Objectives, Scope, and Methodology Brief

This CEE research study seeks to (1) identify schools that have a high level of academic performance and improvement among American Indian/Alaskan Native, Black, Latino, and students experiencing poverty in Washington state during the past five years, and (2) determine how these schools have reached this level of excellence. The study used various statistical techniques to identify these "outlier" schools. Researchers followed up through delving into the schools' context, history, data, programs, partnerships, systems, and expenditures to identify the factors that account for their outlier performance and improvement. When this process is completed, the knowledge gained will be documented in reports and media that can be used by schools, school districts, and professional organizations to enhance their own continuous improvement efforts. This Brief explains the guiding principles, project scope, and methods used to identify the outlier schools and the steps to illuminate factors contributing to their success. It also discusses Project adaptations to school closures following COVID-19.

Research Principles, Scope, and Process

As a holistic landscape study, all parts of the public-school system in Washington state were considered, with the primary unit of analysis being the school building. To ensure that schools chosen represented the wide geographical diversity of Washington state, the selection of outliers was stratified using the Educational Data Research Center (ERDC) simplified categories. Identified schools are the state's large urban centers and their suburbs as well as in medium-size cities, small rural communities, and American Indian communities. The district context was also considered when identifying high performing and improving schools by taking into account their locality (urban to rural), the grade level of the outlier, and the group of interest (American Indian, Black, Latino, or students experiencing poverty (low income students)). The 18-month study aims to identify the schools, investigate them in close detail, and then synthesize the common themes in the school into reports and media that will benefit education stakeholders in the state.

The study has three phases. **Phase 1** was devoted to identifying the outlier schools (those "beating the odds") for the groups of interest. A total of 38 schools were selected and represent districts of different sizes, locations, and urbanicities. In **Phase 2**, a team of researchers has been gathering details from each school to determine the factors that account for the schools' excellence related to the target student populations. The study is grounded in research and informed by the work of the Carnegie Foundation (Core Parameters for Continuous Improvement), the Consortium for Chicago School Research (Five Essentials of School Improvement), and the Bill & Melinda Gates foundation (Network Support Initiative). **Phase 3** is devoted to the synthesis of the lessons learned from these schools and the production of reports that describe these lessons.

Two advisory teams are helping the CEE research team with the overall project design and data analysis. Members of these teams are leaders in state agencies, school districts, educational service districts, professional associations serving public education in Washington State, and the communities of the types of students being studied (American Indian, Black, Latino, and students experiencing poverty).

Research Data and Methods - Phase 1

CEE worked with Washington's Office of Superintendent of Public Instruction (OSPI) to secure a data sharing agreement that provided access to statewide quantitative educational measures at the student, school, and district levels. Each measure required the availability of disaggregated data for each student group. Data from the Washington School Improvement Framework (WSIF), the state's accountability system, were used to measure some variables for the targeted student groups. Separate analyses were conducted for each of the

seven indicators (dependent variables) to determine their relative performance levels. These indicators were as follows:

- English/Language Arts and Mathematics performance on the state's Smarter Balanced Assessment (percent meeting standard)
- Regular attendance (percent attending school at least 90% of the time)
- English Language progress (percent making sufficient progress toward proficiency based on ELPA21 assessment and the data from the Washington School Improvement Framework)
- Ninth graders on-track to graduate (percent passing all credits attempted in 9th grade)
- Dual-credit participation (percent completing at least one dual-credit class). Based on enrollment data in dual-credit classes-- data from the Washington School Improvement Framework.
- Five-year cohort adjusted graduation rate (percent graduating in five years).

The school-level results for each indicator were converted into Z-scores (number of standard deviations above/below the mean) to put each indicator on the same standardized scale. Each indicator was then analyzed on the basis of one contextual variable (independent variable): the percentage of students that qualified for a free or reduced-price meal (FRL), a proxy for family income, which is commonly used in research studies because of its very strong predictive relationship with student performance.

