level (2-tailed).

*Principal Components Analysis*

Table 21. Principal components analysis was used to identify at-risk school districts to obtain a weighted, standardized composite score of the data components. The PCA examines correlations among variables such that highly correlated variables may be combined to form a single composite score that can be used for measurement and analysis. An eight-factor solution using varimax rotations of the factor loadings matrix explained 96% of the variance among the school needs indicators.

Interpretation of the principal components in Table 21 is based on finding which variables are most strongly correlated with each component, specifically which of these numbers are greater than and equal to a component loading of .300 in either direction (positive or negative). Generally, loadings less than .300 are removed from the final need indicators index scores. However, all the indicators were included in the index because they contributed to the PCA model. Several variables in Table 19 had cross-loadings or loadings on multiple components. Whenever possible, the highest loadings were prioritized, such as those closest to 0.950. The primary component loadings for each need indicator are highlighted in orange and blue in boldface.

Need Indicator	Principal Component Number							
	1	2	3	4	5	6	7	8
Foster Care	<b>0.949</b>			-0.148			-0.242	
ACT - Science	<b>-0.924</b>		-0.102			0.215	-0.126	
Migrant Students	<b>0.893</b>	-0.251		-0.255			-0.177	0.148
Chronic Absenteeism	<b>0.879</b>		0.183		-0.156	0.216	-0.14	0.133
GINI Index	<b>0.850</b>		0.129	0.153		-0.343	0.115	
ACT Participation	0.846	-0.325		-0.328			-0.143	0.193
Poverty	<b>0.816</b>	0.309	0.391			-0.107	0.154	0.174
Enrolled In Higher Ed -2020	<b>-0.800</b>	-0.519	-0.221		-0.138			
Enrolled In Higher Ed - 2019	<b>-0.790</b>	-0.524	-0.184	-0.116		-0.101	0.162	
SAT - Math	<b>-0.704</b>	-0.322	-0.485		-0.112		-0.256	
SAT – Reading and Writing	<b>-0.697</b>	-0.408	-0.445		-0.145	0.117	-0.27	
Domestic Violence	<b>0.675</b>	-0.298	0.17	0.279		-0.379	-0.205	-0.197
Crime Rate	<b>0.465</b>	0.180	0.365	0.333	0.457	-0.436	-0.312	
PSAT Participation		<b>-0.850</b>	0.117	-0.139	-0.143	-0.189		0.23
English Language Learners		<b>0.821</b>	0.219		0.158	-0.218		0.422
Enrollment PK-12	0.103	<b>0.727</b>	0.427	0.138	0.38	-0.127	0.293	
Incidents Per 100 Students	0.383	<b>-0.705</b>	0.173		-0.457			
Economically Disadvantaged Students	0.553	<b>0.679</b>	0.354		0.118	-0.113	-0.15	0.212
Enrolled In Higher Ed -2018	<b>-0.635</b>	<b>-0.637</b>	-0.393					0.102
Teachers with Doctorate		0.601	0.289	0.131	0.322	0.581		-0.101
Homeless Students	0.439	0.584		-0.165	-0.113			<b>0.559</b>
Suicide Attempts Hospitalization - Rate	0.377	0.163	<b>0.825</b>	-0.167		0.244	0.199	
PSAT - Math	-0.537		<b>-0.792</b>	0.233				0.106
Unemployment Rate	0.427	0.365	<b>0.778</b>		0.135		-0.14	0.159
Drug Deaths	0.125		<b>0.765</b>	0.387	0.371		-0.243	-0.18
Infant Mortality	-0.286		<b>0.762</b>		0.324		-0.13	-0.446
Child Maltreatment	0.535	0.169	<b>0.656</b>		0.188	-0.219	-0.387	
Teachers with Bachelors				<b>0.98</b>				-0.147
Teachers with Masters		-0.138		<b>-0.968</b>		-0.112		0.153
Students with Disabilities	0.266		0.279	<b>-0.646</b>	-0.545	0.134	-0.269	
Teacher Retention	-0.405	-0.497	-0.284	0.537		0.248	-0.123	0.333

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Low Birth Weight Infants	0.141	0.340	0.196		<b>0.794</b>	0.288	0.153	0.277
Preterm Births	0.177	0.354	0.355	-0.128	<b>0.784</b>	0.23		0.16
Student Teacher	-0.233	0.191	0.157	0.128	<b>0.726</b>	0.231	0.21	-0.372
Military Connected Students	-0.150		-0.15		0.215	<b>0.913</b>		
ELA Median Student Growth	0.100		-0.377	-0.2	-0.19	-0.662	<b>0.462</b>	-0.112
SAT Participation					0.19		<b>0.943</b>	0.164
Math Median Student Growth	-0.384	-0.233	-0.417				<b>0.702</b>	-0.251
Suicide attempts ER - Rate	-0.117		0.123	0.256	-0.123			<b>-0.933</b>

**Principal Component 1**

The first principal component is positively correlated with 7 of the original key indicators of Interest:

Component 1 = *Foster Care + Migrant Students + Chronic Absenteeism + Income Inequality (GINI Index) + Poverty + Domestic Violence + Crime Rate.*

These findings suggest that the 7 variables tend to increase (and vary) together. The first component in the positive direction can be viewed as students with the highest needs across school districts.