The seven indicators were then combined into one composite measure. Three indicators were only available for high schools. Based on input from the Advisory teams, the research team used a weighting system to create the composite measure for elementary, middle, and high schools and for the district (see table 1).

### Table 1: School and District Weights for Indicators

Indicator	Weight for Elementary & Middle School	Weight for High School	Weight for Districts	Data Available
ELA (SBA)	28%	14%	18%	Grades 3-8 and 10
Math (SBA)	28%	14%	18%	Grades 3-8 and 10
EL Progress (WSIF)	16%	6%	11%	All Grades
Attendance (WSIF)	28%	12%	18%	All Grades
Dual-Credit Participation	NA	12%	7%	High School Only
9th Graders On-Track	NA	18%	11%	High School Only
Graduation Rate	NA	28%	18%	High School Only
Note: Schools which span Elem/MS and HS use the high school weights				

To measure improvement, the study used a baseline defined as the average of the spring 2015, 2016, and 2017 data. Trends for each school were then calculated between the baseline and the spring 2019 data. The computations were performed "*blind"* to ensure that district and school names did not influence the results. The 11-digit ID number from the National Center for Educational Statistics (NCES) was the only identifier tied to each school and district.

Regression models revealed the relationships between each indicator and the percentage of students experiencing poverty, based on student-level data. Regressions were run for each indicator by year, student group and school. For indicators that had data by grade, regressions were run for each grade and then aggregated to the school level. There had to be at least 20 students in a group to generate results.

Residual values (the distance between the predicted performance and the actual performance) were calculated for each indicator by year, student group, and school. This determined how far above or below the actual performance was compared to the predicted performance. For example, in the figure to the right, performance declines (Y-axis) as the percentage of students experiencing poverty increase (X-axis). The distance from the line of the predicted level to the dot directly above it (a school that is an extreme outlier in the upper right area of the figure) is the residual, a measure of how far the school was "beating the odds." Schools were selected both from districts that showed overall outlier status (top schools in those districts) as well as individual schools who showed outlier status independently of district performance.
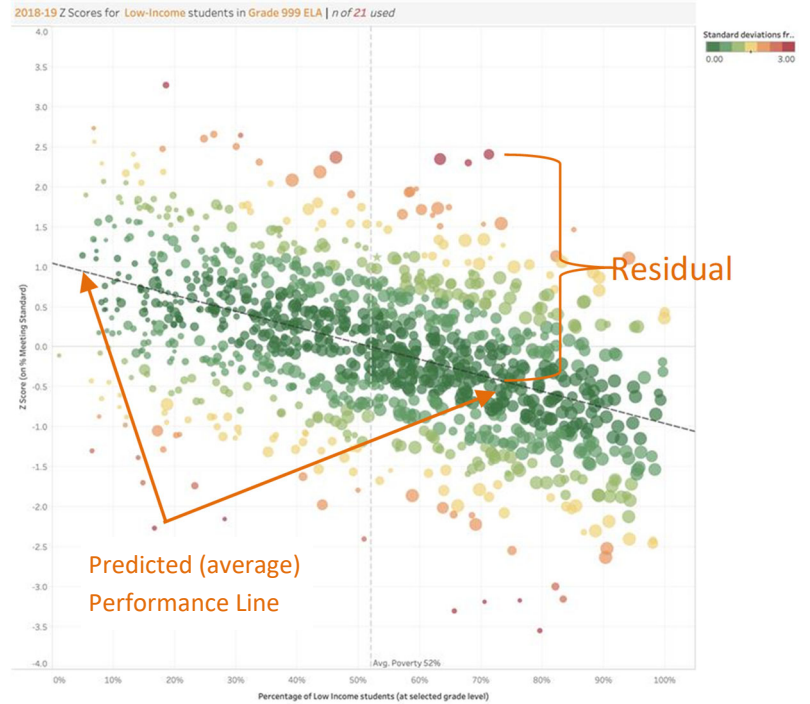
Phase 1 Expansion - Summer 2020

As the impact of COVID-19 manifest itself across the state, the extended time frame of the study led CEE to add five additional high schools to the study. Working with our advisory team, researchers supplemented the analysis described above and used postsecondary enrollment data (percentage of students enrolled in either two-year or four-year programs one year after high school graduation) from ERDC. A similar outlier technique (as described above) was utilized on the 2015, 2016, 2017, and 2018 post-secondary enrollment data. The outliers which had the highest improving trends across these years resulted in five high schools being added to the research for Phase 2. It should be noted that all eleven high schools already identified in Phase 1 showed that they were also outliers for postsecondary enrollment data.