The first principal component is negatively correlated with 6 of the original indicators:

Component 1 = *ACT Science – College Enrollment for 2018 through 2020 – SAT Math – SAT Reading and Writing*

As component 1 increases (higher needs), the 6 indicators tend to decrease (and vary) together. The first component in the negative direction can be viewed as indicators adversely affected by higher needs across school districts.



## References

- Bergstrand, K., Mayer, B., Brumback, B., & Zhang, Y. (2015). Assessing the relationship between social vulnerability and community resilience to hazards. *Social Indicators Research*, 122(2), 391-409.
- Castro, M., Expósito-Casas, E., López-Martín, E., Lizasoain, L., Navarro-Asencio, E., & Gaviria, J. L. (2015). Parental involvement on student academic achievement: A meta-analysis. *Educational Research Review*, 14, 33-46.
- Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-efficacy, satisfaction, and academic achievement: the mediator role of Students' expectancy-value beliefs. *Frontiers in Psychology*, 8, 1193.
- Friesen, C. E., Seliske, P., & Papadopoulos, A. (2016). Using principal component analysis to identify priority neighbourhoods for health services delivery by ranking socioeconomic status. *Online Journal of Public Health Informatics*, 8(2).
- Gewers, F. L., Ferreira, G. R., Arruda, H. F. D., Silva, F. N., Comin, C. H., Amancio, D. R., & Costa, L. D. F. (2021). Principal component analysis: A natural approach to data exploration. *ACM Computing Surveys (CSUR)*, 54(4), 1-34.
- Hasan, B. M. S., & Abdulazeez, A. M. (2021). A review of principal component analysis algorithm for dimensionality reduction. *Journal of Soft Computing and Data Mining*, 2(1), 20-30.
- Hill, N. E. (2015). Including fathers in the picture: A meta-analysis of parental involvement and students' academic achievement. *Journal of Educational Psychology*, 107(4), 919.
- Huang, D. D., Shehada, M. Z., Chapple, K. M., Rubalcava, N. S., Dameworth, J. L., Goslar, P. W., ... & Weinberg, J. A. (2019). Community Need Index (CNI): a simple tool to predict emergency department utilization after hospital discharge from the trauma service. *Trauma Surgery & Acute Care Open*, 4(1), e000239.
- Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: a review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences*, 374(2065), 20150202.
- Kern, M. L., Waters, L. E., Adler, A., & White, M. A. (2015). A multidimensional approach to measuring well-being in students: Application of the PERMA framework. *The Journal of Positive Psychology*, 10(3), 262-271.
- Kim, K. R., & Seo, E. H. (2018). The relationship between teacher efficacy and students' academic achievement: A meta-analysis. *Social Behavior and Personality: An International Journal*, 46(4), 529-540.
- Kotzee, I., & Reyers, B. (2016). Piloting a social-ecological index for measuring flood resilience: A composite index approach. *Ecological Indicators*, 60, 45-53.

## Office of Applied Research & Evaluation

Kraft, M. A., Marinell, W. H., & Shen-Wei Yee, D. (2016). School organizational contexts, teacher turnover, and student achievement: Evidence from panel data. *American Educational Research Journal*, 53(5), 1411-1449.

Leithwood, K., Sun, J., & McCullough, C. (2019). How school districts influence student achievement. *Journal of Educational Administration*, 57(5), 519-539.

Naik, N., & Purohit, S. (2021). District-Wise Educational Development Index Using Principal Component Analysis Technique. *Zeichen Journal*, 7(6), 55-61.

Reckien, D. (2018). What is in an index? Construction method, data metric, and weighting scheme determine the outcome of composite social vulnerability indices in New York City. *Regional Environmental Change*, 18(5), 1439-1451.

Remington, P. L., Catlin, B. B., & Gennuso, K. P. (2015). The county health rankings: rationale and methods. *Population Health Metrics*, 13(1), 1-12.

Salinas-Miranda, A. A., Salemi, J. L., King, L. M., Baldwin, J. A., Berry, E., Austin, D. A., ... & Salihi, H. M. (2015). Adverse childhood experiences and health-related quality of life in adulthood: revelations from a community needs assessment. *Health and Quality of Life Outcomes*, 13(1), 1-12.

Shadowen, H., O'Loughlin, K., Cheung, K., Thornton, W., Richards, A., Sabo, R., ... & Krist, A. H. (2022). Exploring the relationship between community program location and community needs. *The Journal of the American Board of Family Medicine*, 35(1), 55-72.

Stoto, M. A., Davis, M. V., & Atkins, A. (2019). Making better use of population health data for community health needs assessments. *eGEMs*, 7(1).

U.S. Department of Health and Human Services (2018). A guide to conducting the maternal, infant, and early childhood home visiting program statewide needs assessment update. Health Resources and Services Administration, Education Development Center.

<https://www.mchneeds.net/documents/MIECHV%20Needs%20Assessment%20Update%20Guide.pdf>

Wolters, C. A., & Hussain, M. (2015). Investigating grit and its relations with college students' self-regulated learning and academic achievement. *Metacognition and Learning*, 10(3), 293-311.

Appendix

State of New Jersey Department of Education Data Link: <https://rc.doe.state.nj.us/download>