Phase 1 Results

Schools were selected when they had the highest improvement trend of the yearly residual values for a student group. A total of 38 schools across 23 districts were identified. The total number of districts in the state in each geographical setting is indicated in Table 2 below. The outliers identified are well represented across each geographical setting. The outlier schools by ESD and student group are indicated in the tables below. Some schools had more than one student group identified.

By ESD	
ESD 101	2
ESD 105	7
ESD 112	1
ESD 113	2
ESD 114	1
ESD 121	17
ESD 123	1
ESD 171	6
ESD 189	1
Total	**38**

By Level	
Elementary	20
Middle School	4
High School	14
Total	**38**

By Urbanicity	
Large Metro	6
Metro Suburb	10
Mid Size	4
Urban Fringe	6
Rural / Distant	12

Designated For	
American Indian	2
Black	9
Latino	22
Students experiencing poverty	19

13 Schools are Designated for 2 or more groups

Research Data and Methods - Phase 2

Phase 2 is adapted from the *Grounded Theory* methodology for analysis of qualitative data discussed in Charmaz, K. *Constructing Grounded Theory* (2nd Ed.). Sage: London. pp. 42-71. At their core, grounded theory methods consist of systemic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data themselves. Grounded theory begins with inductive and then uses iterative cycles of data acquisition and data analysis using comparative techniques within the data to illuminate the critical emerging themes and factors contributing to the outlier status of these schools.

Phase 2 started with a foundational literature review to identify preceding research in related areas and similar studies. This review led us to focus on the research from the Carnegie Foundation (Core Parameters for Continuous Improvement), the Consortium for Chicago School Research (Five Essentials of School Improvement), and the Bill & Melinda Gates foundation (Network Support Initiative).

The qualitative data used in Phase 2 includes (1) demographics on the community/neighborhood context, (2) school and district artifacts such as school improvement plans and strategic plans, (3) educational effectiveness surveys of all staff, students, and parents, and (4), extensive interviews and focus groups with staff, students, parents, and district and building administrators. Analysis starts with the theories generated from the literature review. Interviews and focus groups investigate based on the initial theories in the research questions. As data is analyzed, the theories evolve and emerge from the additional analysis. In the iterative cycle earlier data is reanalyzed based on the emerging themes. The comparative process looks for the triangulation between the four areas of qualitative data vis-à-vis the emerging themes.

Impact of COVID-19

Phase 1 (identification of outliers) was completed just as the COVID-19 pandemic caused the widespread disruption and eventual closure of schools in Washington State. During this time, the research team was in the process of notifying schools designated in Phase 1 and inviting them to participate in Phase 2. The pandemic and its disruption of lives and the processes of education have had a profound impact on this study. Working with the Advisory teams and the Phase 2 schools, the research team is adapting Phase 2 processes to the largely virtual environment. While many research projects have significantly slowed during COVID-19, only 2 schools identified in Phase 1 declined to participate in Phase 2. The other 38 have been actively involved in the Phase 2 processes and the schools, the school leadership, and the Advisory team have been instrumental in assisting the research team in adapting the Phase 2 qualitative approach to a virtual environment.

Results Dissemination - Phase 3

The original project schedule called for Phase 2 to be complete by December 2020. Due to the impact of COVID-19 and the pressures placed on schools in the spring of 2020, we have extended our completion date to April 2021. At that time, we will use a variety of reports and media to disseminate the knowledge gained so that the findings can be used by schools, school districts, and professional organizations to enhance their own continuous improvement efforts.